

MONTANA

BOARD OF INVESTMENTS

REGULAR BOARD MEETING
Zoom Conference
February 16-17, 2022

COMMITTEE MEETINGS

- A. Audit Committee – Maggie Peterson, Chair** **9:30 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
 2. Approval of November 30, 2021, Committee Minutes
 3. Executive Director Comments
 4. Audit Checklist
 5. Ethics Policy
 6. Financial Audit Reports
 7. Litigation Update – **Closed Session**
- B. Loan Committee – Jack Prothero, Chair** **10:30 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
 2. Approval of November 30, 2021, Committee Meeting Minutes
 3. Executive Director Comments
 4. INTERCAP 2.0 Update
- C. Human Resource Committee – Terry Cohea, Chair** **11:00 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
 2. Executive Director Comments
 3. Recommendation to Hire Director of Public Markets – **Decision**
 4. Recommendation to Hire Investment Officer – **Decision**
 5. Personnel Matters – **Closed Session**

BREAK FOR LUNCH **12:00 PM**

- Tab 1 CALL TO ORDER – Karl Englund, Chairman** **1:00 PM**
- A. Notice of Video Recording of Meeting
 - B. Roll Call
 - C. Public Comment – *Public Comment on issues with Board Jurisdiction*
 - D. Approval of the November 30 – December 1, 2021, Regular Meeting Minutes and the December 17, 2021, Special Meeting Minutes
 - E. Introduction of New Staff – Ian Horwood, Investment Analyst
 - F. Administrative Business
 1. Audit Committee Report
 2. Loan Committee Report
 3. Human Resource Committee Report - **Decisions**
 - G. Comments from TRS and PERS Board Members
 - H. Comments from Board Legislative Liaisons
- Tab 2 EXECUTIVE DIRECTOR REPORTS – Dan Villa** **1:30 PM**
- A. Member Requests from Prior Meeting
 - B. Monthly Snapshot
 - C. Disaster Recovery and Emergency Preparedness
 - D. Outreach Efforts for the Board – In-State and INTERCAP Programs

Tab 3 NEW INVESTMENT POLICY STATEMENTS – Kirsten Haswell 1:45 PM
A. UM Lubrecht Experimental Forest
B. UM Kyiyo Pow Wow

Tab 4 INVESTMENTS – NEW COMMITMENTS 2:00 PM
A. Private Investments – Michael Nguyen
B. Real Estate/Real Assets – Ethan Hurley, CAIA

BREAK 2:45 PM

Tab 5 RVK, Inc. 3:00 PM

Tab 6 INVESTMENT UPDATE 4:00 PM

ADJOURN

AGENDA DAY 2

RECONVENE AND CALL TO ORDER – Karl Englund, Chairman 9:30 AM
A. Roll Call
B. Notice of Video Recording and Meeting
C. Public Comment – *Public Comment on issues within Board Jurisdiction*

Tab 7 DEFINED CONTRIBUTION/DEFERRED COMPENSATION EDUCATION - 9:45 AM
Dore Schwinden, Executive Director; Bill Holahan, Deputy Director – Montana Public Employees Retirement System

BREAK 10:30 AM

Tab 8 SHORT TERM INVESTMENT POOL – Fixed Income Team 10:45 AM

Tab 9 MONTANA LOAN PROGRAM – Doug Hill 11:30 AM
A. Commercial and Residential Portfolios Report

Tab 10 BOND PROGRAM – Louise Welsh 11:45 AM
A. INTERCAP
1. Activity Report
2. Staff Approved Loans Report

RECAP OF STAFF TO DO LIST AND ADJOURNMENT – Karl Englund, Chairman 12:00 PM

Appendix

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

MONTANA

BOARD OF INVESTMENTS

REGULAR BOARD MEETING MINUTES

November 30 – December 1, 2021

Meeting recordings are posted at: <https://leg.mt.gov/lsd/>

Call to Order

The Board of Investment's meeting was called to order by Chairman Karl Englund at 11:30 a.m. on Tuesday, November 30, 2021.

Attendance

Board Members Present: Chairman Karl Englund, Bruce Nelson, Diane Fladmo, Maggie Peterson, Mark Barry, Jeff Meredith, Terry Cohea

Board Members Absent: Jack Prothero

Legislative Liaisons Present: Rep. Ken Walsh, Sen. Ryan Lynch

Board Staff Present: Dan Villa, Dan Whyte, Dan Zarlring, Doug Hill, Emily Kovarik, Eron Krpan, Ethan Hurley, Jason Brent, John Carpenter, John Romasko, Jon Putnam, Julie Feldman, Kelsey Gauthier, Kirsten Haswell, Lindsay Ford, Louise Welsh, Michael Nguyen, Peggy MacEwen, Roberta Diaz, Sam Holman, Savannah Morgan, Sheli Jacoby, Steve Strong, Tammy Lindgren, Teri Kolnik, Thomas Winkler, Tim House, Brenda Thomas

Interested Parties Present: Mark Higgins, Becky Gratsinger, Jim Voytko, Eryn Bacewich, Spencer Crabb – RVK; Dore Schwinden – MPERA; Shawn Graham – TRS; Greg Sawyer – OBPP; Kevin Balaod, Aaron Weitzman – PEI Media; Adam Rees – With Intelligence; Cliff Sheets – Member of the Public and former Chief Investment Officer

November 30, 2021

Tab 1 CALL TO ORDER (08:00:10)

A. Notice of Video Recording (08:00:16)

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

B. Roll Call (08:00:25)

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

C. Public Comment (08:01:13)

Chairman Englund asked for public comment. None was given.

D. Approval of Minutes (08:01:32)

October 19-20, 2021, Regular Board Meeting

Member Peterson moved to approve. Member Fladmo seconded the motion which passed unanimously.

E. Administrative Business

1. Audit Committee Report (08:02:05)

Chair Peterson briefed the Board.

- Chair Peterson moved to approve the draft FY 2021 Financial Statements as submitted. Member Barry seconded the motion which passed unanimously.
- Chair Peterson moved to approve the draft FY 2021 Annual Report with a few grammatical changes. Member Nelson seconded the motion which passed unanimously. Member Barry recused himself from voting.
- Chair Peterson moved to approve the Annual Statutory Compliance Checklist as submitted. Member Fladmo seconded the motion which passed unanimously.
- Chair Peterson moved to approve the Annual Audit Charter Compliance as submitted. Member Nelson seconded the motion which passed unanimously.

2. Loan Committee Report (08:06:48)

Acting Chair Nelson briefed the Board.

- Acting Chair Nelson moved to adopt Bond Resolution 249 – INTERCAP Taxable Bond Series. Member Peterson seconded the motion which passed unanimously.
- Acting Chair Nelson moved to approve Big Sky School District's loan request. Member Cohea seconded the motion which passed unanimously.
- Acting Chair Nelson moved to approve Greenfields Irrigation District's loan request. Member Barry seconded the motion which passed unanimously.

F. Comments from Pension Board Members (08:12:50)

Member Peterson briefed the Board.

G. Comments from Board Legislative Liaisons (08:13:20)

Rep. Walsh briefed the Board.

Tab 2 EXECUTIVE DIRECTOR REPORTS (08:15:16)

A. Member Requests or Follow up from Prior Meeting

Executive Director Villa briefed the Board.

B. Monthly Snapshot

Executive Director Villa briefed the Board.

C. Board Policy Manual

Executive Director Villa briefed the Board.

Member Barry moved to approve the Board Policy Manual with incorporated changes. Member Peterson seconded the motion which passed unanimously.

D. Resolution 217 Authorization of Investment Vendors

Executive Director Villa briefed the Board.

E. LPAC Reporting

Executive Director Villa briefed the Board.

F. Securities Litigation Annual Review

Executive Director Villa briefed the Board.

Tab 3 INVESTMENTS – NEW COMMITMENTS

A. Real Estate Asset Class (08:40:42)

Ethan Hurley briefed the Board.

B. Private Investments Asset Class (08:56:44)

Thomas Winkler briefed the Board.

Tab 4 CY 2022 ASSET ALLOCATION (09:00:10)

Jon Putnam, Becky Gratsinger, and Mark Higgins briefed the Board and answered questions. Member Barry moved to approve the proposed Asset Allocation. Member Nelson seconded the motion which passed unanimously.

Tab 5 RVK (09:10:25)

Becky Gratsinger and Mark Higgins briefed the Board and answered questions.

Tab 6 INVESTMENT UPDATE

A. CIO Update (10:04:26)

Jon Putnam briefed the Board.

B. Macro Attribution (10:24:33)

Eron Krpan briefed the Board.

C. Private Equity (10:27:55)

Michael Nguyen briefed the Board.

D. Real Estate (10:36:55)

Ethan Hurley briefed the Board.

E. Real Assets (10:49:40)

Ethan Hurley briefed the Board.

F. Core Fixed Income (10:57:57)

John Romasko briefed the Board.

G. Non-Core Fixed Income (11:01:29)

Jason Brent briefed the Board.

H. Domestic Equity (11:00:06)

Jason Brent briefed the Board.

I. International Equity (11:09:34)

Jason Brent briefed the Board.

J. STIP (11:12:26)

Kirsten Haswell briefed the Board.

K. State Fund (11:13:27)

John Romasko briefed the Board.

L. Trust Funds Investment Pool (11:15:12)

John Romasko briefed the Board.

December 1, 2021

CALL TO ORDER (08:00:09)

A. Notice of Video Recording (08:01:04)

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

B. Roll Call (08:00:22)

Roll was taken: eight Board members were present including Chairman Karl Englund, Bruce Nelson, Diane Fladmo, Maggie Peterson, Mark Barry, Jeff Meredith, and Terry Cohea, forming a quorum.

C. Public Comment (08:01:08)

Chairman Englund asked for public comment. None was given.

Tab 7 TRS and MPERA Relationship

A. TRS (08:01:31)

Executive Director Shawn Graham briefed the Board.

B. MPERA (08:35:10)

Executive Director Dore Schwinden briefed the Board.

Tab 8 MONTANA LOAN PROGRAM (09:38:01)

A. Commercial and Residential Portfolios Report

Doug Hill briefed the Board.

Tab 9 NON-CORE FIXED INCOME (09:41:16)

Jason Brent briefed the Board.

RECAP OF STAFF TO DO LIST AND ADJOURNMENT (10:14:33)

Chairman Englund and Executive Director Villa listed items to recap.

Chairman Englund adjourned the meeting at 11:50 a.m.

MONTANA BOARD OF INVESTMENTS

APPROVE: _____

Karl J. Englund, Chairman

ATTEST: _____

Dan Villa, Executive Director

DATE: _____

MONTANA

BOARD OF INVESTMENTS

SPECIAL BOARD MEETING MINUTES

December 17, 2021

Meeting recordings are posted at: <https://leg.mt.gov/lspd/>

Call to Order

The Board of Investment's meeting was called to order by Chairman Karl Englund at 11:00 a.m. on Friday, December 17, 2021.

Attendance

Board Members Present: Chairman Karl Englund, Bruce Nelson, Diane Fladmo, Maggie Peterson, Mark Barry, Jeff Meredith, Terry Cohea, Jack Prothero

Board Members Absent: None

Legislative Liaisons Present: None

Board Staff Present: Dan Villa, Dan Whyte, Dan Zarling, Doug Hill, Emily Kovarik, Eron Krpan, Ethan Hurley, Jason Brent, John Carpenter, John Romasko, Jon Putnam, Julie Feldman, Kelsey Gauthier, Kirsten Haswell, Lindsay Ford, Louise Welsh, Michael Nguyen, Peggy MacEwen, Roberta Diaz, Sam Holman, Savannah Morgan, Sheli Jacoby, Steve Strong, Tammy Lindgren, Teri Kolnik, Thomas Winkler, Tim House, Brenda Thomas

Interested Parties Present: None

CALL TO ORDER – Karl Englund, Board Chairman

1. Notice of Video/Audio Recording

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

2. Roll Call

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

3. Public Comment – Public Comment on issues with Board Jurisdiction

Chairman Englund asked for public comment. None was given.

4. ARPA Down Payment Assistance Program

Executive Director Villa and Doug Hill briefed the Board and answered questions.

Member Meredith moved to approve the ARPA Down Payment Assistance Program as submitted. Member Fladmo seconded the motion which passed unanimously.

5. Adjournment

Chairman Englund adjourned the meeting at 11:50 a.m.

MONTANA BOARD OF INVESTMENTS

APPROVE: _____
KARL J. ENGLUND, CHAIRMAN

ATTEST: _____
DAN VILLA, EXECUTIVE DIRECTOR

DATE: _____

MONTANA

BOARD OF INVESTMENTS

To: Members of the Board
From: Dan Villa, Executive Director
Date: February 16, 2022
Re: February Executive Director Report

- A. Member Requests from Prior Meeting - *None*
- B. Monthly Snapshot – *attached*
- C. Disaster recovery and Emergency Preparedness - *Discussion*
- D. Outreach Efforts for the Board – In-State and INTERCAP Programs

Below are the meetings and conferences attended by Board staff to market the In-State Loan Program and INTERCAP Loan Programs since the last briefing.

IN-STATE LOAN PROGRAM 2021 OUTREACH

- January 7 – Attended loan closing and toured new hanger at Neptune Aviation in Missoula.
- March 11 – Meeting with lenders at Freedom Bank in Columbia Falls and First Interstate Bank in Kalispell.
- April 15 - Presentation to MBA-Business class at UM-Leveraging Public Funds for Business.
- April 21 & 22-Meeting with First Interstate Bank in Billings and Livingston.
- April 27 – Presentation to the Montana USDA RD B&I team.
- June 23- Participated with USDA in lender training.
- June 29 & 30-Attended Spring MEDA Conference. July 22-Meeting with Farmers State Bank in Helena.
- Met with multiple businesses discussing the use of MBOI In-State Loan Program in the structuring of their loans.
- Ongoing outreach via phone and email talking to state lenders who are interested in participating in the MBOI In-State Loan Program.

IN-STATE LOAN PROGRAM 2021 OUTREACH

- MT Rural Water Conference – WASACT workshop (Great Falls) in May
- MT Association of School Business Officials conference (Billings) in June and planning/funding workshop (Helena) in September



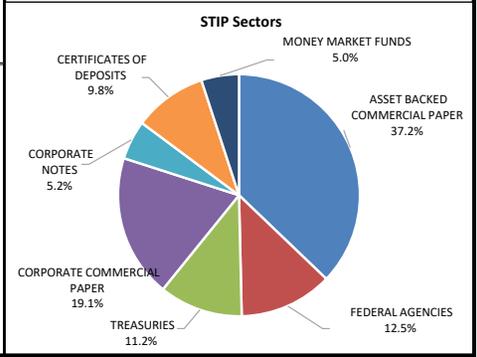
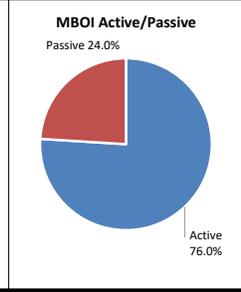
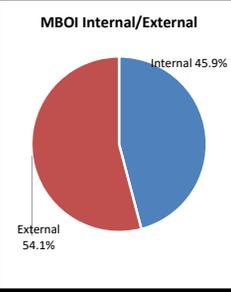
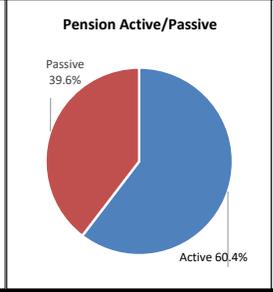
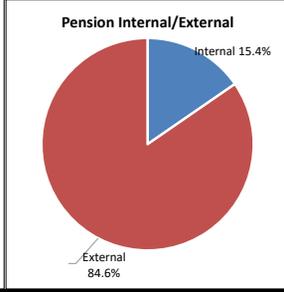
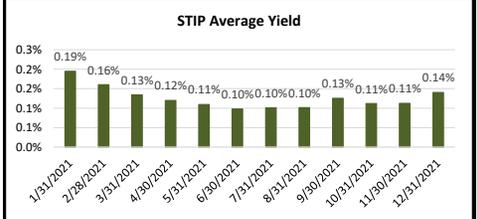
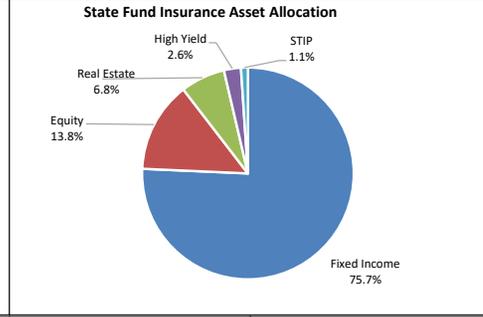
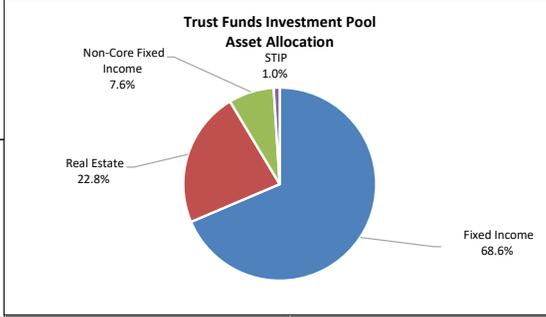
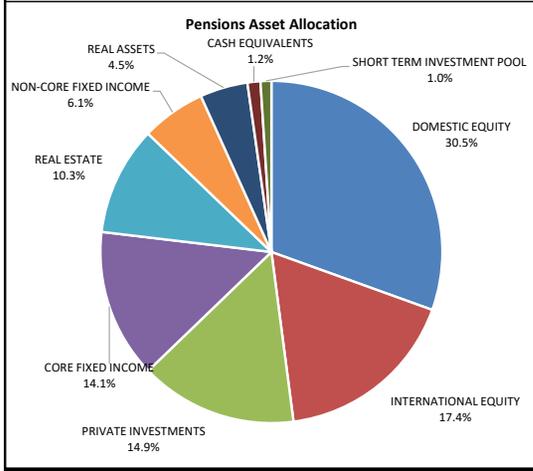
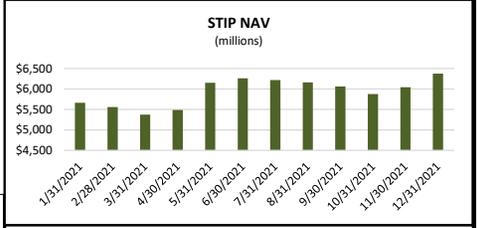
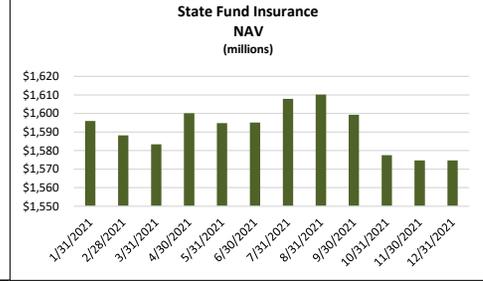
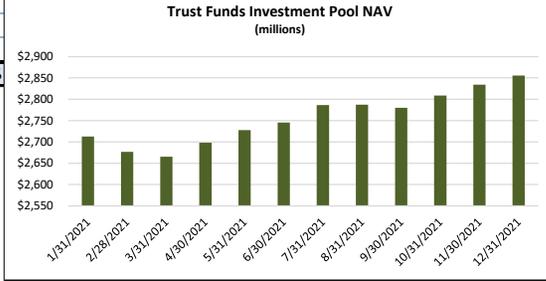
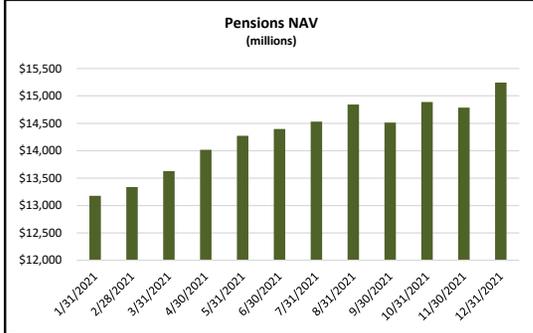
MBOI Snapshot
Asset Management View
12/31/2021 Unaudited
Assets Under Management \$25,955,651,343

Pensions	NAV	%
DOMESTIC EQUITY	\$ 4,648,223,885	30.5%
INTERNATIONAL EQUITY	\$ 2,657,922,160	17.4%
PRIVATE INVESTMENTS	\$ 2,266,163,759	14.9%
CORE FIXED INCOME	\$ 2,145,024,702	14.1%
REAL ESTATE	\$ 1,567,725,960	10.3%
NON-CORE FIXED INCOME	\$ 926,148,986	6.1%
REAL ASSETS	\$ 688,525,130	4.5%
CASH EQUIVALENTS	\$ 186,647,799	1.2%
SHORT TERM INVESTMENT POOL	\$ 155,723,405	1.0%
Pensions Total	\$ 15,242,105,787	100.0%

TFIP	NAV	%
Fixed Income	\$ 1,959,025,921	68.61%
Real Estate	\$ 650,164,916	22.77%
Non-Core Fixed Income	\$ 217,565,944	7.62%
STIP	\$ 28,709,775	1.01%
Total	\$ 2,855,466,557	100.00%

State Fund	NAV	%
Fixed Income	\$ 1,192,022,663	75.70%
Equity	\$ 218,028,513	13.85%
Real Estate	\$ 107,092,444	6.80%
High Yield	\$ 40,924,525	2.60%
STIP	\$ 16,585,398	1.05%
State Fund Total	\$ 1,574,653,542	100.00%

Other Fixed Income & Pending	NAV	%
STIP*		
ASSET BACKED COMMERCIAL PAPER	\$2,367,809,979	37.15%
CORPORATE COMMERCIAL PAPER	\$1,218,658,175	19.12%
FEDERAL AGENCIES	\$796,081,546	12.49%
TREASURIES	\$713,132,278	11.19%
CERTIFICATES OF DEPOSITS	\$623,877,458	9.79%
CORPORATE NOTES	\$333,013,118	5.22%
MONEY MARKET FUNDS	\$320,952,212	5.04%
STIP Total	\$6,373,524,766	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 \$214,343,183 is attributable the portion of STIP held within CAPP (\$185,638,387) and TFIP (\$28,704,784) as a cash investment. Such value is represented in the NAV for the CAPP and STIP columns.

MBOI Snapshot
Asset Ownership View
12/31/2021 Unaudited



	CAPP Holdings	CAPP %	STIP Holdings*	STIP %	TFIP Holdings	TFIP%	Other Holdings ¹	Other %	Total Net Asset Value
Total Funds \$(000)	\$15,086,382	58.12%	\$6,159,182	23.73%	\$2,855,467	11.00%	\$1,854,621	7.15%	\$25,955,651
Pensions	CAPP	%	STIP	%	TFIP	%	Other	%	Total
FIREFIGHTERS RETIREMENT	\$ 633,730	98.97%	\$ 6,570	1.03%	\$ -	0.00%	\$ -	0.00%	\$ 640,300
GAME WARDENS RETIREMENT	\$ 286,310	99.01%	\$ 2,851	0.99%	\$ -	0.00%	\$ -	0.00%	\$ 289,161
HIGHWAY PATROL RETIREMENT	\$ 195,600	99.00%	\$ 1,975	1.00%	\$ -	0.00%	\$ -	0.00%	\$ 197,575
JUDGES RETIREMENT	\$ 138,313	99.00%	\$ 1,396	1.00%	\$ -	0.00%	\$ -	0.00%	\$ 139,710
POLICE OFFICERS RETIREMENT	\$ 586,364	98.97%	\$ 6,106	1.03%	\$ -	0.00%	\$ -	0.00%	\$ 592,470
PUBLIC EMPLOYEES RETIREMENT	\$ 7,438,459	98.98%	\$ 76,717	1.02%	\$ -	0.00%	\$ -	0.00%	\$ 7,515,177
SHERIFFS RETIREMENT	\$ 506,605	98.94%	\$ 5,448	1.06%	\$ -	0.00%	\$ -	0.00%	\$ 512,053
TEACHERS RETIREMENT	\$ 5,250,691	98.98%	\$ 54,152	1.02%	\$ -	0.00%	\$ -	0.00%	\$ 5,304,843
VOL FIREFIGHTERS RETIREMENT	\$ 50,309	99.00%	\$ 508	1.00%	\$ -	0.00%	\$ -	0.00%	\$ 50,817
Total	\$ 15,086,382	98.98%	\$ 155,723	1.02%	\$ -	0.00%	\$ -	0.00%	\$ 15,242,106
Trust Funds	CAPP	%	STIP	%	TFIP	%	Other	%	Total
ABANDONED MINE RECLAMATION	\$ -	0.00%	\$ 6,660	99.99%	\$ -	0.00%	\$ 1	0.01%	\$ 6,660
BARKER HUGHESVILLE ST RESPONSE	\$ -	0.00%	\$ 763	8.12%	\$ 8,607	91.66%	\$ 20	0.21%	\$ 9,390
BELT WATER TREATMENT PLANT	\$ -	0.00%	\$ 2,815	10.17%	\$ 24,792	89.62%	\$ 57	0.21%	\$ 27,664
BUTTE AREA ONE REST	\$ -	0.00%	\$ 1,387	19.86%	\$ 5,585	79.96%	\$ 13	0.19%	\$ 6,985
BUTTE AREA REDEVELOP AUTHORITY	\$ -	0.00%	\$ 1,374	9.54%	\$ 12,998	90.25%	\$ 30	0.21%	\$ 14,402
CLARK FORK REST	\$ -	0.00%	\$ 6,347	20.91%	\$ 23,953	78.91%	\$ 56	0.18%	\$ 30,356
CLARK FORK SITE RESP ACTION	\$ -	0.00%	\$ 2,870	4.23%	\$ 64,903	95.55%	\$ 149	0.22%	\$ 67,922
COAL TAX PARK TRUST FUND	\$ -	0.00%	\$ 1,705	5.41%	\$ 29,722	94.37%	\$ 68	0.22%	\$ 31,495
CULTURAL TRUST FUND	\$ -	0.00%	\$ 804	4.74%	\$ 16,121	95.04%	\$ 37	0.22%	\$ 16,962
E HELENA GREENWAY TRAIL MAINT	\$ -	0.00%	\$ 265	25.73%	\$ 762	74.10%	\$ 2	0.17%	\$ 1,029
EAST HELENA COMPENSATION FUND	\$ -	0.00%	\$ 3,843	80.95%	\$ 902	19.00%	\$ 3	0.05%	\$ 4,747
ENDOWMENT FOR CHILDREN	\$ -	0.00%	\$ 76	5.20%	\$ 1,384	94.58%	\$ 3	0.22%	\$ 1,463
FLYING J CECRA FACILITIES FUND	\$ -	0.00%	\$ 230	8.46%	\$ 2,488	91.33%	\$ 6	0.21%	\$ 2,724
FWP MITIGATION TRUST	\$ -	0.00%	\$ 3,234	28.40%	\$ 7,642	67.12%	\$ 510	4.48%	\$ 11,386
HAROLD HAMM ENDOWMENT	\$ -	0.00%	\$ 4	6.98%	\$ 48	92.80%	\$ 0	0.21%	\$ 52
INVASIVE SPECIES TRUST FUND	\$ -	0.00%	\$ 54	1.88%	\$ 2,799	97.90%	\$ 6	0.22%	\$ 2,859
LIBBY ASBESTOS SITE STATE COST	\$ -	0.00%	\$ 675	12.94%	\$ 4,530	86.86%	\$ 10	0.20%	\$ 5,216
LUTTRELL PIT - OPER & MAINT	\$ -	0.00%	\$ 205	8.49%	\$ 2,203	91.30%	\$ 5	0.21%	\$ 2,413
MONTANA HISTORICAL SOCIETY	\$ -	0.00%	\$ 711	16.83%	\$ 3,504	82.98%	\$ 8	0.19%	\$ 4,223
MT POLE SUPERFUND SETTLEMENT	\$ -	0.00%	\$ 6,225	22.56%	\$ 21,323	77.26%	\$ 50	0.18%	\$ 27,598
NOXIOUS WEED MGMT TRUST FUND	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ 26	100.00%	\$ 26
OLDER MONTANANS TRUST FUND	\$ -	0.00%	\$ 17	5.08%	\$ 315	94.71%	\$ 1	0.22%	\$ 332
POTTER TRUST FUND	\$ -	0.00%	\$ 17	6.77%	\$ 239	93.02%	\$ 1	0.21%	\$ 257
PUBLIC SCHOOL TRUST	\$ -	0.00%	\$ 11,966	1.37%	\$ 859,373	98.40%	\$ 1,972	0.23%	\$ 873,312
REAL PROPERTY TRUST FUND	\$ -	0.00%	\$ 282	3.70%	\$ 7,329	96.08%	\$ 17	0.22%	\$ 7,628
RESOURCE INDEMNITY TRUST FUND	\$ -	0.00%	\$ 23	0.02%	\$ 117,556	99.75%	\$ 270	0.23%	\$ 117,849
SMELTER HILL UPLANDS REST FUND	\$ -	0.00%	\$ 1,365	14.46%	\$ 8,056	85.34%	\$ 19	0.20%	\$ 9,440
STREAMSIDE TAILINGS OU FUND	\$ -	0.00%	\$ 2,245	12.22%	\$ 16,089	87.58%	\$ 37	0.20%	\$ 18,371
TOBACCO TRUST FUND	\$ -	0.00%	\$ 2,097	0.70%	\$ 297,883	99.08%	\$ 683	0.23%	\$ 300,663
UPPER BLACKFT RESP ACT & REST	\$ -	0.00%	\$ 1,134	92.38%	\$ 93	7.59%	\$ 0	0.03%	\$ 1,228
UPPER CLRK FK RIVER BASIN RES	\$ -	0.00%	\$ 405	1.79%	\$ 22,210	97.99%	\$ 51	0.22%	\$ 22,666
UPPER CLRK FK RIVER BASIN REST	\$ -	0.00%	\$ 1,972	2.58%	\$ 74,212	97.19%	\$ 171	0.22%	\$ 76,355
WILDLIFE HABITAT TRUST FUND	\$ -	0.00%	\$ 786	4.72%	\$ 15,836	95.06%	\$ 36	0.22%	\$ 16,658
YELLOWSTONE PIPELINE CLEANUPFD	\$ -	0.00%	\$ 3,413	99.99%	\$ -	0.00%	\$ 0	0.01%	\$ 3,414
ZORTMAN/LANDUSKY LT WATER	\$ -	0.00%	\$ 15,642	99.99%	\$ -	0.00%	\$ 2	0.01%	\$ 15,644
ZORTMANLANDUSKY LT WATER TRUST	\$ -	0.00%	\$ 20,344	99.99%	\$ -	0.00%	\$ 2	0.01%	\$ 20,346
Total	\$ -	0.00%	\$ 101,955	5.79%	\$ 1,653,458	93.96%	\$ 4,323	0.25%	\$ 1,759,736
Coal Severance	CAPP	%	STIP	%	TFIP	%	Other	%	Total
BIG SKY ECONOMIC DEV FUND	\$ -	0.00%	\$ 3,600	2.67%	\$ 131,117	97.11%	\$ 301	0.22%	\$ 135,018
COAL SEVERANCE TAX PERM FUND	\$ -	0.00%	\$ 14,616	2.46%	\$ 383,581	64.64%	\$ 195,215	32.90%	\$ 593,411
MONTANA COAL ENDOWMENT FUND	\$ -	0.00%	\$ 3,069	1.02%	\$ 297,260	98.75%	\$ 682	0.23%	\$ 301,012
SCHOOL FACILITIES FUND	\$ -	0.00%	\$ 4,023	4.64%	\$ 82,495	95.14%	\$ 190	0.22%	\$ 86,707
MT COAL ENDOWMENT REGIONAL WAT	\$ -	0.00%	\$ 1,192	1.00%	\$ 117,792	98.80%	\$ 244	0.20%	\$ 119,227
Total	\$ -	0.00%	\$ 26,499	2.15%	\$ 1,012,244	81.94%	\$ 196,632	15.92%	\$ 1,235,375
Operating Funds	CAPP	%	STIP	%	TFIP	%	Other	%	Total
FWP GENERAL LICENSE ACCOUNT	\$ -	0.00%	\$ 38,779	51.58%	\$ 33,121	44.05%	\$ 3,282	4.37%	\$ 75,182
MONTANA LOCAL GOVERNMENTS	\$ -	0.00%	\$ 1,890,689	99.99%	\$ -	0.00%	\$ 224	0.01%	\$ 1,890,914
MONTANA STATE AGENCIES	\$ -	0.00%	\$ 1,102,519	99.99%	\$ -	0.00%	\$ 132	0.01%	\$ 1,102,651
MONTANA STATE UNIVERSITY	\$ -	0.00%	\$ 191,155	81.64%	\$ 42,863	18.31%	\$ 121	0.05%	\$ 234,139
MONTANA TECH	\$ -	0.00%	\$ 9,785	95.12%	\$ 500	4.86%	\$ 2	0.02%	\$ 10,287
STATE TREASURER'S FUND	\$ -	0.00%	\$ 2,356,594	96.07%	\$ 21,963	0.90%	\$ 74,443	3.03%	\$ 2,453,001
UNIVERSITY OF MONTANA	\$ -	0.00%	\$ 81,320	68.56%	\$ 32,264	27.20%	\$ 5,020	4.23%	\$ 118,604
Total	\$ -	0.00%	\$ 5,670,841	96.36%	\$ 130,712	2.22%	\$ 83,226	1.41%	\$ 5,884,778
Insurance Reserves	CAPP	%	STIP	%	TFIP	%	Other	%	Total
SUBSEQUENT INJURY TRUST FUND	\$ -	0.00%	\$ 380	99.99%	\$ -	0.00%	\$ 0	0.01%	\$ 380
STATE EMPLOYEE GROUP BENEFITS	\$ -	0.00%	\$ 95,323	68.81%	\$ 40,661	29.35%	\$ 2,543	1.84%	\$ 138,527
PERS-DCRP LT DISABILITY PLAN	\$ -	0.00%	\$ 499	6.00%	\$ -	0.00%	\$ 7,821	94.00%	\$ 8,320
MUS WORKERS COMPENSATION	\$ -	0.00%	\$ 12,381	73.79%	\$ 4,386	26.14%	\$ 12	0.07%	\$ 16,779
MUS GROUP INSURANCE	\$ -	0.00%	\$ 78,997	83.16%	\$ 14,006	14.74%	\$ 1,993	2.10%	\$ 94,996
MONTANA STATE FUND	\$ -	0.00%	\$ 16,582	1.05%	\$ -	0.00%	\$ 1,558,071	98.95%	\$ 1,574,654
Total	\$ -	0.00%	\$ 204,163	11.13%	\$ 59,053	3.22%	\$ 1,570,440	85.65%	\$ 1,833,656

Short Term Investment Pool			
Account	#Accounts	Total Market Value	%
Total State	341	4,482,835,571	70.3%
Total Local	180	1,890,689,195	29.7%
Total STIP	521	\$ 6,373,524,766	100.0%
STIP Reserve		\$ 55,236,001	
Prior month average STIP Yield			0.1401%

Intercap Statistics	
Loans Outstanding	\$ 69,803,134
Bonds Outstanding	\$ 90,600,000
Number of Borrowers	146
Loan Rate	1.65%

MONTANA

BOARD OF INVESTMENTS

To: Members of the Board
From: John Romasko, CFA Director of Fixed Income
Kirsten Haswell, Investment Analyst
Date: 1/31/2022
Re: University of Montana Endowments- Lubrecht Experimental Forest
Kyiyo Pow Wow

Proposed Investment Policy Statements:

Lubrecht Experimental Forest is managed by the W.A. Franke College of Forestry and Conservation at the University of Montana as an outdoor classroom for the students and as a recreational retreat for the public. Lubrecht Experimental Forest has ski and hiking trails, lodging, and conference services. The College of Forestry and Conservation executed a contract to sell carbon-offset credits to energy producing companies and are now able to use those funds for the ongoing perpetual maintenance of the Forest. The Investment Policy Statement will guide staff to achieve long-term capital appreciation in excess of inflation.

The Annual Kyiyo Pow Wow Celebration is one of the oldest traditions of Kyiyo. The Annual Pow Wow Celebration unifies all Native Americans from across the nation in an event full of dancing, singing, and sharing of stories between all in attendance. The celebration is a time to preserve the rich heritage of Native Americans and renew the thoughts of the old traditions. The diversity of each tribe represented at the Pow Wow is shown within the dancing styles and traditional dress of the dancers. Although from a wide array of backgrounds, each dancer comes together to celebrate what their culture truly represents. A one-time gift to the University of Montana was directed to establish an endowment to support the UM Kyiyo Pow Wow student group and named for Chief Earl Old Person. The Investment Policy Statement will guide staff to achieve long-term capital appreciation in excess of inflation.

POLICY NUMBER: 40.945

EFFECTIVE DATE:

TITLE: Investment Objectives and Guidelines
Lubrecht Experimental Forest

SUPERSEDES: N/A

BOARD ADOPTION:

REVIEWED:

I. Appendix I: Trust Funds: Investment Objectives and Guidelines

- A. Schedule I-AK: Investment Objectives and Guidelines Lubrecht Experimental Forest.
- B. Approved Date of Schedule: TBA.
- C. This Schedule is effective upon adoption by the Board and supersedes all previous Investment Objectives and Guidelines for this specific portfolio.

II. Introduction

- A. The purpose of this policy statement is to provide a framework for Lubrecht Experimental Forest investments under the guidance of the Board.
- B. Lubrecht Experimental Forest is managed by the W.A. Franke College of Forestry and Conservation at the University of Montana as an outdoor classroom for the students and as a recreational retreat for the public. Lubrecht Experimental Forest has ski and hiking trails, lodging, and conference services. The College of Forestry and Conservation executed a contract to sell carbon-offset credits to energy producing companies and are now able to use those funds for the ongoing perpetual maintenance of the Forest.

III. Statement of Purpose

- A. The purpose of these objectives and guidelines is to:
 1. Establish the investment objectives and performance standards of the Lubrecht Experimental Forest account.
 2. Provide diversified investment exposure within the guidelines in a prudent and cost-effective manner.

IV. Investment Objective

- A. Strategic
 1. The Board's primary objective is to achieve long term capital appreciation in excess of inflation.
 2. The Board's secondary objective is to provide investment income that assists the Lubrecht Experimental Forest account in maintaining the forest into perpetuity. Both objectives must be compatible with the Board's risk tolerance and prudent investment practices. The Board seeks to maintain a long-term perspective in formulating and implementing investment policies and evaluating investments.
- B. Performance
 1. Success in achieving this objective will be measured by comparing the risk and return of the account to the S&P 500 for domestic equities, MSCI ACWI Ex US Index for international equities, Trust Funds Investment Pool benchmark, and the Short-Term Investment Pool benchmark, each weighted proportionately to the portfolio's holdings, over a five (5) year moving

average.

C. Time Horizon

1. Lubrecht Experimental Forest is a perpetual 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

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

E. Permitted Investments

1. Lubrecht Experimental Forest may only invest in the following:
 - a) Public Equities
 - b) TFIP
 - c) STIP or any cash vehicle at the Custodial Bank

F. Other Restrictions

1. A maximum of ninety-nine percent (99%) of the market value of the portfolio will be invested in public equities.
2. A maximum of twenty percent (20%) in TFIP.
3. A maximum of ten percent (10%) in the STIP and other cash equivalents.

- 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 cases that 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.

MONTANA

BOARD OF INVESTMENTS

BOARD ADOPTED POLICY

POLICY NUMBER: 40.946

EFFECTIVE DATE:

TITLE: Investment Objectives and Guidelines
Kyiyó Pow Pow

SUPERSEDES: N/A

BOARD ADOPTION:

REVIEWED:

I. Appendix I: Trust Funds: Investment Objectives and Guidelines

- A. Schedule I-AL: Investment Objectives and Guidelines Kyiyó Pow Wow.
- B. Approved Date of Schedule: TBA.
- C. This Schedule is effective upon adoption by the Board and supersedes all previous Investment Objectives and Guidelines for this specific portfolio.

II. Introduction

- A. The purpose of this policy statement is to provide a framework for Kyiyó Pow Wow investments under the guidance of the Board.
- B. The Annual Kyiyó Pow Wow Celebration is one of the oldest traditions of Kyiyó. The Annual Pow Wow Celebration unifies all Native Americans from across the nation in an event full of dancing, singing, and sharing of stories between all in attendance. The celebration is a time to preserve the rich heritage of Native Americans and renew the thoughts of the old traditions. The diversity of each tribe represented at the Pow Wow is shown within the dancing styles and traditional dress of the dancers. Although from a wide array of backgrounds, each dancer comes together to celebrate what their culture truly represents. A one-time gift to the University of Montana was directed to establish an endowment to support the UM Kyiyó Pow Wow student group and named for Chief Earl Old Person.

III. Statement of Purpose

- A. The purpose of these objectives and guidelines is to:
 1. Establish the investment objectives and performance standards of the Kyiyó Pow Wow account.
 2. Provide diversified investment exposure within the guidelines in a prudent and cost-effective manner.

IV. Investment Objective

- A. Strategic
 1. The Board's primary objective is to achieve long-term capital appreciation in excess of inflation.
 2. The Board's secondary objective is to provide investment income that assists the Kyiyó Pow Wow account in maintaining the account into perpetuity. Both objectives must be compatible with the Board's risk tolerance and prudent investment practices. The Board seeks to maintain a long-term perspective in formulating and implementing investment policies and evaluating investments.
- B. Performance
 1. Success in achieving this objective will be measured by comparing the risk and return of the account to the S&P 500 for domestic equities, MSCI ACWI Ex US Index for international

equities, Trust Funds Investment Pool benchmark, and the Short-Term Investment Pool benchmark, each weighted proportionately to the portfolio's holdings, over a five (5) year moving average.

C. Time Horizon

1. Kyiyo Pow Wow is a perpetual 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

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

E. Permitted Investments

1. Kyiyo Pow Wow may only invest in the following:
 - a) Public Equities
 - b) TFIP
 - c) STIP or any cash vehicle at the Custodial Bank

F. Other Restrictions

1. A maximum of ninety-nine percent (99%) of the market value of the portfolio will be invested in public equities.
 2. A maximum of twenty percent (20%) in TFIP.
 3. A maximum of ten percent (10%) in the STIP and other cash equivalents.
- 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 cases that 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.



Quarterly Investment Performance Analysis

Montana Board of Investments

Period Ended: December 31, 2021



Montana Board of Investments
Comparative Performance
Retirement Plans

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Public Employees' Retirement - Net	4.83	6.13	17.61	15.41	11.43	9.42	10.43	7.48	11.94	16.77	-2.63	14.80	7.32	8.24	07/01/1994
Public Employees' Benchmark	4.61	4.26	14.31	15.39	10.85	9.20	10.63	N/A	11.58	20.45	-5.57	15.35	9.12	N/A	
Difference	0.22	1.87	3.30	0.02	0.58	0.22	-0.20	N/A	0.36	-3.68	2.94	-0.55	-1.80	N/A	
Public Employees' Retirement - Gross	5.16	6.57	18.32	16.07	12.06	10.00	11.01	7.93	12.53	17.44	-2.03	15.34	7.78	8.57	07/01/1994
All Public Plans > \$3B Total Fund Median	4.06	4.91	13.92	14.79	10.98	8.69	9.35	7.46	12.03	17.25	-2.46	16.12	8.01	N/A	
Rank	4	12	13	10	9	11	3	11	39	43	44	65	60	N/A	
Teachers' Retirement - Net	4.83	6.13	17.61	15.41	11.43	9.42	10.44	7.48	11.93	16.78	-2.64	14.76	7.33	8.25	07/01/1994
Teachers' Benchmark	4.61	4.26	14.29	15.36	10.83	9.18	10.62	N/A	11.55	20.42	-5.57	15.32	9.11	N/A	
Difference	0.22	1.87	3.32	0.05	0.60	0.24	-0.18	N/A	0.38	-3.64	2.93	-0.56	-1.78	N/A	
Teachers' Retirement - Gross	5.16	6.57	18.32	16.07	12.05	10.00	11.01	7.93	12.52	17.45	-2.03	15.31	7.80	8.58	07/01/1994
All Public Plans > \$3B Total Fund Median	4.06	4.91	13.92	14.79	10.98	8.69	9.35	7.46	12.03	17.25	-2.46	16.12	8.01	N/A	
Rank	4	12	13	10	9	11	3	11	39	43	44	66	60	N/A	
Police Retirement - Net	4.83	6.10	17.58	15.41	11.43	9.42	10.44	7.45	11.95	16.80	-2.63	14.79	7.32	8.11	07/01/1994
Police Benchmark	4.61	4.20	14.24	15.37	10.83	9.19	10.61	N/A	11.60	20.44	-5.57	15.33	9.11	N/A	
Difference	0.22	1.90	3.34	0.04	0.60	0.23	-0.17	N/A	0.35	-3.64	2.94	-0.54	-1.79	N/A	
Police Retirement - Gross	5.16	6.53	18.28	16.07	12.06	10.00	11.01	7.90	12.54	17.47	-2.02	15.33	7.78	8.44	07/01/1994
All Public Plans > \$3B Total Fund Median	4.06	4.91	13.92	14.79	10.98	8.69	9.35	7.46	12.03	17.25	-2.46	16.12	8.01	N/A	
Rank	4	12	13	10	9	11	3	12	39	42	43	65	60	N/A	

Net performance shown is net of all manager fees and expenses (Net-All). All Public Plans > \$3B Total Fund Median is reported gross of fees. Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences. Retirement plan benchmarks' inception dates were updated to 1/1/2011.



Montana Board of Investments
Comparative Performance
Retirement Plans

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Firefighters' Retirement - Net	4.83	6.10	17.58	15.41	11.44	9.43	10.44	7.46	11.95	16.79	-2.62	14.79	7.32	8.10	07/01/1994
Firefighters' Benchmark	4.61	4.20	14.23	15.36	10.83	9.19	10.61	N/A	11.59	20.44	-5.57	15.33	9.12	N/A	
Difference	0.22	1.90	3.35	0.05	0.61	0.24	-0.17	N/A	0.36	-3.65	2.95	-0.54	-1.80	N/A	
Firefighters' Retirement - Gross	5.16	6.53	18.28	16.06	12.06	10.00	11.01	7.92	12.53	17.46	-2.01	15.34	7.78	8.43	07/01/1994
All Public Plans > \$3B Total Fund Median	4.06	4.91	13.92	14.79	10.98	8.69	9.35	7.46	12.03	17.25	-2.46	16.12	8.01	N/A	
Rank	4	12	13	10	9	11	3	12	39	42	43	65	60	N/A	
Sheriffs' Retirement - Net	4.83	6.14	17.61	15.41	11.43	9.43	10.43	7.47	11.94	16.75	-2.62	14.80	7.33	8.14	07/01/1994
Sheriffs' Benchmark	4.61	4.26	14.30	15.38	10.84	9.20	10.62	N/A	11.58	20.43	-5.56	15.35	9.13	N/A	
Difference	0.22	1.88	3.31	0.03	0.59	0.23	-0.19	N/A	0.36	-3.68	2.94	-0.55	-1.80	N/A	
Sheriffs' Retirement - Gross	5.16	6.57	18.32	16.06	12.06	10.00	11.00	7.93	12.53	17.42	-2.02	15.34	7.79	8.47	07/01/1994
All Public Plans > \$3B Total Fund Median	4.06	4.91	13.92	14.79	10.98	8.69	9.35	7.46	12.03	17.25	-2.46	16.12	8.01	N/A	
Rank	4	12	13	10	9	11	4	11	39	44	43	65	60	N/A	
Highway Patrol Retirement - Net	4.83	6.13	17.62	15.42	11.44	9.43	10.44	7.47	11.94	16.78	-2.62	14.79	7.30	8.13	07/01/1994
Highway Patrol Benchmark	4.61	4.26	14.31	15.40	10.85	9.20	10.63	N/A	11.60	20.45	-5.56	15.34	9.11	N/A	
Difference	0.22	1.87	3.31	0.02	0.59	0.23	-0.19	N/A	0.34	-3.67	2.94	-0.55	-1.81	N/A	
Highway Patrol Retirement - Gross	5.16	6.57	18.33	16.07	12.06	10.00	11.01	7.93	12.53	17.45	-2.01	15.33	7.77	8.46	07/01/1994
All Public Plans > \$3B Total Fund Median	4.06	4.91	13.92	14.79	10.98	8.69	9.35	7.46	12.03	17.25	-2.46	16.12	8.01	N/A	
Rank	4	12	13	10	9	11	3	11	39	43	43	65	60	N/A	

Net performance shown is net of all manager fees and expenses (Net-All). All Public Plans > \$3B Total Fund Median is reported gross of fees. Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences. Retirement plan benchmarks' inception dates were updated to 1/1/2011.



Montana Board of Investments
Comparative Performance
Retirement Plans

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Game Wardens' Retirement - Net	4.83	6.14	17.62	15.40	11.43	9.43	10.42	7.46	11.91	16.77	-2.62	14.81	7.31	8.15	07/01/1994
Game Wardens' Benchmark	4.61	4.26	14.30	15.38	10.84	9.20	10.62	N/A	11.56	20.45	-5.56	15.36	9.14	N/A	
Difference	0.22	1.88	3.32	0.02	0.59	0.23	-0.20	N/A	0.35	-3.68	2.94	-0.55	-1.83	N/A	
Game Wardens' Retirement - Gross	5.16	6.57	18.32	16.06	12.06	10.00	11.00	7.91	12.50	17.44	-2.01	15.35	7.78	8.48	07/01/1994
All Public Plans > \$3B Total Fund Median	4.06	4.91	13.92	14.79	10.98	8.69	9.35	7.46	12.03	17.25	-2.46	16.12	8.01	N/A	
Rank	4	12	13	10	9	11	4	12	40	43	43	65	60	N/A	
Judges' Retirement - Net	4.84	6.14	17.63	15.42	11.44	9.43	10.43	7.48	11.94	16.78	-2.64	14.82	7.32	8.14	07/01/1994
Judges' Benchmark	4.61	4.26	14.31	15.40	10.86	9.21	10.63	N/A	11.59	20.47	-5.57	15.37	9.13	N/A	
Difference	0.23	1.88	3.32	0.02	0.58	0.22	-0.20	N/A	0.35	-3.69	2.93	-0.55	-1.81	N/A	
Judges' Retirement - Gross	5.16	6.58	18.34	16.08	12.07	10.01	11.01	7.93	12.53	17.45	-2.03	15.36	7.79	8.47	07/01/1994
All Public Plans > \$3B Total Fund Median	4.06	4.91	13.92	14.79	10.98	8.69	9.35	7.46	12.03	17.25	-2.46	16.12	8.01	N/A	
Rank	3	12	13	10	9	11	3	11	39	43	44	64	60	N/A	
Volunteer Firefighters' Retirement - Net	4.84	6.12	17.61	15.42	11.44	9.41	10.43	7.66	11.94	16.79	-2.64	14.79	7.16	7.95	07/01/1994
Volunteer Firefighters' Benchmark	4.61	4.32	14.37	15.42	10.86	9.21	10.63	N/A	11.59	20.47	-5.59	15.33	9.11	N/A	
Difference	0.23	1.80	3.24	0.00	0.58	0.20	-0.20	N/A	0.35	-3.68	2.95	-0.54	-1.95	N/A	
Volunteer Firefighters' Retirement - Gross	5.16	6.56	18.31	16.07	12.06	9.98	11.00	8.11	12.53	17.46	-2.04	15.34	7.63	8.28	07/01/1994
All Public Plans > \$3B Total Fund Median	4.06	4.91	13.92	14.79	10.98	8.69	9.35	7.46	12.03	17.25	-2.46	16.12	8.01	N/A	
Rank	4	12	13	10	9	11	4	9	39	42	44	65	67	N/A	

Net performance shown is net of all manager fees and expenses (Net-All). All Public Plans > \$3B Total Fund Median is reported gross of fees. Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences. Retirement plan benchmarks' inception dates were updated to 1/1/2011.

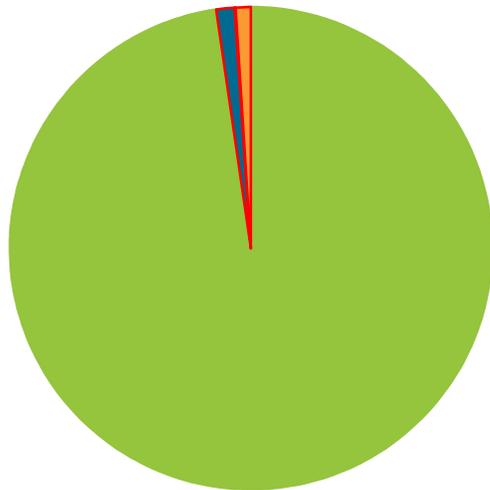


Montana Board of Investments
 Asset Allocation by Segment
 Retirement Plans

As of December 31, 2021

	Consolidated Asset Pension Pool (CAPP)		Short Term Investment Pool (STIP)		Total Fund	
	(\$)	%	(\$)	%	(\$)	%
Public Employees' Retirement	7,438,459,268	49.31	76,717,298	49.27	7,515,176,566	49.31
Teachers' Retirement	5,250,691,038	34.80	54,152,399	34.77	5,304,843,437	34.80
Firefighters' Retirement	633,730,300	4.20	6,569,727	4.22	640,300,027	4.20
Police Retirement	586,364,261	3.89	6,105,899	3.92	592,470,161	3.89
Sheriffs' Retirement	506,604,995	3.36	5,447,940	3.50	512,052,935	3.36
Game Wardens' Retirement	286,310,201	1.90	2,850,933	1.83	289,161,134	1.90
Highway Patrol Retirement	195,599,834	1.30	1,975,080	1.27	197,574,914	1.30
Judges' Retirement	138,313,465	0.92	1,396,131	0.90	139,709,597	0.92
Volunteer Firefighters' Retirement	50,308,980	0.33	507,998	0.33	50,816,978	0.33
Retirement Plans Total Fund Composite	15,086,382,343	98.98	155,723,405	1.02	15,242,105,748	100.00

December 31, 2021 : \$15,242,105,748

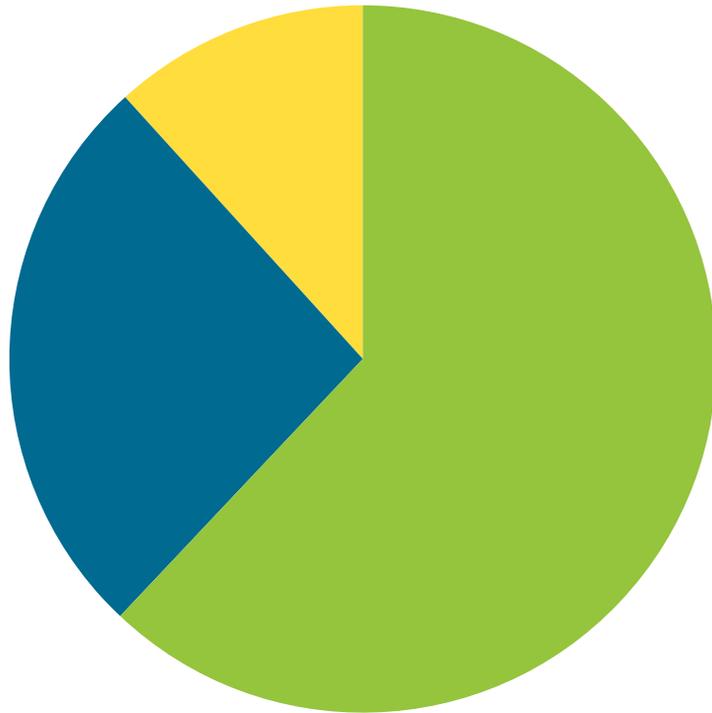


Segments	Market Value (\$)	Allocation (%)
CAPP Ex Cash	14,890,720,855	97.69
CAPP Cash Pension	186,647,798	1.22
CAPP Asset Class Cash	9,013,690	0.06
Short Term Investment Pool (STIP)	155,723,405	1.02
Total Cash	351,384,893	2.31

Allocations shown may not sum up to 100% exactly due to rounding. Retirement Plan market values may differ from State Street due to uninvested amounts not included in segment totals.



December 31, 2021 : \$24,315,357,671



	Market Value (\$)	Allocation (%)
Consolidated Asset Pension Pool (CAPP)	15,086,382,383	62.04
Short Term Investment Pool	6,373,508,732	26.21
Trust Funds Investment Pool	2,855,466,557	11.74

Allocations shown may not sum up to 100% exactly due to rounding. Market values do not include pending transactions.

Montana Board of Investments
Comparative Performance
Investment Pools

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Consolidated Asset Pension Pool (CAPP)	4.89	6.21	17.83	15.66	N/A	N/A	N/A	12.10	17.12	-2.74	N/A	N/A	11.30	04/01/2017
CAPP Custom Benchmark	4.66	4.31	14.47	15.63	N/A	N/A	N/A	11.73	20.88	-5.73	N/A	N/A	10.61	
Difference	0.23	1.90	3.36	0.03	N/A	N/A	N/A	0.37	-3.76	2.99	N/A	N/A	0.69	
Trust Funds Investment Pool	1.14	1.73	1.49	5.85	4.38	3.96	4.13	7.23	8.98	0.45	4.01	4.02	5.96	10/01/1995
Bloomberg US Agg Bond Index	0.01	0.06	-1.55	4.79	3.57	3.00	2.90	7.51	8.72	0.01	3.54	2.65	5.01	
Difference	1.13	1.67	3.04	1.06	0.81	0.96	1.23	-0.28	0.26	0.44	0.47	1.37	0.95	
Short Term Investment Pool	0.03	0.06	0.11	1.04	1.24	1.00	0.76	0.73	2.28	1.98	1.11	0.61	2.29	04/01/1997
Short Term Custom Index	0.01	0.03	0.04	0.84	1.13	0.91	0.69	0.36	2.14	1.95	1.15	0.52	2.20	
Difference	0.02	0.03	0.07	0.20	0.11	0.09	0.07	0.37	0.14	0.03	-0.04	0.09	0.09	
iMoney.net Money Fund (Gross) Median	0.03	0.06	0.15	1.11	1.33	1.08	0.82	0.73	2.45	2.15	1.21	0.61	2.28	
Difference	0.00	0.00	-0.04	-0.07	-0.09	-0.08	-0.06	0.00	-0.17	-0.17	-0.10	0.00	0.01	

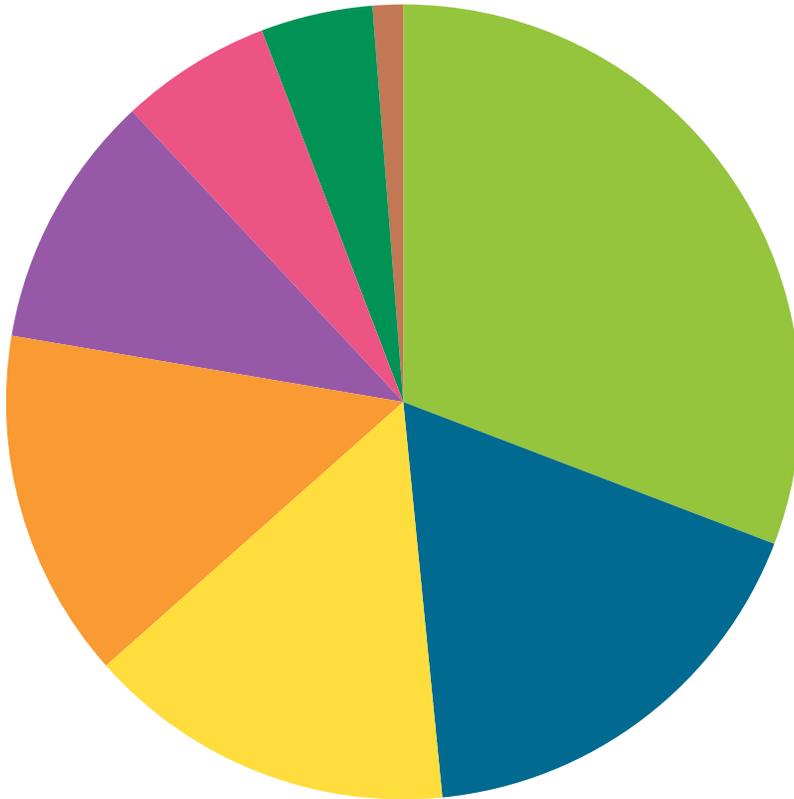
Performance shown is net of all manager fees and expenses (Net-All). Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. See the Addendum for custom index specification. Since inception performance may vary from State Street reported performance due to calculation methodology differences.



Montana Board of Investments
 Asset Allocation
 Consolidated Asset Pension Pool (CAPP)

As of December 31, 2021

December 31, 2021 : \$15,086,382,517



	Market Value (\$)	Allocation (%)
Domestic Equity	4,648,223,882	30.81
International Equity	2,657,922,164	17.62
Private Investments	2,266,163,760	15.02
Core Fixed Income	2,145,024,701	14.22
Real Estate	1,567,726,101	10.39
Non-Core Fixed Income	926,148,983	6.14
Real Assets*	688,525,128	4.56
Cash Pension	186,647,798	1.24

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



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

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Domestic Equity	9.27	9.41	27.17	25.92	17.51	14.11	16.02	20.09	30.75	-7.09	20.79	11.46	10.89	05/01/2003
Domestic Equity Custom Index	9.36	9.40	26.12	26.06	18.11	14.78	16.43	21.10	31.14	-5.20	21.05	13.03	11.61	
Difference	-0.09	0.01	1.05	-0.14	-0.60	-0.67	-0.41	-1.01	-0.39	-1.89	-0.26	-1.57	-0.72	
International Equity	1.74	-1.20	7.83	14.51	10.44	7.37	7.97	13.35	22.86	-14.99	28.67	3.87	5.37	04/01/1997
International Equity Custom Index	1.64	-0.96	8.53	13.62	9.83	6.87	7.52	11.12	21.63	-14.76	27.81	4.41	5.58	
Difference	0.10	-0.24	-0.70	0.89	0.61	0.50	0.45	2.23	1.23	-0.23	0.86	-0.54	-0.21	
Core Fixed Income	0.01	0.01	-1.54	4.45	3.31	2.93	3.17	8.25	6.90	0.95	2.29	3.19	5.76	04/01/1995
Core Fixed Income Custom Index	0.01	0.06	-1.54	4.04	3.07	2.64	2.65	7.51	6.39	0.68	2.57	2.65	5.13	
Difference	0.00	-0.05	0.00	0.41	0.24	0.29	0.52	0.74	0.51	0.27	-0.28	0.54	0.63	
Non-Core Fixed Income	0.22	0.68	3.21	7.77	5.33	5.15	6.33	6.40	13.98	-2.27	5.99	12.47	7.77	06/01/2009
Bloomberg US HY 2% Issuer Cap Index	0.69	1.59	5.26	8.81	6.28	6.14	6.82	7.05	14.32	-2.08	7.50	17.13	8.87	
Difference	-0.47	-0.91	-2.05	-1.04	-0.95	-0.99	-0.49	-0.65	-0.34	-0.19	-1.51	-4.66	-1.10	
Real Assets	1.94	4.32	21.24	0.88	N/A	N/A	N/A	-13.43	-2.18	5.55	N/A	N/A	2.98	04/01/2017
Real Assets Custom Index	4.20	3.72	13.32	3.95	2.42	1.47	-0.05	-12.32	13.06	-11.75	13.70	32.44	2.89	
Difference	-2.26	0.60	7.92	-3.07	N/A	N/A	N/A	-1.11	-15.24	17.30	N/A	N/A	0.09	
Real Estate	6.97	12.76	20.00	8.55	8.80	9.57	9.92	-0.35	6.97	9.19	9.17	8.82	4.79	06/01/2006
Real Estate Custom Index	6.41	10.33	13.64	4.73	3.05	5.38	7.11	-19.66	25.84	-4.57	5.99	9.08	4.91	
Difference	0.56	2.43	6.36	3.82	5.75	4.19	2.81	19.31	-18.87	13.76	3.18	-0.26	-0.12	
Cash Pension	0.03	0.04	0.13	1.08	N/A	N/A	N/A	0.84	2.28	2.00	N/A	N/A	1.27	05/01/2017
Short Term Custom Index	0.01	0.03	0.04	0.84	1.13	0.91	0.69	0.36	2.14	1.95	1.15	0.52	1.14	
Difference	0.02	0.01	0.09	0.24	N/A	N/A	N/A	0.48	0.14	0.05	N/A	N/A	0.13	
Private Investments*	6.16	14.17	39.81	20.54	17.61	14.57	14.62	10.91	12.95	11.55	15.20	7.37	13.45	05/01/2002
Private Investments Custom Index	3.03	0.95	16.54	20.85	13.89	13.23	17.44	18.90	27.38	-9.99	20.59	20.11	11.95	
Difference	3.13	13.22	23.27	-0.31	3.72	1.34	-2.82	-7.99	-14.43	21.54	-5.39	-12.74	1.50	

For additional information on the Private Investments Custom Index, please see the Addendum.

*Performance is based on the prior quarter's fair market value adjusted for cash flows during the most recent quarterly period.

Performance shown is net of all manager fees and expenses (Net-All). Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. Please see Addendum for custom index specification. Since inception performance may vary from State Street reported performance due to calculation methodology differences.



Montana Board of Investments
Comparative Performance
Investment Pools

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Domestic Equity	9.30	9.54	27.47	26.24	17.84	14.43	16.35	20.37	31.13	-6.78	21.16	11.77	11.18	05/01/2003
All Public Plans-US Equity Segment Median	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.92	30.04	-5.83	20.31	12.78	N/A	
Rank	N/A	N/A	N/A	N/A	N/A	N/A	N/A	32	28	74	31	74	N/A	
Population	N/A	N/A	N/A	N/A	N/A	N/A	N/A	67	65	66	89	90	N/A	
International Equity	1.81	-1.02	8.18	14.89	10.79	7.72	8.32	13.71	23.28	-14.72	29.06	4.24	5.78	04/01/1997
All Public Plans-Intl. Equity Segment Median	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12.76	23.71	-13.63	28.75	4.00	N/A	
Rank	N/A	N/A	N/A	N/A	N/A	N/A	N/A	45	62	78	46	44	N/A	
Population	N/A	N/A	N/A	N/A	N/A	N/A	N/A	68	65	68	84	88	N/A	
Core Fixed Income	0.02	0.03	-1.48	4.50	3.36	2.97	3.21	8.31	6.94	1.00	2.34	3.21	5.89	04/01/1995
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	-0.05	0.03	-1.20	5.56	4.13	3.53	3.52	8.52	9.19	0.06	4.01	3.12	5.63	
Rank	32	50	68	94	97	96	77	55	97	8	100	48	22	
Population	120	120	119	118	115	113	109	150	152	158	163	170	59	
Non-Core Fixed Income	0.31	0.89	3.64	8.29	5.87	5.69	6.88	6.91	14.60	-1.71	6.58	13.04	8.33	06/01/2009
IM U.S. High Yield Bonds (SA+CF) Median	0.72	1.67	5.15	8.49	6.18	5.98	6.74	6.53	14.23	-1.66	7.49	14.07	8.68	
Rank	91	94	89	55	64	61	41	41	41	52	74	63	68	
Population	122	122	122	118	116	112	92	167	182	192	197	203	81	
Trust Funds Investment Pool	1.17	1.79	1.59	5.94	4.47	4.04	4.22	7.30	9.06	0.53	4.10	4.12	6.03	10/01/1995
All Public Plans-US Fixed Income Segment Median	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.59	9.25	-0.25	4.59	4.61	N/A	
Rank	N/A	N/A	N/A	N/A	N/A	N/A	N/A	78	53	22	62	61	N/A	
Population	N/A	N/A	N/A	N/A	N/A	N/A	N/A	74	68	72	85	90	N/A	
Real Estate	7.15	13.11	21.37	10.06	10.44	11.15	11.47	1.11	8.65	11.12	10.91	10.26	6.24	06/01/2006
All Public Plans-Real Estate Segment Median	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.66	7.65	9.04	8.84	9.98	N/A	
Rank	N/A	N/A	N/A	N/A	N/A	N/A	N/A	72	39	15	26	47	N/A	
Population	N/A	N/A	N/A	N/A	N/A	N/A	N/A	38	35	27	32	28	N/A	

Performance shown is gross of fees. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences. The All Public Plans US Equity, Intl Equity, US Fixed Income, and Real Estate segments currently do not have enough members to calculate trailing period returns.



Montana Board of Investments
Comparative Performance
Equity Composites

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Domestic Large Cap Equity - Net	10.28	10.84	28.39	26.90	18.82	15.14	16.79	21.44	31.06	-4.71	21.66	11.30	10.66	12/01/2006
S&P 500 Index (Cap Wtd)	11.03	11.67	28.71	26.07	18.47	14.93	16.55	18.40	31.49	-4.38	21.83	11.96	10.70	
Difference	-0.75	-0.83	-0.32	0.83	0.35	0.21	0.24	3.04	-0.43	-0.33	-0.17	-0.66	-0.04	
Domestic Large Cap Equity - Gross	10.30	10.93	28.61	27.12	19.03	15.33	16.99	21.66	31.29	-4.52	21.82	11.45	10.89	12/01/2006
IM U.S. Large Cap Equity (SA+CF) Median	9.33	9.21	27.25	25.27	17.96	14.36	16.29	17.96	30.25	-5.00	21.73	11.07	10.77	
Rank	36	32	36	33	34	33	33	34	41	45	49	47	46	
Domestic Mid Cap Equity - Net	8.36	6.47	25.15	22.07	14.17	11.23	13.62	13.53	28.03	-10.75	19.45	12.30	9.82	01/01/2005
Russell Mid Cap Index	6.44	5.45	22.58	23.29	15.10	12.23	14.91	17.10	30.54	-9.06	18.52	13.80	10.65	
Difference	1.92	1.02	2.57	-1.22	-0.93	-1.00	-1.29	-3.57	-2.51	-1.69	0.93	-1.50	-0.83	
Domestic Mid Cap Equity - Gross	8.36	6.47	25.15	22.10	14.44	11.61	14.08	13.53	28.11	-10.28	20.18	12.97	10.27	01/01/2005
IM U.S. Mid Cap Equity (SA+CF) Median	7.42	6.13	24.62	23.45	15.66	12.88	15.27	16.08	30.18	-8.97	19.38	12.76	11.35	
Rank	32	45	43	62	56	67	80	59	65	59	48	49	86	
Domestic Small Cap Equity - Net	7.21	5.06	27.56	21.96	13.42	11.95	14.23	13.07	25.76	-10.51	15.65	19.31	12.60	03/01/2003
Russell 2000 Index	2.14	-2.31	14.82	20.02	12.02	10.76	13.23	19.96	25.53	-11.01	14.65	21.31	11.66	
Difference	5.07	7.37	12.74	1.94	1.40	1.19	1.00	-6.89	0.23	0.50	1.00	-2.00	0.94	
Domestic Small Cap Equity - Gross	7.25	5.21	28.00	22.41	13.90	12.49	14.83	13.50	26.25	-10.09	16.27	19.97	13.13	03/01/2003
IM U.S. Small Cap Equity (SA+CF) Median	5.51	3.87	23.75	22.03	13.29	11.95	14.64	16.66	25.81	-10.57	15.16	20.88	13.27	
Rank	26	36	31	47	47	45	47	57	47	48	44	57	53	

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



Montana Board of Investments
Comparative Performance
Equity Composites

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
International Large Cap Passive - Net	1.79	-1.34	7.76	13.23	9.79	6.89	7.51	10.81	21.59	-14.04	27.79	4.87	7.33	06/01/2009
MSCI ACW Ex US Index (USD) (Net)	1.82	-1.22	7.82	13.18	9.61	6.56	7.28	10.65	21.51	-14.20	27.19	4.50	7.13	
Difference	-0.03	-0.12	-0.06	0.05	0.18	0.33	0.23	0.16	0.08	0.16	0.60	0.37	0.20	
International Large Cap Passive - Gross	1.81	-1.31	7.82	13.30	9.86	6.96	7.59	10.88	21.66	-13.98	27.88	4.96	7.40	06/01/2009
International Equity Active - Net	1.53	-1.18	7.77	16.27	11.50	8.55	9.09	15.91	25.83	-16.18	30.82	2.63	4.47	04/01/1997
MSCI ACW Ex US Index (USD) (Net)	1.82	-1.22	7.82	13.18	9.61	6.56	7.28	10.65	21.51	-14.20	27.19	4.50	5.62	
Difference	-0.29	0.04	-0.05	3.09	1.89	1.99	1.81	5.26	4.32	-1.98	3.63	-1.87	-1.15	
International Equity Active - Gross	1.65	-0.94	8.30	16.86	12.08	9.11	9.62	16.50	26.48	-15.73	31.50	3.17	4.99	04/01/1997
IM International Large Cap Core Equity (SA+CF) Median	3.22	2.06	12.15	15.55	11.05	7.95	9.33	11.79	23.49	-14.36	26.34	1.60	7.04	
Rank	83	86	78	37	31	21	37	27	29	68	12	31	100	
International Value - Net	1.64	-0.59	9.32	13.00	10.17	7.06	7.98	9.31	20.76	-13.97	30.72	5.59	3.43	11/01/2006
MSCI ACW Ex US Val Index (USD) (Net)	1.24	-1.11	10.46	8.24	6.00	3.94	5.29	-0.77	15.72	-13.97	22.66	8.92	2.63	
Difference	0.40	0.52	-1.14	4.76	4.17	3.12	2.69	10.08	5.04	0.00	8.06	-3.33	0.80	
International Value - Gross	1.76	-0.35	9.85	13.57	10.73	7.61	8.55	9.87	21.37	-13.52	31.39	6.17	4.01	11/01/2006
IM International Large Cap Value Equity (SA+CF) Median	1.58	-0.04	11.86	11.97	8.40	6.64	8.31	5.00	21.12	-14.24	25.72	4.32	5.10	
Rank	43	54	65	38	25	30	44	32	46	41	12	32	70	
International Growth - Net	2.25	-2.61	3.79	18.84	12.51	9.12	9.27	23.08	31.39	-16.09	28.01	0.51	4.92	11/01/2006
MSCI ACW Ex US Grth Index (USD) (Net)	2.37	-1.34	5.09	17.82	13.06	8.99	9.13	22.20	27.34	-14.43	32.01	0.12	5.61	
Difference	-0.12	-1.27	-1.30	1.02	-0.55	0.13	0.14	0.88	4.05	-1.66	-4.00	0.39	-0.69	
International Growth - Gross	2.38	-2.36	4.33	19.48	13.13	9.73	9.84	23.74	32.10	-15.61	28.74	1.12	5.48	11/01/2006
IM International Large Cap Growth Equity (SA+CF) Median	2.76	2.63	11.05	19.63	14.22	10.26	10.91	20.72	28.35	-13.83	31.26	-0.04	6.72	
Rank	57	88	86	53	66	62	71	41	18	68	67	34	84	
International Small Cap - Net	0.30	-0.06	11.57	16.59	11.42	9.09	10.03	14.63	23.91	-18.90	33.61	1.84	5.87	09/01/2006
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	0.62	0.61	12.93	16.46	11.21	8.87	9.46	14.24	22.42	-18.20	31.65	3.91	6.40	
Difference	-0.32	-0.67	-1.36	0.13	0.21	0.22	0.57	0.39	1.49	-0.70	1.96	-2.07	-0.53	

Gross of fees performance is not available (N/A) for the International Small Cap composite which currently consists of DFA Intl Sm Co;I (DFISX), DFA Emg Mkts Sm Cap;I (DEMSX), BlackRock ACWI Ex-US Small Cap (CF), Templeton Investment Counsel (SA), and American Century Investment Mgmt (SA).

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



Montana Board of Investments
Comparative Performance
Domestic Equity Managers

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Domestic Large Cap Equity														
BlackRock MSCI US Equity Index (SA) - Net	10.07	10.52	26.95	N/A	N/A	N/A	N/A	21.33	N/A	N/A	N/A	N/A	23.31	04/01/2019
MSCI US Index (USD) (Gross)	10.08	10.53	26.97	26.59	18.75	15.07	16.64	21.37	31.64	-4.50	21.90	11.61	23.35	
Difference	-0.01	-0.01	-0.02	N/A	N/A	N/A	N/A	-0.04	N/A	N/A	N/A	N/A	-0.04	
BlackRock MSCI US Equity Index (SA) - Gross	10.08	10.53	26.96	N/A	N/A	N/A	N/A	21.34	N/A	N/A	N/A	N/A	23.33	04/01/2019
IM U.S. Large Cap Core Equity (SA+CF) Median	10.07	10.00	27.45	24.96	17.95	14.32	16.17	17.25	30.00	-5.16	21.86	10.63	21.81	
Rank	50	46	53	N/A	N/A	N/A	N/A	28	N/A	N/A	N/A	N/A	25	
Northern Trust MSCI US Index (SA) - Net	10.09	10.54	26.97	26.60	N/A	N/A	N/A	21.34	31.70	N/A	N/A	N/A	22.10	11/01/2018
MSCI US Index (USD) (Gross)	10.08	10.53	26.97	26.59	18.75	15.07	16.64	21.37	31.64	-4.50	21.90	11.61	22.10	
Difference	0.01	0.01	0.00	0.01	N/A	N/A	N/A	-0.03	0.06	N/A	N/A	N/A	0.00	
Northern Trust MSCI US Index (SA) - Gross	10.09	10.54	26.98	26.61	N/A	N/A	N/A	21.36	31.71	N/A	N/A	N/A	22.11	11/01/2018
IM U.S. Large Cap Core Equity (SA+CF) Median	10.07	10.00	27.45	24.96	17.95	14.32	16.17	17.25	30.00	-5.16	21.86	10.63	20.64	
Rank	50	46	53	24	N/A	N/A	N/A	28	32	N/A	N/A	N/A	27	
iShares:Core S&P Tot USM (ITOT) - Net	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.80	12/01/2021
S&P Tot Mkt Index	9.14	9.01	25.66	25.72	17.92	14.50	16.25	20.79	30.90	-5.30	21.16	12.65	3.80	
Difference	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	
iShares:Core S&P 500 (IVV) - Net	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.57	12/01/2021
S&P 500 Index (Cap Wtd)	11.03	11.67	28.71	26.07	18.47	14.93	16.55	18.40	31.49	-4.38	21.83	11.96	4.48	
Difference	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.09	
Domestic Mid Cap Equity														
iShares:Core S&P Md-Cp (IJH) - Net	8.36	6.47	25.15	21.50	N/A	N/A	N/A	13.53	26.24	-13.95	N/A	N/A	12.43	07/01/2017
S&P Mid Cap 400 Index (Cap Wtd)	8.00	6.09	24.76	21.41	13.09	11.81	14.20	13.66	26.20	-11.08	16.24	20.74	13.17	
Difference	0.36	0.38	0.39	0.09	N/A	N/A	N/A	-0.13	0.04	-2.87	N/A	N/A	-0.74	

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



Montana Board of Investments
 Comparative Performance
 Domestic Equity Managers

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Domestic Small Cap Equity														
BlackRock MSCI US Sm Cap Equity Index (CF) - Net	3.71	0.80	19.63	21.90	N/A	N/A	N/A	18.93	27.30	-9.96	N/A	N/A	14.02	07/01/2017
MSCI US Sm Cap Index (USD) (Net)	3.51	0.52	19.11	21.33	13.32	11.44	13.97	18.32	26.74	-10.40	16.75	19.15	13.48	
Difference	0.20	0.28	0.52	0.57	N/A	N/A	N/A	0.61	0.56	0.44	N/A	N/A	0.54	
BlackRock MSCI US Sm Cap Equity Index (CF) - Gross	3.71	0.81	19.66	21.93	N/A	N/A	N/A	18.96	27.34	-9.93	N/A	N/A	14.06	07/01/2017
iShares:Russ 2000 ETF (IWM) - Net	1.81	-2.61	14.32	20.16	N/A	N/A	N/A	20.90	25.52	N/A	N/A	N/A	12.30	05/01/2018
Russell 2000 Index	2.14	-2.31	14.82	20.02	12.02	10.76	13.23	19.96	25.53	-11.01	14.65	21.31	12.23	
Difference	-0.33	-0.30	-0.50	0.14	N/A	N/A	N/A	0.94	-0.01	N/A	N/A	N/A	0.07	

Gross of fees performance is not available (N/A) for the following funds: iShares:Core S&P Tot USM (ITOT), iShares:Core S&P 500 (IVV), iShares:Core S&P Md-Cp (IJH), and iShares:Russ 2000 ETF (IWM).

The current annual expense ratios for the iShares:Core S&P Tot USM (ITOT), iShares:Core S&P 500 (IVV), iShares:Core S&P Md-Cp (IJH), and iShares:Russ 2000 ETF (IWM) are 0.03%, 0.03%, 0.05%, and 0.19%, respectively.

See the Addendum for custom index specification.

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



Montana Board of Investments
Comparative Performance
International Equity Managers

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
International Developed Large Cap Equity														
Acadian Asset Non-US Equity (SA) - Net	3.62	0.65	16.67	14.89	12.08	9.05	9.85	8.89	19.38	-13.44	34.76	12.40	4.70	11/01/2006
MSCI ACW Ex US Val Index (USD) (Net)	1.24	-1.11	10.46	8.24	6.00	3.94	5.29	-0.77	15.72	-13.97	22.66	8.92	2.63	
Difference	2.38	1.76	6.21	6.65	6.08	5.11	4.56	9.66	3.66	0.53	12.10	3.48	2.07	
Acadian Asset Non-US Equity (SA) - Gross	3.75	0.88	17.23	15.47	12.65	9.61	10.43	9.45	19.98	-12.99	35.45	13.01	5.27	11/01/2006
IM ACWI Ex US Value (SA+CF) Median	1.73	-1.42	11.13	13.89	9.97	7.18	8.31	6.65	21.34	-14.78	26.02	4.87	4.78	
Rank	8	23	6	43	14	11	16	44	59	26	8	10	42	
Lazard Asset Management (SA) - Net	0.04	-1.80	4.11	11.56	8.60	N/A	N/A	9.59	21.70	-14.32	27.00	0.22	5.00	06/01/2015
Lazard Custom Index	1.82	-1.22	7.82	13.18	8.47	5.67	6.51	10.65	21.51	-15.55	22.66	8.92	5.14	
Difference	-1.78	-0.58	-3.71	-1.62	0.13	N/A	N/A	-1.06	0.19	1.23	4.34	-8.70	-0.14	
Lazard Asset Management (SA) - Gross	0.17	-1.55	4.62	12.12	9.15	N/A	N/A	10.14	22.31	-13.88	27.65	0.77	5.54	06/01/2015
IM ACWI Ex US Value (SA+CF) Median	1.73	-1.42	11.13	13.89	9.97	7.18	8.31	6.65	21.34	-14.78	26.02	4.87	6.35	
Rank	76	56	92	57	53	N/A	N/A	42	43	35	38	86	69	
BlackRock ACW Ex US SuperFund A (CF) - Net	1.84	-1.19	8.00	13.37	9.83	6.77	7.49	10.81	21.77	-13.99	27.49	4.77	7.33	06/01/2009
MSCI ACW Ex US Index (USD) (Net)	1.82	-1.22	7.82	13.18	9.61	6.56	7.28	10.65	21.51	-14.20	27.19	4.50	7.13	
Difference	0.02	0.03	0.18	0.19	0.22	0.21	0.21	0.16	0.26	0.21	0.30	0.27	0.20	
BlackRock ACW Ex US SuperFund A (CF) - Gross	1.86	-1.16	8.07	13.45	9.91	6.85	7.58	10.89	21.85	-13.93	27.58	4.86	7.42	06/01/2009
IM All ACWI Ex US (SA+CF) Median	1.84	-0.07	9.37	16.57	11.48	8.24	9.41	14.71	24.97	-14.64	28.74	2.12	9.19	
Rank	50	66	62	72	69	72	82	61	66	43	62	25	87	
iShares:MSCI EAFE ETF (EFA) - Net	2.85	1.72	11.47	13.58	N/A	N/A	N/A	7.71	22.03	-12.88	N/A	N/A	7.62	07/01/2017
MSCI EAFE Index (USD) (Net)	2.69	2.24	11.26	13.54	9.55	6.76	8.03	7.82	22.01	-13.79	25.03	1.00	7.53	
Difference	0.16	-0.52	0.21	0.04	N/A	N/A	N/A	-0.11	0.02	0.91	N/A	N/A	0.09	
Baillie Gifford (SA) - Net	0.75	-4.79	1.69	22.40	14.87	N/A	N/A	34.22	34.34	-17.35	31.99	0.73	9.98	06/01/2015
MSCI ACW Ex US Grth Index (USD) (Net)	2.37	-1.34	5.09	17.82	13.06	8.99	9.13	22.20	27.34	-14.43	32.01	0.12	8.28	
Difference	-1.62	-3.45	-3.40	4.58	1.81	N/A	N/A	12.02	7.00	-2.92	-0.02	0.61	1.70	
Baillie Gifford (SA) - Gross	0.87	-4.57	2.16	22.97	15.43	N/A	N/A	34.86	34.99	-16.93	32.66	1.28	10.53	06/01/2015
IM ACWI Ex US Growth (SA+CF) Median	1.94	1.01	8.80	19.45	14.10	10.44	11.01	22.14	29.57	-13.78	32.56	-0.76	9.67	
Rank	75	90	91	31	39	N/A	N/A	13	9	85	49	33	36	

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



Montana Board of Investments
Comparative Performance
International Equity Managers

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Invesco (SA) - Net	3.53	-0.72	5.60	16.17	10.69	N/A	N/A	14.84	29.29	-15.17	24.92	0.32	6.64	06/01/2015
MSCI ACW Ex US Grth Index (USD) (Net)	2.37	-1.34	5.09	17.82	13.06	8.99	9.13	22.20	27.34	-14.43	32.01	0.12	8.28	
Difference	1.16	0.62	0.51	-1.65	-2.37	N/A	N/A	-7.36	1.95	-0.74	-7.09	0.20	-1.64	
Invesco (SA) - Gross	3.67	-0.44	6.20	16.85	11.35	N/A	N/A	15.51	30.05	-14.64	25.70	1.01	7.29	06/01/2015
IM ACWI Ex US Growth (SA+CF) Median	1.94	1.01	8.80	19.45	14.10	10.44	11.01	22.14	29.57	-13.78	32.56	-0.76	9.67	
Rank	25	64	77	82	86	N/A	N/A	83	44	56	91	36	83	
International Developed Small Cap Equity														
American Century Investment Mgmt (SA) - Net	-1.93	0.45	6.24	21.86	15.57	11.73	N/A	31.60	29.44	-20.76	43.80	-5.31	8.93	03/01/2014
MSCI ACW Ex US Sm Cap Grth Index (USD) (Net)	0.74	1.10	11.53	19.79	13.43	10.36	10.29	23.69	24.61	-18.27	33.64	-0.28	8.22	
Difference	-2.67	-0.65	-5.29	2.07	2.14	1.37	N/A	7.91	4.83	-2.49	10.16	-5.03	0.71	
American Century Investment Mgmt (SA) - Gross	-1.72	0.86	7.10	22.86	16.53	12.66	N/A	32.68	30.50	-20.09	44.99	-4.49	9.84	03/01/2014
IM ACWI Ex US Growth (SA+CF) Median	1.94	1.01	8.80	19.45	14.10	10.44	11.01	22.14	29.57	-13.78	32.56	-0.76	8.93	
Rank	97	52	64	32	27	19	N/A	26	42	100	6	79	27	
BlackRock MSCI ACW Ex US Sm Cap Index (CF) - Net	0.61	0.57	12.84	16.58	11.43	9.12	N/A	14.45	22.68	-17.85	31.96	4.26	8.83	02/01/2012
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	0.62	0.61	12.93	16.46	11.21	8.87	9.46	14.24	22.42	-18.20	31.65	3.91	8.61	
Difference	-0.01	-0.04	-0.09	0.12	0.22	0.25	N/A	0.21	0.26	0.35	0.31	0.35	0.22	
BlackRock MSCI ACW Ex US Sm Cap Index (CF) - Gross	0.64	0.63	12.98	16.71	11.56	9.27	N/A	14.50	22.90	-17.74	32.15	4.44	8.99	02/01/2012
DFA Intl Sm Co;l (DFISX) - Net	1.56	1.84	14.13	15.69	10.20	8.93	9.95	9.24	24.21	-19.41	30.24	5.74	8.25	11/01/2004
MSCI Wrld Ex US Sm Cap Index (USD) (Net)	0.39	1.11	11.14	16.27	11.03	9.24	9.99	12.78	25.41	-18.07	31.04	4.32	7.94	
Difference	1.17	0.73	2.99	-0.58	-0.83	-0.31	-0.04	-3.54	-1.20	-1.34	-0.80	1.42	0.31	
Templeton Investment Counsel (SA) - Net	0.35	-1.38	11.79	15.14	10.62	7.57	N/A	9.98	24.17	-18.48	33.07	-1.13	6.17	03/01/2014
Templeton Custom Index	0.62	0.61	12.93	16.46	10.46	8.39	9.32	14.24	22.42	-19.75	29.72	8.24	6.41	
Difference	-0.27	-1.99	-1.14	-1.32	0.16	-0.82	N/A	-4.26	1.75	1.27	3.35	-9.37	-0.24	
Templeton Investment Counsel (SA) - Gross	0.56	-0.98	12.71	16.10	11.55	8.50	N/A	10.91	25.20	-17.78	34.21	-0.23	7.10	03/01/2014
IM ACWI Ex US Value (SA+CF) Median	1.73	-1.42	11.13	13.89	9.97	7.18	8.31	6.65	21.34	-14.78	26.02	4.87	5.33	
Rank	65	44	37	42	29	20	N/A	35	26	84	8	89	24	

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



Montana Board of Investments
Comparative Performance
International Equity Managers

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
International Emerging Equity														
BlackRock MSCI Emg Mkts Index NL (CF) - Net	-1.31	-9.43	-2.82	10.62	9.61	5.85	N/A	17.92	18.12	-14.69	37.05	10.85	4.14	02/01/2012
MSCI Emg Mkts Index (USD) (Net)	-1.31	-9.30	-2.54	10.94	9.87	6.11	5.49	18.31	18.44	-14.58	37.28	11.19	4.40	
Difference	0.00	-0.13	-0.28	-0.32	-0.26	-0.26	N/A	-0.39	-0.32	-0.11	-0.23	-0.34	-0.26	
BlackRock MSCI Emg Mkts Index NL (CF) - Gross	-1.28	-9.38	-2.71	10.74	9.73	5.98	N/A	18.04	18.25	-14.60	37.16	11.08	4.30	02/01/2012
iShares:MSCI Em Mkts (EEM) - Net	-1.57	-10.08	-3.60	10.03	8.78	N/A	N/A	16.99	18.12	-16.45	36.86	N/A	8.78	01/01/2017
MSCI Emg Mkts Index (USD) (Net)	-1.31	-9.30	-2.54	10.94	9.87	6.11	5.49	18.31	18.44	-14.58	37.28	11.19	9.87	
Difference	-0.26	-0.78	-1.06	-0.91	-1.09	N/A	N/A	-1.32	-0.32	-1.87	-0.42	N/A	-1.09	
DFA Emg Mkts Sm Cap;I (DEMSX) - Net	0.98	-3.20	14.57	14.41	N/A	N/A	N/A	13.79	14.88	-17.56	N/A	N/A	9.72	02/01/2017
MSCI Emg Mkts Sm Cap Index (USD) (Net)	1.33	-0.86	18.75	16.46	11.47	7.32	7.42	19.29	11.51	-18.59	33.84	2.28	10.64	
Difference	-0.35	-2.34	-4.18	-2.05	N/A	N/A	N/A	-5.50	3.37	1.03	N/A	N/A	-0.92	
iShares:Core MSCI Em Mkts (IEMG)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	01/01/2022
MSCI Emg Mkts IM Index (USD) (Net)	-0.98	-8.30	-0.28	11.58	10.06	6.25	5.71	18.39	17.65	-15.05	36.83	9.90	N/A	
Difference	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Gross of fees performance is not available (N/A) for the following funds: iShares:MSCI EAFE ETF (EFA), International Equity Pool STIF, DFA Intl Sm Co;I (DFISX), iShares:MSCI Em Mkts (EEM), DFA Emg Mkts Sm Cap;I (DEMSX), and iShares:Core MSCI Em Mkts (IEMG).

The current annual expense ratios for the iShares:MSCI EAFE ETF (EFA), DFA Intl Sm Co;I (DFISX), iShares:MSCI Em Mkts (EEM), DFA Emg Mkts Sm Cap;I (DEMSX), and iShares:Core MSCI Em Mkts (IEMG) are 0.32%, 0.44%, 0.68%, 0.60%, and 0.11%, respectively.

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



Montana Board of Investments
 Comparative Performance
 Core Fixed Income Managers

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
US Fixed Income Aggregate - Net	-0.01	-0.01	-1.52	N/A	N/A	N/A	N/A	7.65	N/A	N/A	N/A	N/A	2.81	12/01/2019
Bloomberg US Agg Bond Index	0.01	0.06	-1.55	4.79	3.57	3.00	2.90	7.51	8.72	0.01	3.54	2.65	2.73	
Difference	-0.02	-0.07	0.03	N/A	N/A	N/A	N/A	0.14	N/A	N/A	N/A	N/A	0.08	
Reams Asset Core Plus (SA) - Net	0.46	0.37	-1.25	7.73	5.50	4.52	4.37	17.14	8.08	1.31	3.21	4.18	5.82	10/01/2008
Reams Custom Index	-0.03	0.05	-1.10	4.97	3.73	3.28	3.25	7.58	8.72	0.01	3.83	3.91	4.40	
Difference	0.49	0.32	-0.15	2.76	1.77	1.24	1.12	9.56	-0.64	1.30	-0.62	0.27	1.42	
Reams Asset Core Plus (SA) - Gross	0.50	0.46	-1.07	7.93	5.69	4.71	4.55	17.35	8.28	1.49	3.38	4.35	6.01	10/01/2008
IM U.S. Broad Market Core+ FI (SA+CF) Median	0.09	0.34	-0.13	6.30	4.63	4.01	4.24	8.96	9.88	-0.25	4.78	4.67	5.62	
Rank	6	36	90	8	9	16	28	2	93	4	95	57	31	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.



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

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Neuberger Berman High Yield (SA) - Net	0.81	1.22	4.76	8.20	5.60	5.40	6.29	6.30	13.75	-1.99	5.80	14.98	6.90	01/01/2010
Bloomberg US HY 2% Issuer Cap Index	0.69	1.59	5.26	8.81	6.28	6.14	6.82	7.05	14.32	-2.08	7.50	17.13	7.32	
Difference	0.12	-0.37	-0.50	-0.61	-0.68	-0.74	-0.53	-0.75	-0.57	0.09	-1.70	-2.15	-0.42	
Neuberger Berman High Yield (SA) - Gross	0.86	1.30	4.96	8.58	6.02	5.83	6.73	6.75	14.26	-1.56	6.27	15.50	7.35	01/01/2010
IM U.S. High Yield Bonds (SA+CF) Median	0.72	1.67	5.15	8.49	6.18	5.98	6.74	6.53	14.23	-1.64	7.49	14.07	7.31	
Rank	30	82	57	48	58	56	52	43	50	49	79	33	46	
Oaktree US High Yield (SA) (CAPP) - Net	0.93	1.75	4.91	8.88	N/A	N/A	N/A	6.56	15.44	-3.99	N/A	N/A	5.51	01/01/2018
Bloomberg US HY 2% Issuer Cap Index	0.69	1.59	5.26	8.81	6.28	6.14	6.82	7.05	14.32	-2.08	7.50	17.13	5.97	
Difference	0.24	0.16	-0.35	0.07	N/A	N/A	N/A	-0.49	1.12	-1.91	N/A	N/A	-0.46	
Oaktree US High Yield (SA) (CAPP) - Gross	1.03	1.95	5.34	9.38	N/A	N/A	N/A	7.07	16.02	-3.47	N/A	N/A	6.01	01/01/2018
IM U.S. High Yield Bonds (SA+CF) Median	0.72	1.67	5.15	8.49	6.18	5.98	6.74	6.53	14.23	-1.66	7.49	14.07	5.79	
Rank	8	19	47	24	N/A	N/A	N/A	39	16	92	N/A	N/A	39	
Shenkman High Yield Fixed Income (SA) (CAPP) - Net	0.49	1.30	4.24	8.00	N/A	N/A	N/A	6.32	13.65	-1.96	N/A	N/A	5.20	12/01/2017
Bloomberg US HY 2% Issuer Cap Index	0.69	1.59	5.26	8.81	6.28	6.14	6.82	7.05	14.32	-2.08	7.50	17.13	5.93	
Difference	-0.20	-0.29	-1.02	-0.81	N/A	N/A	N/A	-0.73	-0.67	0.12	N/A	N/A	-0.73	
Shenkman High Yield Fixed Income (SA) (CAPP) - Gross	0.58	1.49	4.68	8.49	N/A	N/A	N/A	6.82	14.18	-1.46	N/A	N/A	5.69	12/01/2017
IM U.S. High Yield Bonds (SA+CF) Median	0.72	1.67	5.15	8.49	6.18	5.98	6.74	6.53	14.23	-1.66	7.49	14.07	5.77	
Rank	74	68	68	51	N/A	N/A	N/A	43	51	46	N/A	N/A	56	
Cohen & Steers Preferred Securities (SA) - Net	-0.14	0.97	3.70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.23	11/01/2020
Cohen & Steers Preferred Securities Custom Benchmark	-0.27	0.32	2.72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.89	
Difference	0.13	0.65	0.98	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.34	
Cohen & Steers Preferred Securities (SA) - Gross	-0.06	1.15	4.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.61	11/01/2020
Payden & Rygel EMD (SA) - Net	-1.35	-2.39	-3.49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-3.49	01/01/2021
Payden & Rygel EMD Custom Benchmark	-1.07	-2.48	-3.92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-3.92	
Difference	-0.28	0.09	0.43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.43	
Payden & Rygel EMD (SA) - Gross	-1.27	-2.22	-3.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-3.14	01/01/2021
IM Emerging Markets Debt (SA+CF) Median	-1.48	-2.54	-2.72	6.22	4.82	4.97	4.75	6.71	14.28	-5.30	12.46	11.04	-2.72	
Rank	45	45	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	55	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences. No peer group is shown for Cohen & Steers Preferred Securities (SA) due to the lack of suitable Preferred Securities peer groups.



Montana Board of Investments
Comparative Performance
TFIP Fixed Income Managers

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Trust Funds Investment Pool Fixed Income	0.25	0.41	-0.47	5.73	4.23	3.66	3.71	8.84	9.12	0.25	3.83	3.44	5.83	10/01/1995
Bloomberg US Agg Bond Index	0.01	0.06	-1.55	4.79	3.57	3.00	2.90	7.51	8.72	0.01	3.54	2.65	5.01	
Difference	0.24	0.35	1.08	0.94	0.66	0.66	0.81	1.33	0.40	0.24	0.29	0.79	0.82	
Trust Funds Investment Pool Fixed Income	0.25	0.41	-0.47	5.73	4.23	3.66	3.71	8.84	9.12	0.25	3.83	3.44	5.83	10/01/1995
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	-0.05	0.03	-1.20	5.56	4.13	3.53	3.52	8.52	9.19	0.06	4.01	3.12	5.43	
Rank	5	6	22	40	43	41	36	37	55	32	62	43	9	
Shenkman High Yield Fixed Income (SA) (TFIP) - Net	0.49	1.31	4.31	N/A	N/A	N/A	N/A	6.05	N/A	N/A	N/A	N/A	5.76	07/01/2019
Bloomberg US HY 2% Issuer Cap Index	0.69	1.59	5.26	8.81	6.28	6.14	6.82	7.05	14.32	-2.08	7.50	17.13	6.54	
Difference	-0.20	-0.28	-0.95	N/A	N/A	N/A	N/A	-1.00	N/A	N/A	N/A	N/A	-0.78	
Shenkman High Yield Fixed Income (SA) (TFIP) - Gross	0.58	1.49	4.74	N/A	N/A	N/A	N/A	6.54	N/A	N/A	N/A	N/A	6.22	07/01/2019
IM U.S. High Yield Bonds (SA+CF) Median	0.72	1.67	5.15	8.49	6.18	5.98	6.74	6.53	14.23	-1.66	7.49	14.07	6.39	
Rank	74	68	65	N/A	N/A	N/A	N/A	50	N/A	N/A	N/A	N/A	55	
Oaktree US High Yield (SA) (TFIP) - Net	0.85	1.67	4.93	N/A	N/A	N/A	N/A	6.72	N/A	N/A	N/A	N/A	6.58	08/01/2019
Bloomberg US HY 2% Issuer Cap Index	0.69	1.59	5.26	8.81	6.28	6.14	6.82	7.05	14.32	-2.08	7.50	17.13	6.53	
Difference	0.16	0.08	-0.33	N/A	N/A	N/A	N/A	-0.33	N/A	N/A	N/A	N/A	0.05	
Oaktree US High Yield (SA) (TFIP) - Gross	0.95	1.87	5.36	N/A	N/A	N/A	N/A	7.25	N/A	N/A	N/A	N/A	7.07	08/01/2019
IM U.S. High Yield Bonds (SA+CF) Median	0.72	1.67	5.15	8.49	6.18	5.98	6.74	6.53	14.23	-1.66	7.49	14.07	6.35	
Rank	18	31	46	N/A	N/A	N/A	N/A	35	N/A	N/A	N/A	N/A	23	
Neuberger Berman High Yield (SA) (TFIP) - Net	0.80	1.22	4.62	N/A	13.86	04/01/2020								
Bloomberg US HY 2% Issuer Cap Index	0.69	1.59	5.26	8.81	6.28	6.14	6.82	7.05	14.32	-2.08	7.50	17.13	15.69	
Difference	0.11	-0.37	-0.64	N/A	-1.83									
Neuberger Berman High Yield (SA) (TFIP) - Gross	0.85	1.30	4.81	N/A	14.19	04/01/2020								
IM U.S. High Yield Bonds (SA+CF) Median	0.72	1.67	5.15	8.49	6.18	5.98	6.74	6.53	14.23	-1.66	7.49	14.07	14.45	
Rank	30	83	62	N/A	57									

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.



Montana Board of Investments
Comparative Performance
Trust Accounts

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Abandoned Mine Trust	0.03	0.06	0.13	1.08	1.23	1.16	1.31	0.73	2.41	1.85	1.04	1.10	3.74	12/01/1993
Barker Hughesville St Response	1.05	1.61	1.36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.28	05/01/2020
Belt Water Treatment Plant Fund	1.03	1.57	1.34	5.52	N/A	N/A	N/A	6.80	8.56	N/A	N/A	N/A	4.85	03/01/2018
Big Sky Economic Development Fund	1.12	1.70	1.45	5.70	4.29	3.89	4.03	7.12	8.67	0.48	3.97	3.98	4.88	07/01/2005
Butte Area One Restoration	0.90	1.41	1.26	4.67	3.62	3.13	2.90	6.07	6.76	1.24	2.92	2.60	3.43	11/01/2008
Clark Fork River Restoration	0.90	1.37	1.19	4.60	3.51	3.09	3.00	5.65	7.04	0.96	2.85	2.72	3.68	11/01/2008
Coal Tax Cultural Trust Fund	1.10	1.67	1.43	5.64	4.25	3.85	4.01	6.99	8.64	0.47	3.96	3.95	5.92	12/01/1993
Coal Tax Park Acquisition	1.06	1.60	1.37	5.57	4.21	3.82	3.97	6.86	8.63	0.48	3.96	3.90	5.89	12/01/1993
East Helena Compensation Fund	0.24	0.37	0.42	2.84	2.46	2.19	N/A	2.65	5.52	1.20	2.56	2.12	2.02	01/01/2013
East Helena Greenway Trail Maintenance	0.86	1.31	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.67	03/01/2021
Endowment for Children	1.09	1.66	1.41	5.61	4.22	3.77	3.93	7.01	8.54	0.46	3.89	3.66	4.90	08/01/2007
Flying J CECRA Facilities Fund	1.05	1.60	1.36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.32	05/01/2020
FWP License Account	0.39	0.68	0.46	1.87	1.65	1.38	1.23	1.85	3.33	1.50	1.11	0.84	2.83	11/01/1997
FWP Mitigation Trust Fund	0.74	1.15	0.98	3.41	2.50	2.00	1.88	3.84	5.46	1.14	1.15	0.67	3.82	12/01/1993
FWP Real Property Trust	1.06	1.61	1.38	5.56	4.18	3.78	3.90	6.83	8.62	0.51	3.80	3.82	5.32	12/01/1993
Group Benefits	0.31	0.50	0.63	2.22	1.87	1.65	1.52	2.05	4.01	1.37	1.30	1.16	3.74	12/01/1993
Harold Hamm Endowment	1.07	1.63	1.43	5.49	3.60	N/A	N/A	6.71	8.45	0.57	1.11	N/A	3.33	07/01/2016
Invasive Species Trust Fund	1.12	1.50	1.19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.56	10/01/2020
Libby Asbestos Site State Cost	1.00	1.54	1.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.24	05/01/2020
Luttrell Pit - Operational & Maintenance	1.05	1.60	1.36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.25	05/01/2020
Montana Pole	0.85	1.30	1.14	4.71	3.64	3.28	3.36	5.61	7.48	0.74	3.38	3.23	5.01	09/01/1996
Montana State University	0.17	0.24	0.30	1.48	1.54	1.29	1.11	1.30	2.87	1.87	1.39	0.95	1.92	08/01/2004
Montana Tech-UM Agency Funds	0.09	0.14	0.20	1.25	1.38	1.12	0.90	1.01	2.56	1.91	1.22	0.72	1.71	03/01/2003
MT BOI - Clark Fork Site	1.10	1.64	1.44	5.32	4.04	3.62	3.58	6.65	8.00	0.67	3.64	3.63	4.32	11/01/2008
MT BOI UOFM Other	0.31	0.69	0.73	2.90	2.45	2.25	2.07	3.47	4.54	1.42	2.15	2.34	2.91	08/01/2002
MUS Group Insurance	0.15	0.25	0.26	1.78	1.67	1.57	1.40	1.70	3.39	1.96	1.09	1.33	1.38	10/01/2011
MUS Workers Compensation	0.32	0.50	0.46	2.47	2.17	N/A	N/A	2.55	4.43	1.62	1.80	N/A	1.93	04/01/2016

Performance shown is gross of fees. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.



Montana Board of Investments
Comparative Performance
Trust Accounts

As of December 31, 2021

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	Since Incep.	Inception Date
Older Montanans Trust	1.09	1.66	1.41	5.69	4.27	3.84	3.91	7.19	8.62	0.49	3.87	3.86	4.75	08/01/2007
Permanent Coal Trust Excl Crp	0.93	1.41	1.82	4.71	3.77	3.55	3.82	5.57	6.81	1.28	3.49	3.79	5.60	12/01/1993
PERS Defined Cont Disability	4.77	3.99	13.16	15.95	11.18	N/A	N/A	14.06	20.77	-4.88	14.57	3.42	9.32	09/01/2015
Potter Trust Fund	1.07	1.63	1.41	5.51	4.16	N/A	N/A	6.78	8.47	0.51	3.87	N/A	3.74	06/01/2016
Resource Indemnity Trust	1.14	1.73	1.48	5.82	4.36	3.94	4.10	7.23	8.88	0.44	4.01	4.02	6.00	12/01/1993
School Facilities Fund	1.07	1.65	1.39	5.37	N/A	N/A	N/A	6.97	7.88	-0.13	N/A	N/A	3.97	01/01/2018
Smelter Hill Up Restorative	0.98	1.48	1.29	4.16	3.18	2.65	2.35	5.62	5.64	1.57	1.85	1.79	2.49	11/01/2008
State Fund Insurance	1.30	1.51	3.04	6.74	5.10	4.45	4.65	7.62	9.65	0.38	5.05	3.50	5.59	12/01/1993
Streamside Tailings Operable Unit	0.97	1.47	1.27	5.18	3.94	3.57	3.70	6.47	7.92	0.57	3.69	3.58	5.23	02/01/1999
Subsequent Injury Fund	0.03	0.06	0.13	1.04	1.24	1.00	0.76	0.73	2.28	1.98	1.11	0.61	2.89	12/01/1993
Tobacco Trust Fund	1.13	1.72	1.51	5.71	4.29	3.89	4.05	7.10	8.67	0.46	3.96	3.99	5.52	01/01/2001
Treasurers	0.01	0.03	0.10	1.00	1.21	1.00	0.77	0.63	2.28	1.97	1.07	0.68	2.73	12/01/1993
Treasure State Endowment	1.13	1.71	1.47	5.76	4.33	3.92	4.06	7.15	8.81	0.46	4.00	3.98	5.87	12/01/1993
Treasure State Reg. Water System	1.13	1.71	1.47	5.76	4.33	3.91	4.05	7.15	8.80	0.45	4.00	3.96	5.66	06/01/2000
Trust and Legacy Account	1.13	1.72	1.47	5.79	4.34	3.93	4.08	7.19	8.84	0.43	4.00	4.01	6.56	07/01/1991
UCFRB Assess/Litig Cost Rec	1.12	1.70	1.53	5.53	4.15	3.75	3.87	6.68	8.50	0.49	3.77	3.84	5.58	07/01/1999
UCFRB Restoration Fund	1.08	1.63	1.36	5.55	4.19	3.74	3.85	6.90	8.52	0.67	3.73	3.52	5.49	06/01/1999
Upper Blackfoot Response	0.12	0.27	0.32	2.03	1.89	1.72	1.53	1.55	4.24	1.49	1.90	1.74	1.55	09/01/2010
Weed Control Trust	1.14	1.73	1.48	5.82	4.36	3.94	4.09	7.23	8.88	0.44	4.01	4.02	5.20	12/01/1993
Wildlife Habitat Trust	1.05	1.61	1.38	5.51	4.15	3.75	3.88	6.75	8.54	0.51	3.78	3.79	5.32	12/01/1993
Yellowstone Pipeline Cleanup Fund	0.58	0.85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.51	04/01/2021
Zortman/Landusky LT H2O	0.03	0.06	0.13	1.04	1.22	1.19	1.49	0.73	2.28	1.98	1.01	1.36	6.00	09/01/1999
Z/L Long Term H2O Trust Fund	0.03	0.06	0.13	1.04	1.24	1.25	1.34	0.73	2.28	1.98	1.08	1.39	3.90	09/01/2005

Performance shown is gross of fees. Fiscal year ends on 06/30. Since inception performance may vary from State Street reported performance due to calculation methodology differences.



Performance Notes

- All gross and net performance data is provided by State Street Analytics (SSA). Reported gross returns for the retirement plans prior to 07/01/2002 are net of all fees.
- Gross performance for the retirement plans is calculated with fee accruals provided by Montana's Accounting department.
- Gross of fees performance is not available (N/A) for the following funds: SPDR S&P 500 ETF (SPY), Domestic Equity Pool STIF, iShares:Core S&P Md-Cp (IJH), iShares:Russ 2000 ETF (IWM), DFA Intl Sm Co;I (DFISX), iShares:MSCI EAFE ETF (EFA), International Equity Pool STIF, iShares:MSCI Em Mkts (EEM), and DFA Emg Mkts Sm Cap;I (DEMSX). The current annual expense ratios are as listed below.

Index Notes

- Retirement plan custom benchmarks are provided by State Street Bank and are calculated daily using actual allocations.
- The CAPP Custom Benchmark consists of the portfolio weighted average of the primary benchmark for each CAPP asset class.
- The Short Term Custom Benchmark consists of 100% ICE 1 Mo LIBOR Index (USD) through 4/30/2018, and 100% Federal Reserve US Treasury 1 Mo Constant Maturity Index thereafter.
- The Domestic Equity Custom Index consists of 100% S&P 1500 Comp Index through 04/30/2017 and 100% MSCI USA IM Index (USD) (Gross) thereafter.
- The International Equity Custom Index consists of 100% MSCI EAFE Index (USD) (Net) through 10/31/2006, 100% MSCI ACW Ex US Index (USD) (Net) through 06/30/2007, 92.5% MSCI ACW Ex US Index (USD) (Net) and 7.5% MSCI ACW Ex US SC IM Index (USD) (Net) through 02/28/2014, and 100% MSCI ACW Ex-US IM Index thereafter.
- The Real Estate Custom Index consists of 100% NCREIF ODCE Index (AWA) (Net) (1 Qtr Lag) through 03/31/2017, 100% MSCI US REIT Index (USD) (Gross) through 06/30/2020, and 100% NCREIF ODCE (AWA) (1 Qtr Lag) Index thereafter.
- The Private Investments Custom Index consists of 100% S&P 1500 Comp Index+4% (1 Qtr Lag) through 03/31/2017, 100% MSCI US Small Cap Index (USD) (Gross) through 12/31/2020, and the portfolio weighted MSCI US SC / S&P LSTA US Leverage Loan 100 Index for PE / PC thereafter.
- The Lazard Custom Index consists of 100% MSCI ACW Ex US Value Index (USD) (Net) through 6/30/2018 and 100% MSCI ACW Ex US Index (USD) (Net) thereafter.
- The Templeton Custom Index consists of 100% MSCI ACW Ex US Small Cap Value Index (USD) (Net) through 5/31/2018, and 100% MSCI ACW Ex US Small Cap Index (USD) (Net) thereafter.
- The Reams Custom Index consists of 100% Bloomberg US Unv Bond Index through 03/31/2017, 100% Bloomberg US Agg Bond Index through 12/31/2019, and 100% Bloomberg US Unv Bond Index thereafter.
- The Cohen & Steers Custom Index consists of 60% ICE BofAML US IG Institutional Capital Securities Index, 20% ICE BofAML Core Fixed Rate Preferred Securities Index, and 20% Bloomberg Barclays Developed Market USD Contingent Capital Index.
- The Payden & Rygel Custom Index consists of 70% JP Morgan EMBI Global Diversified Index, 30% JP Morgan GBI-EM Global Diversified Index.
- The JPM US Equity Custom Benchmark consists of 100% S&P 500 Index (Cap Weighted) through 06/30/2019 and 100% MSCI US Index (USD) (Gross) thereafter.
- The Real Assets Custom Index consists of 100% MSCI All Country World Commodity Producers Index (USD) (Net) through 12/31/2020 and 33.33% MSCI All Country World Commodity Producers Index (USD) (Net), 33.33% MSCI All Country World Infrastructure Index, 33.33% Bloomberg Barclays Global Inflation Linked US TIPS Index thereafter.
- The Core Fixed Income Custom Index consists of 100% Bloomberg US Agg Bond Index through 03/31/2017, the portfolio weighted average of Broad Fixed Income - PAC Custom Blend, Bloomberg US Corp Inv Grade Index, Bloomberg US MBS Index, Bloomberg US Int TIPS Index, Bloomberg US Trsy Int Trm Index through 11/30/2019, and 100% Bloomberg US Agg Bond Index thereafter.

Trust Accounts Comments

- Barker Hughesville St Response, Libby Asbestos Site State Cost, Flying J CECRA Facilities Fund, and Luttrell Pit - Operations and Maintenance were added in 05/2020.
- The Belt Water Treatment Plant Fund was added in 03/2018.
- The School Facilities Fund was added in 01/2018.
- The Potter Trust Fund and the Harold Hamm Endowment were added in 06/2016.
- MUS Workers Compensation was added in 04/2016.
- The Invasive Species Trust Fund was added in 10/2020.
- The East Helena Greenway Trail Maintenance Fund was added in 03/2021.
- The Yellowstone Pipeline Cleanup Fund was added in 04/2021.

Manager Transition Comments

- Neuberger Berman High Yield (SA) and TFIP Private Real Estate were funded in the Trust Fund Investment Pool during Q1 2020.
- Post High Yield Plus (SA), GMO:Bchmk-Fr All;III (GBMFX), and PIMCO:All Asset;Inst (PAAIX) were liquidated during Q3 2019.
- Oaktree US High Yield Fixed Income (SA) and Shenkman High Yield Fixed Income (SA) were funded in the Trust Fund Investment Pool during Q3 2019.
- Artisan Partners (SA), Iridian Asset Management (SA), Congress Mid Cap Growth (SA), TimeSquare Capital Management (SA), and Alliance Bernstein (SA) were liquidated in Q2 2019.
- BlackRock MSCI US Equity Index (CF) was transitioned into a separately managed account during Q1 2019.



Manager Transition Comments (cont.)

- Northern Trust MSCI US Equity Index (SA), GMO:Bchmk-Fr All;III (GBMFX), and PIMCO:All Asset;Inst (PAAIX) were funded during Q4 2018.
- Voya Investment Management (SA) was liquidated in 07/2018.
- iShares:Russ 2000 ETF (IWM) was funded in 04/2018.
- Jacobs Levy 130/30 Large Cap (SA) was funded in 03/2018.
- Congress Mid Cap Growth (SA) was funded in 02/2018.
- Oaktree US High Yield (SA) and Shenkman High Yield Fixed Income (SA) were funded in 12/2017.
- Analytic Investors 130/30 (SA) was liquidated in 09/2017.
- BlackRock MSCI US Equity Index (CF), BlackRock MSCI US Sm Cap Equity Index (CF), and iShares:Core S&P Md-Cp (IJH) were funded in 06/2017.
- SPDR S&P 500 ETF (SPY) and iShares:MSCI EAFE ETF (EFA) were re-funded in 06/2017.
- INTECH Enhanced Plus was liquidated in 06/2017.
- Residual assets from the liquidation of AllianceBernstein Int'l Value (SA), Martin Currie (SA), Hansberger Global Investors (SA), and Aberdeen Total Return Bond Strategy (SA) were distributed in 06/2017.
- BlackRock Equity Index Fund A (CF) and BlackRock Mid Cap Equity Index A (CF) were liquidated in 05/2017.
- DFA Emg Mkts Sm Cap;I (DEMSX) was funded in 02/2017.
- SPDR S&P 500 ETF (SPY) was liquidated in 01/2017.
- iShares:MSCI Em Mkts (EEM) was funded in 12/2016.
- SPDR S&P 500 ETF (SPY) was initially funded in 09/2015, was then liquidated in 12/2015, and was re-funded in 10/2016.
- Wells Capital Management (SA), Domestic Equity Pool SPIF, and International Equity Pool SPIF were liquidated in 10/2016. Wells Capital Management (SA) residual assets from liquidation were distributed in 03/2017.
- Nicholas Investment Partners was liquidated in 07/2016. Residual assets from liquidation were distributed in 03/2017.
- Effective 07/2016, the Metropolitan West Capital Management legal entity merged into the Wells Capital Management Incorporated legal entity. The Metropolitan West Capital Mgmt (SA) has been updated to Wells Capital Management (SA) to reflect the change.
- iShares S&P SmallCap 600 Index ETF (IJR) was liquidated in 01/2016.
- Effective 05/2014, ING rebranded to Voya. The ING Investment Management (SA) has been updated to Voya Investment Management (SA) to reflect the change.
- Cohen & Steers Preferred Securities (SA) was funded in 10/2020.
- Payden & Rygel EMD (SA) was funded in 12/2020.
- DFA US Sm Cap Tr (CF) was liquidated in 11/2021.
- Jacobs Levy 130/30 Large Cap (SA) was liquidated in 11/2021.
- J.P. Morgan 130/30 (SA) was liquidated in 11/2021.
- T. Rowe U.S. Structured Research (SA) was liquidated in 11/2021.
- Vaguhun Nelson Management (SA) was liquidated in 11/2021.
- iShares:Core S&P Tot USM (ITOT) was funded in 11/2021.
- iShares:Core S&P 500 (IVV) was funded in 11/2021.
- SPDR S&P 500 ETF (SPY) was liquidated in 12/2021.
- iShares:Core MSCI EmMkts (IEMG) was funded in 12/2021.

Miscellaneous Comments

- Fiscal year ends on 06/30.
- During Q4 2019 Diversifying Strategies investments were liquidated and Investment Grade Credit, US Treasury & Agency, and TIPS were consolidated into the Core Fixed Income composite.
- Non-Core Fixed Income currently consists of High Yield and EMD.
- Private Investments currently consist of Private Equity, Private Credit, Venture Capital, and Passive ETFs.
- During Q1 2021 the Natural Resources PAC was renamed to the Real Assets PAC.

Montana Board of Investments
Fee Schedule

As of December 31, 2021

	Fee Schedule	Market Value As of 12/31/2021 (\$)
iShares:Core S&P Tot USM (ITOT)	0.03 % of Assets	295,369,640
iShares:Core S&P 500 (IVV)	0.03 % of Assets	99,643,211
iShares:Core S&P Md-Cp (IJH)	0.05 % of Assets	20,567,177
iShares:Russ 2000 ETF (IWM)	0.19 % of Assets	93,707,730
iShares:MSCI EAFE ETF (EFA)	0.32 % of Assets	163,520,687
DFA Intl Sm Co;I (DFISX)	0.44 % of Assets	115,337,080
iShares:MSCI Em Mkts (EEM)	0.68 % of Assets	47,427,322
DFA Emg Mkts Sm Cap;I (DEMSX)	0.60 % of Assets	35,722,550
iShares:Core MSCI EmMkts (IEMG)	0.11 % of Assets	9,950,610

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

PORTLAND

BOISE

CHICAGO

NEW YORK

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Investment Update

Board Meeting: February 16-17, 2022

Information as of: December 31, 2021

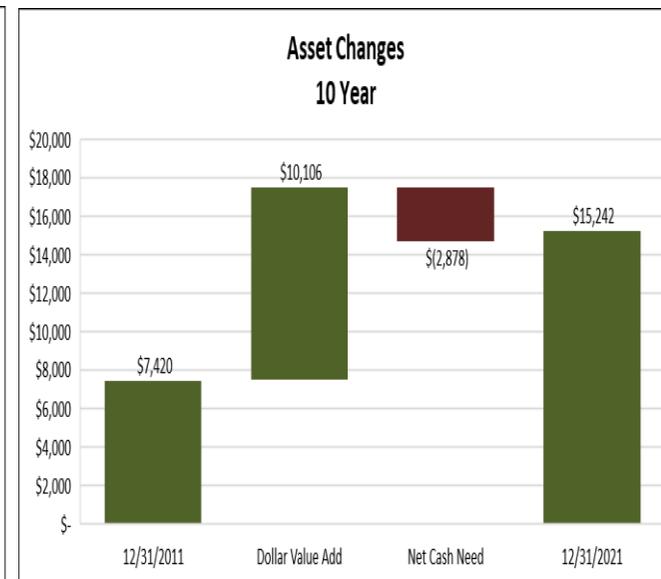
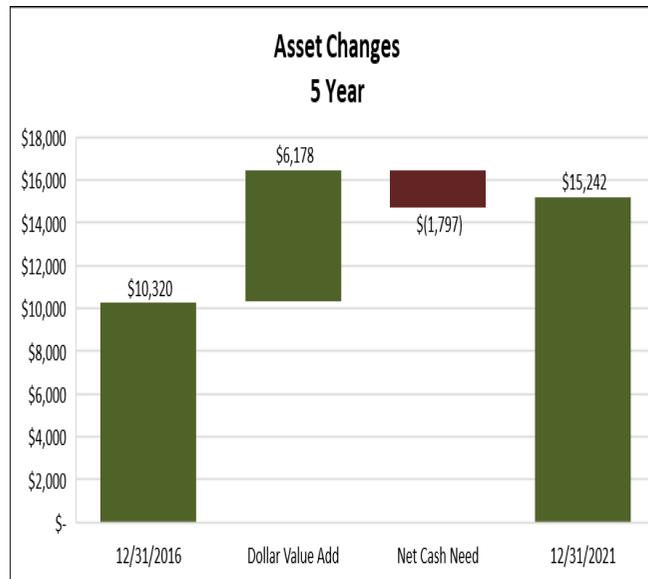
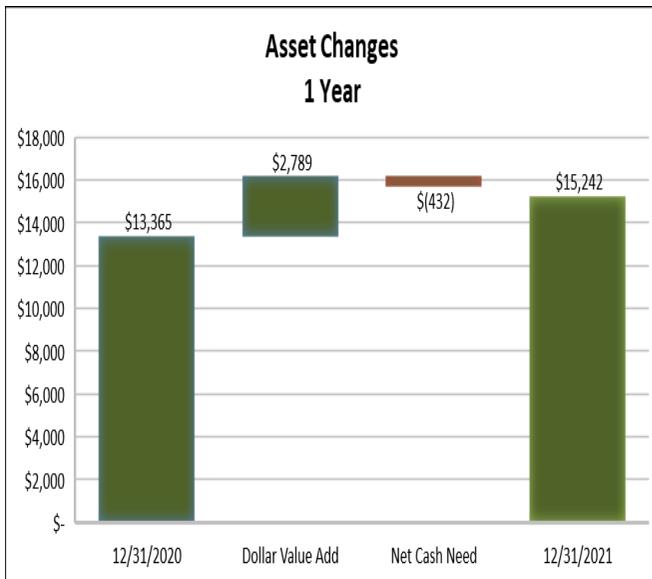
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Table of Contents

CIO Update	4
Macro Attribution	16
Private Investments	19
Real Estate	22
Real Assets	25
Core Fixed Income	28
Non-Core Fixed Income	32
Domestic Equity	35
International Equity	39
STIP, State Fund & Trust Fund	
STIP	43
State Fund	45
Trust Funds Investment Pool	47
Appendix	50

CIO Update

Retirement Plans Net Performance



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

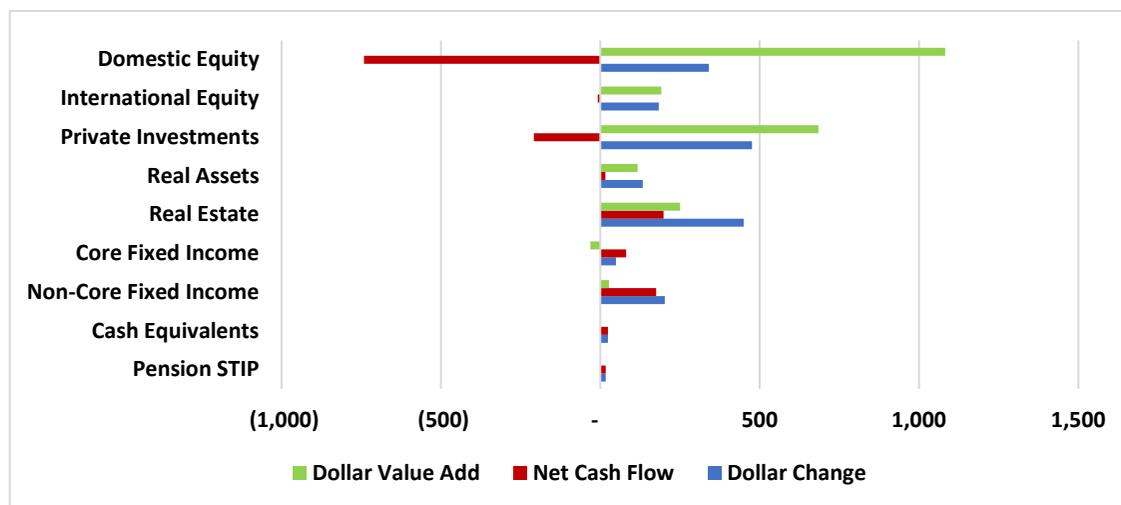
- Dollar Value Added – The total dollar return of the portfolio including income and capital gains.
- Net Cash Need - The total dollar amount distributed from portfolio assets to meet the deficit of contributions minus distributions.
 - A red bar indicates an aggregate net outflow by all plans even though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

CIO Update

Retirement Plans Net Performance

	12/31/2020 (NAV)	12/31/2021 (NAV)	Dollar Change	Net Cash Flow	Dollar Value Add
Domestic Equity	4,307.3	4,648.2	340.9	(741.3)	1,082.2
International Equity	2,474.3	2,657.9	183.7	(8.1)	191.7
Private Investments	1,789.8	2,266.2	476.4	(208.5)	684.9
Real Assets	555.0	688.5	133.5	15.8	117.7
Real Estate	1,117.9	1,567.7	449.8	198.8	251.0
Core Fixed Income	2,095.8	2,145.0	49.3	80.8	(31.5)
Non-Core Fixed Income	724.0	926.1	202.1	175.2	26.9
Cash Equivalents	162.0	186.6	24.6	24.4	0.2
Pension STIP	138.4	155.7	17.3	17.1	0.2
Grand Total	13,364.6	15,242.1	1,877.5	(446.0)	2,323.4

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



CIO Update

Retirement Plans Net Performance

	12/31/2020 (NAV)	12/31/2021 (NAV)	Dollar Change	Net Cash Flows	Dollar Value Added
Public Employees Retirement	6,609.4	7,515.2	905.8	(242.5)	1,148.3
Teachers Retirement	4,682.0	5,304.8	622.8	(189.6)	812.4
Firefighters Retirement	541.4	640.3	98.9	3.9	95.0
Police Officers Retirement	508.4	592.5	84.1	(4.4)	88.5
Sheriffs Retirement	440.7	512.1	71.4	(5.8)	77.2
Game Wardens Retirement	245.9	289.2	43.3	(0.1)	43.4
Highway Patrol Retirement	171.9	197.6	25.6	(4.2)	29.8
Judges Retirement	121.0	139.7	18.7	(2.5)	21.2
Vol Firefighters Retirement	44.0	50.8	6.8	(0.8)	7.7
Grand Total	13,364.6	15,242.1	1,877.5	(446.0)	2,323.4

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

CIO Update

Retirement Plans Net Performance

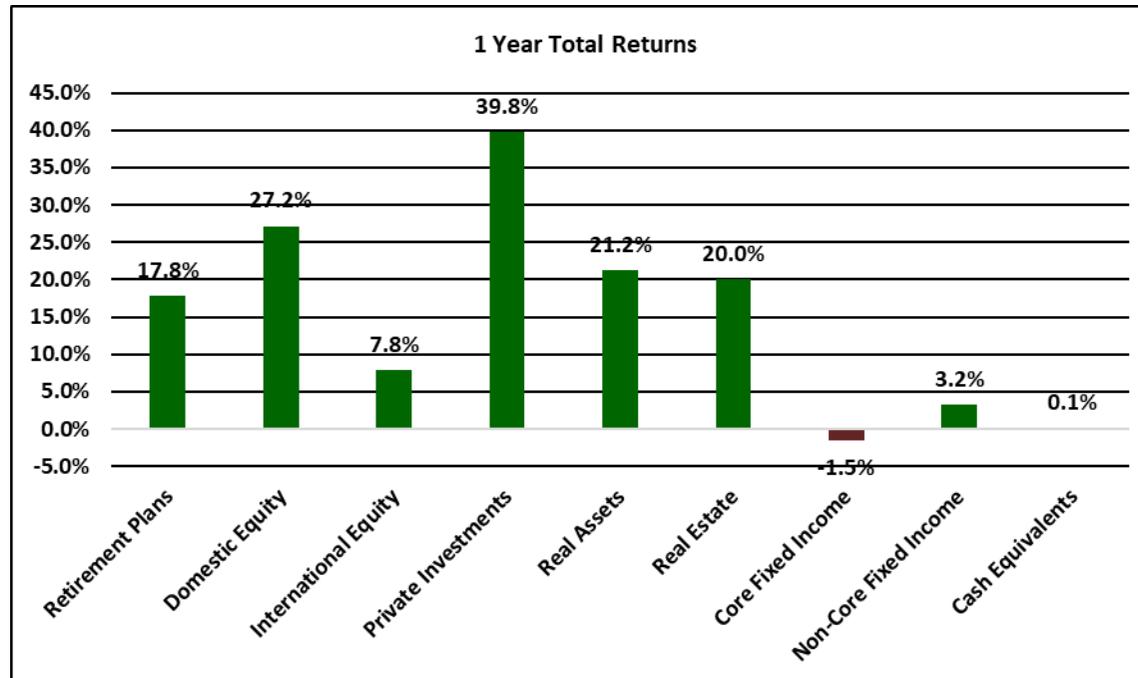
Name	1 Year	3 Year	5 Year	10 Year	20 Year	Since Inception
PUBLIC EMPLOYEES RETIREMENT	17.61%	15.41%	11.43%	10.43%	7.48%	8.23%
TEACHERS RETIREMENT	17.61%	15.41%	11.43%	10.44%	7.48%	8.25%
FIREFIGHTERS RETIREMENT	17.58%	15.41%	11.44%	10.44%	7.46%	8.10%
POLICE OFFICERS RETIREMENT	17.58%	15.41%	11.43%	10.44%	7.45%	8.11%
SHERIFFS RETIREMENT	17.61%	15.41%	11.43%	10.43%	7.47%	8.14%
GAME WARDENS RETIREMENT	17.62%	15.40%	11.43%	10.42%	7.46%	8.15%
HIGHWAY PATROL RETIREMENT	17.62%	15.42%	11.44%	10.44%	7.47%	8.13%
JUDGES RETIREMENT	17.63%	15.42%	11.44%	10.43%	7.48%	8.14%
VOL FIREFIGHTERS RETIREMENT	17.61%	15.42%	11.44%	10.43%	7.66%	7.95%

Inception 7/1/1994

December 31, 2021

CIO Update

Retirement Plans Asset Class Net Performance



CIO Update

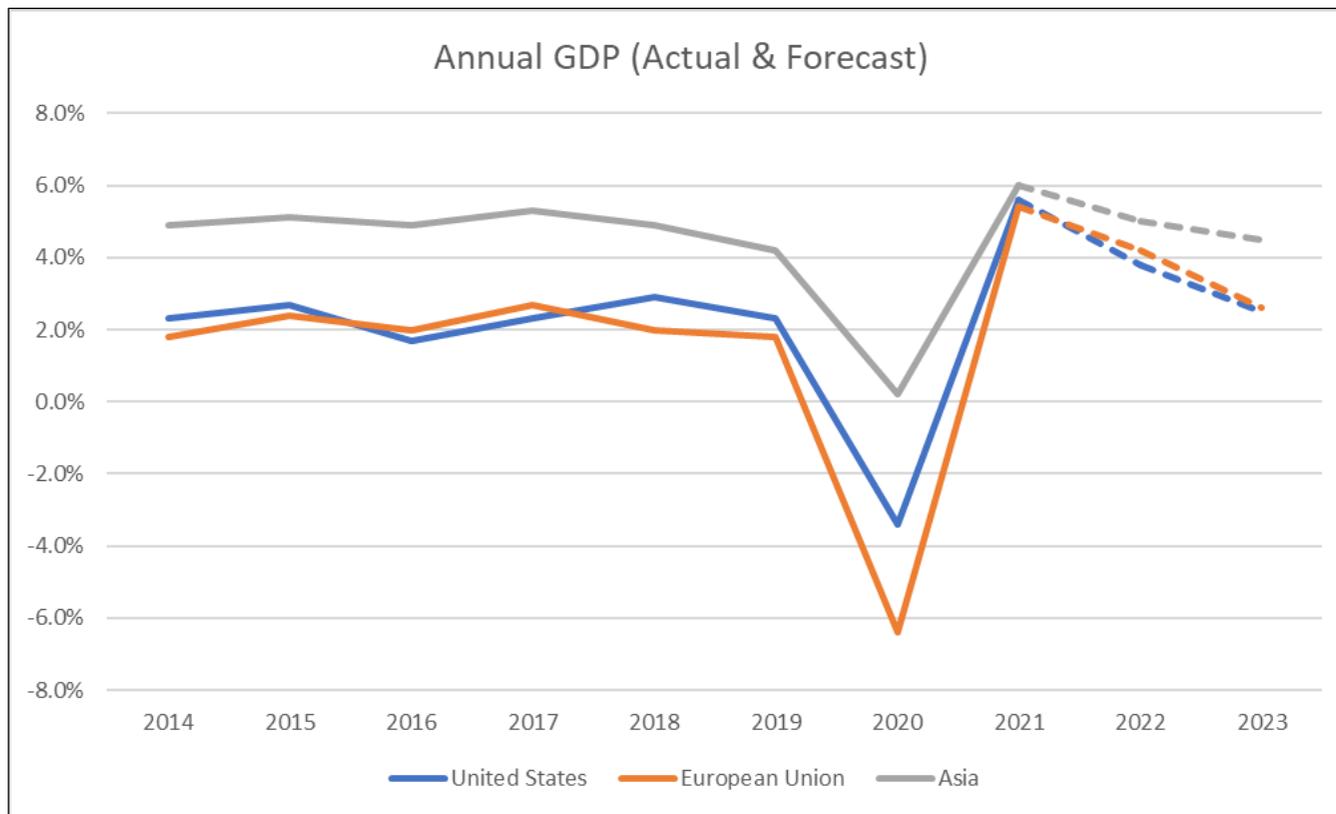
Retirement Plans Asset Class Allocation

	12/31/2021 (NAV)	% of Total	Mid Point	Deviation from Mid Point	Board Approved Ranges
Domestic Equity	4,648.2	30.5%	30.0%	0.5%	24% - 36%
International Equity	2,657.9	17.4%	17.0%	0.4%	12% - 22%
Private Investments	2,266.2	14.9%	15.0%	-0.1%	11% - 19%
Real Assets	688.5	4.5%	5.0%	-0.5%	2% - 8%
Real Estate	1,567.7	10.3%	10.0%	0.3%	6% - 14%
Core Fixed Income	2,145.0	14.1%	14.0%	0.1%	9% - 19%
Non-Core Fixed Income	926.1	6.1%	7.0%	-0.9%	5% - 9%
Cash Equivalents + Pension STIP	342.4	2.2%	2.0%	0.2%	0% - 5%
	15,242.1	100.0%	100.0%		

CIO Update

Economic Environment

Global growth is projected to slow over the next two years but remain healthy



Source: Bloomberg

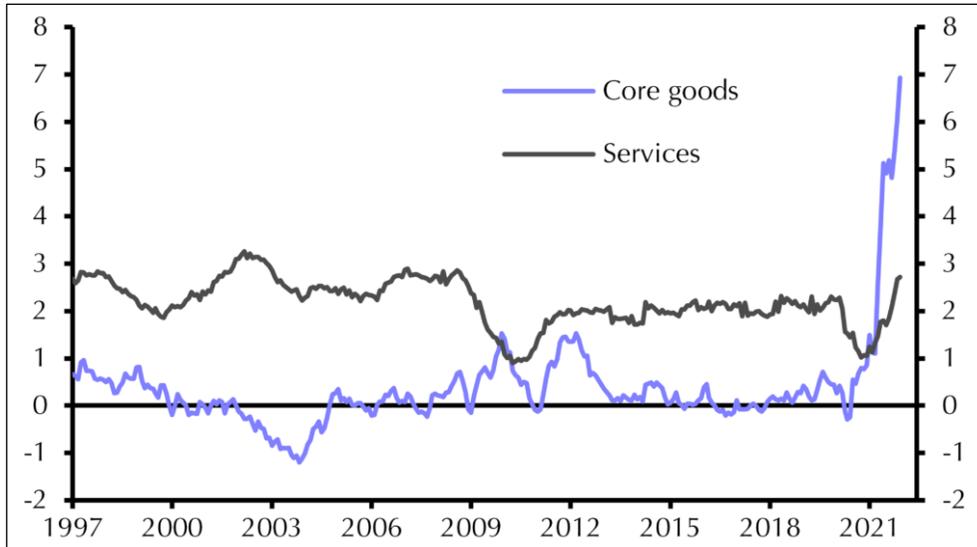
CIO Update

Economic Environment

Surge in consumer demand for goods has contributed to supply chain issues and inflation

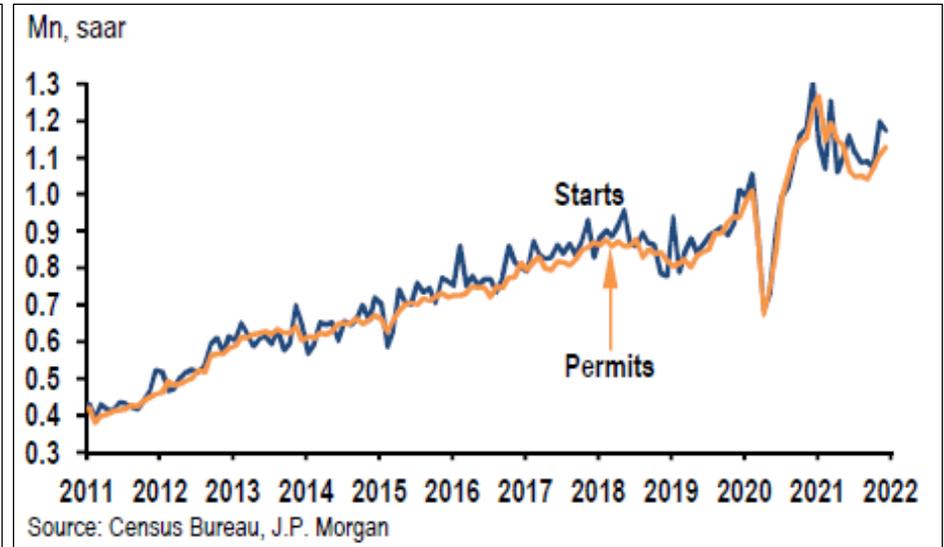
Booming housing demand has reduced supply to the lowest level since the 1970's

Core Goods & Services CPI Inflation in Major Advanced Economies



Source: Refinitiv, Capital Economics

Single Family Housing Starts and Permits



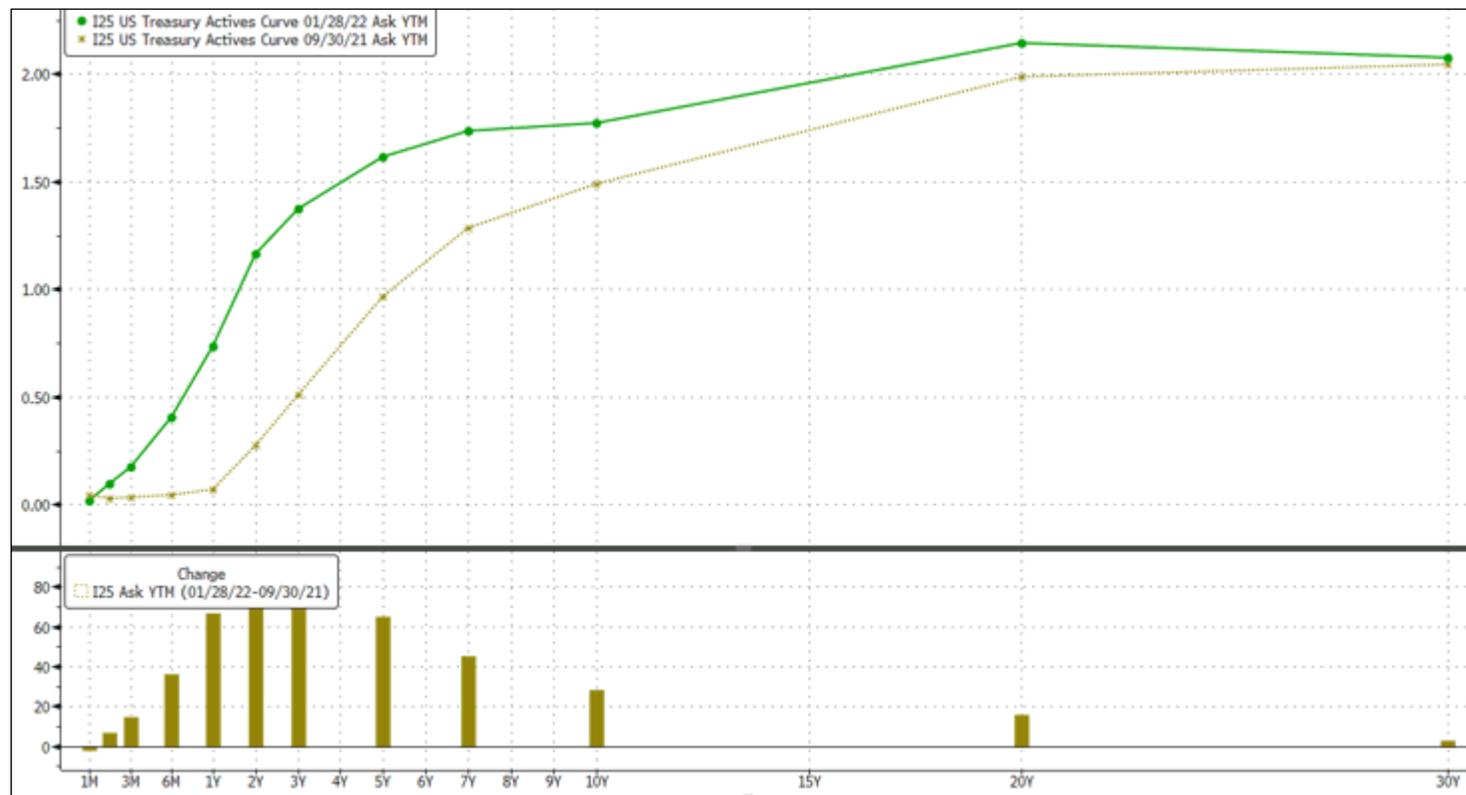
Source: Census Bureau, J.P. Morgan

CIO Update

Economic Environment

Interest rates are rising, and the market is estimating 4-5 hikes by year-end

Change in U.S. Treasury interest rates between 09/30/21 – 01/28/22

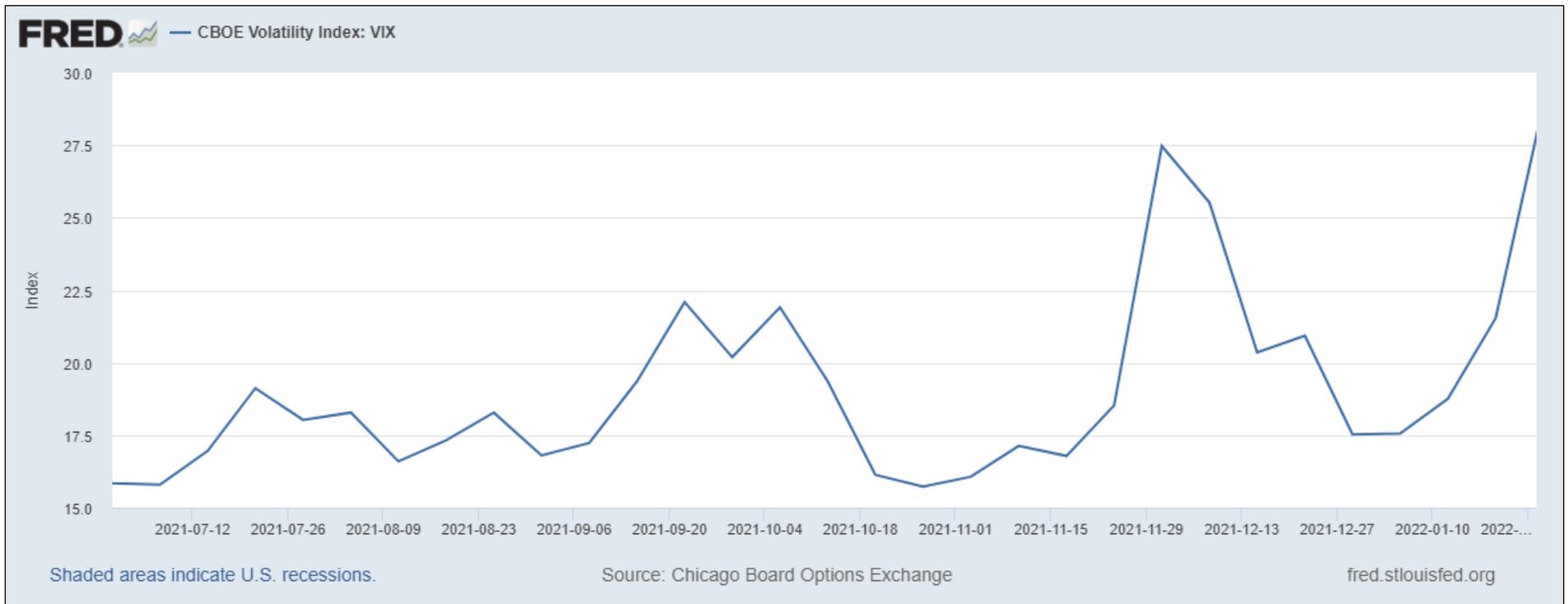


Source: Bloomberg

CIO Update

Economic Environment

Market volatility has spiked during 2022 primarily driven by central bank policy, inflation expectations and geo-political uncertainty



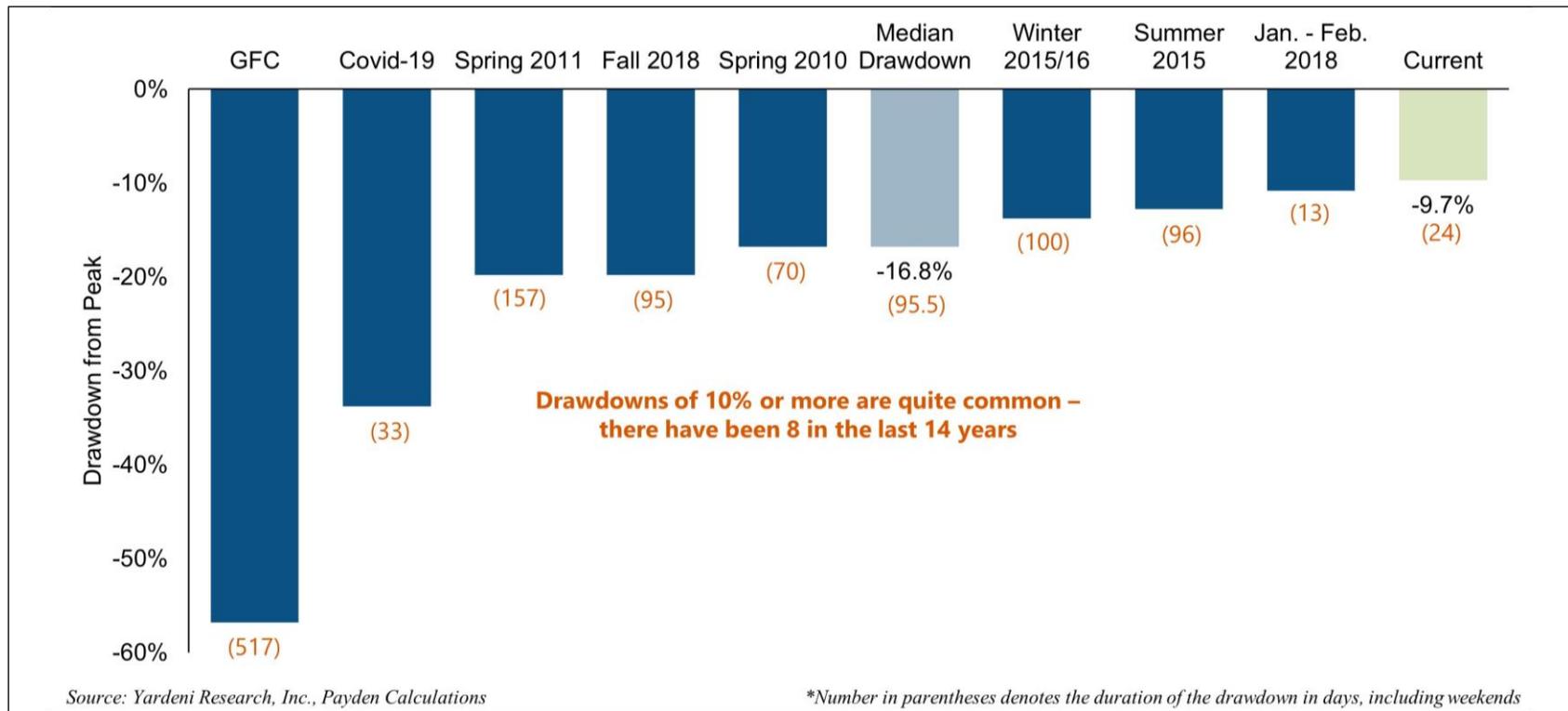
Source: Federal Reserve Economic Data (FRED)

CIO Update

Economic Environment

Significant drawdowns in the market are not unusual and are not cause to shift our long-term asset allocation

Drawdowns in the S&P 500 Index Since 2008 – As of 01/28/22



Source: Payden & Rygel

CIO Update

- Investment challenges in the current environment
 - Uncertainty around global growth and the path of monetary policy
 - Increased volatility
- Completed restructure of the Domestic Equity portfolio to passively managed investments
- Continue to look at new public and private manager opportunities
- Completed search for Director of Public Markets and Private Investments Analyst. Student intern search in process
- Process improvements/projects
 - Custodial contract/analytic tools, trading ETF's on the Bloomberg platform in competition, reviewing due diligence processes

Macro Attribution

Key Takeaways – 1 Year

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

- Every benchmark with the exception of Core Fixed Income added positive contributions to the pension policy-neutral 14.0% return.
- The Domestic Equities asset class benchmark, the MSCI USA IMI, was the largest positive contributor.

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

- On average, we were slightly overweight Domestic Equities, International Equities, and Real Estate while being slightly underweight or at the midpoint weight for the remaining asset classes.
- About \$743M of equity asset classes were sold and \$297M of fixed income/cash asset classes were bought during the year with the difference being the pension net cash need of \$-446M.
- In aggregate, the overweighting/underweighting of the asset classes relative to their benchmarks decreased the pension portfolio's return by 1 bp which is an unusually small amount.

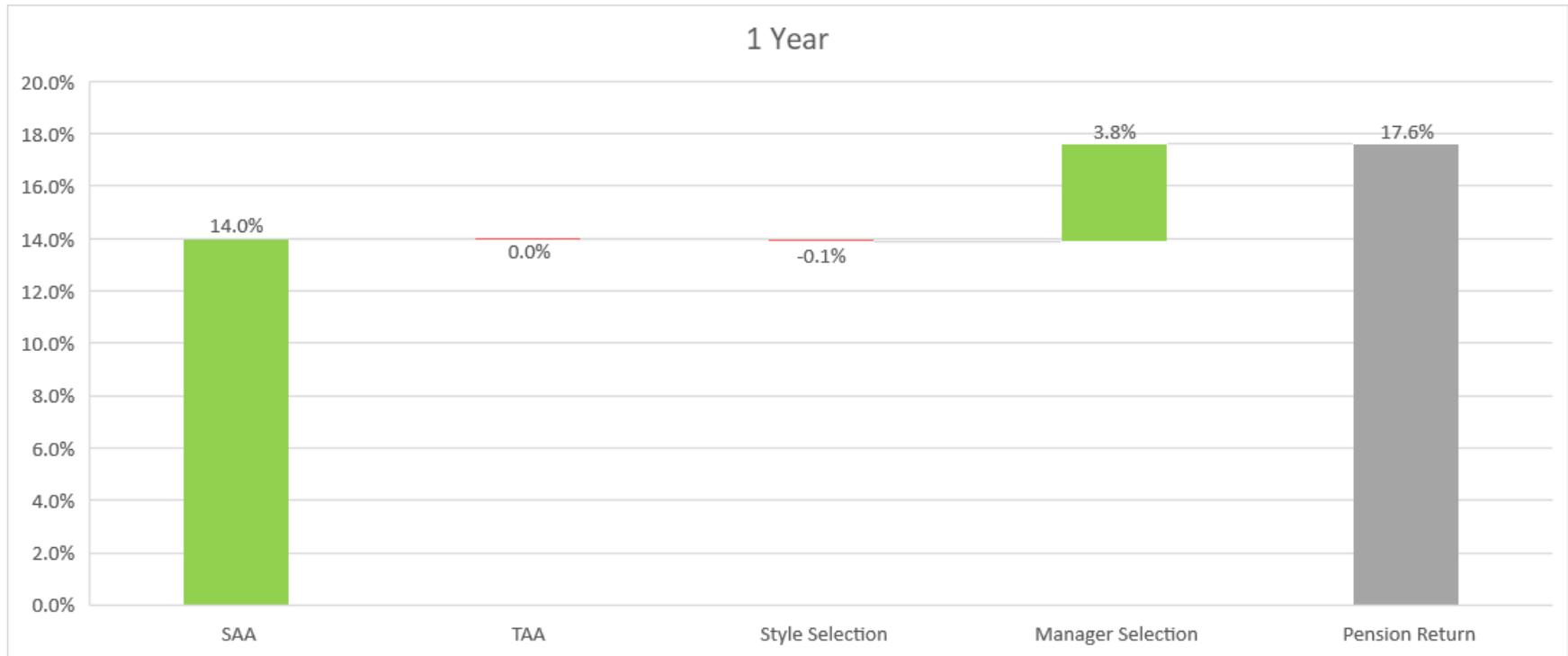
Style Selection - *Did the portfolio benchmarks add additional return over their asset class benchmarks?*

- While some styles notably outperformed and some notably underperformed, the overall net Style Selection effects were 1 bp which is also a rare occurrence.
- Higher exposure to developed growth benchmarks led to International style underperformance of 8 bps.
- The Real Assets portfolio has a significant overweight to commodities. The strong outperformance of the Commodity Producers Index relative to Infrastructure and TIPS was the main contributor to the style outperformance of about 19 bps.
- Exposure to EMD and Preferred benchmarks within Non-Core Fixed Income led to a slight style underperformance of 11 bps.

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

- In Domestic Equity, 3 of the 5 active managers were contributors to manager selection outperformance. The positive contribution was dampened by the transition in November for a net manager selection outperformance of 25 bps.
- In International Equity, Core Fixed Income, and Non-Core Fixed Income there were no notable outperforming or underperforming managers.
- Private Investments was the main contributor to manager selection outperformance in our non-publically traded investments due to private investment valuations catching up with public markets.
- While Real Assets had manager selection effects of 12 bps, internally the contributions were mixed: Infrastructure was a very strong contributor whereas Timber and Energy had larger negative effects.
- Real Estate selection effects were also strong this period contributing 63bps.
- The publicly traded benchmarks for these asset classes are an imperfect proxy for actual holdings. In addition, the pricing of private assets lags the publicly traded benchmarks. Thus, short term performance differentials may not reflect the actual value of assets at quarter end.

Macro Attribution



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

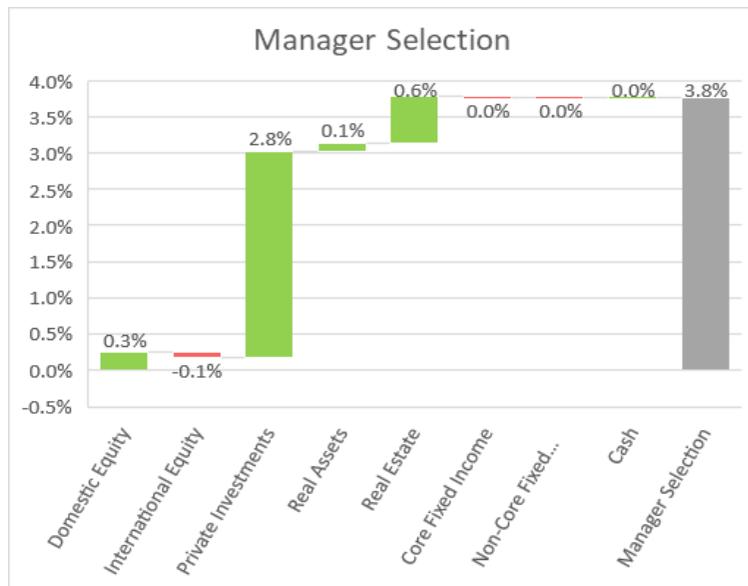
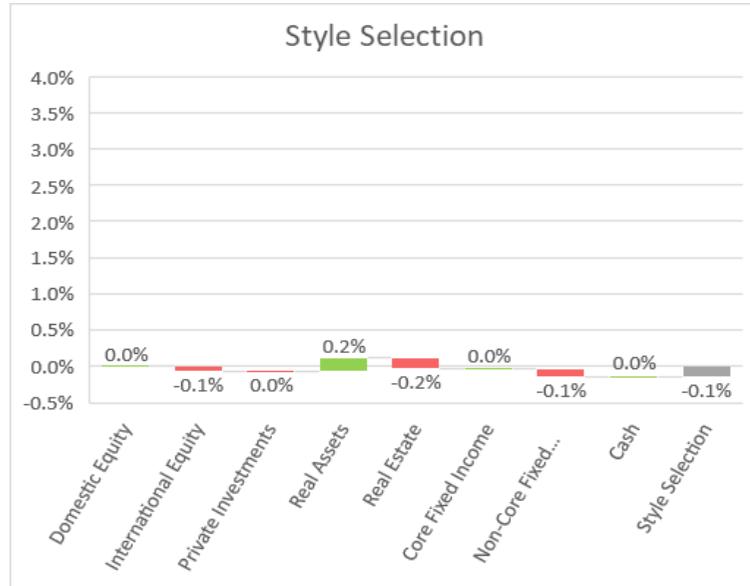
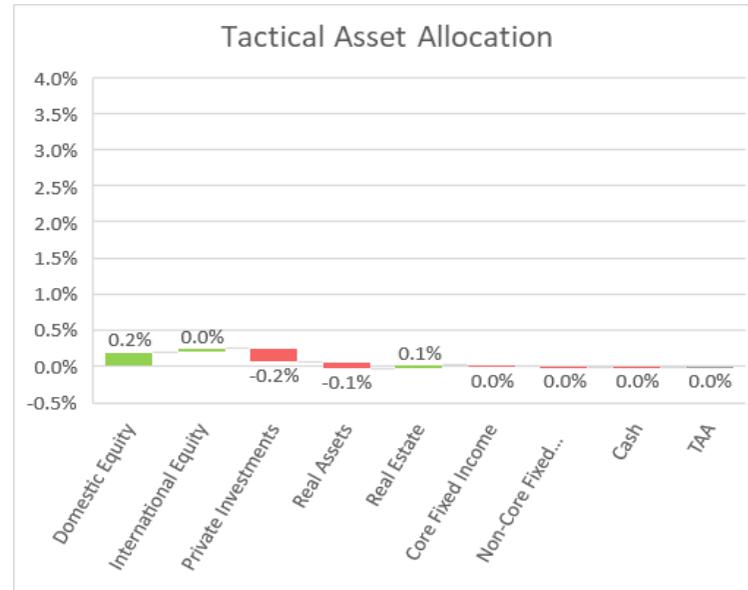
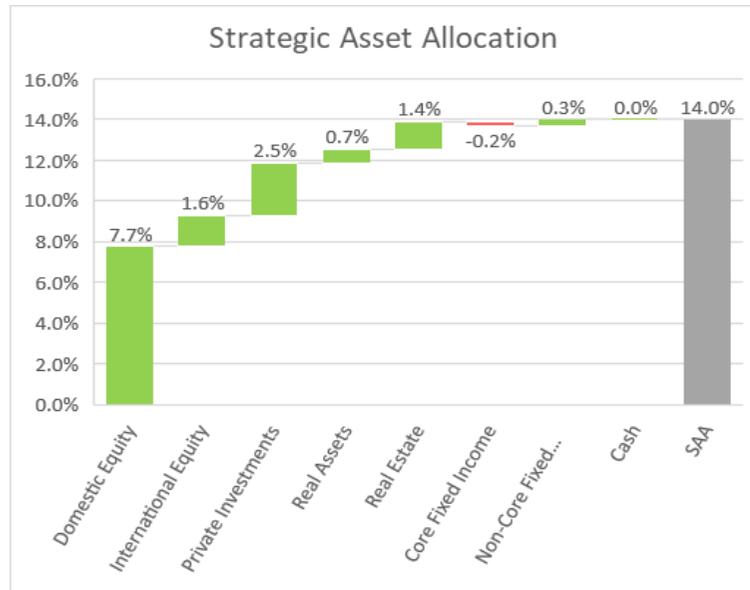
Tactical Asset Allocation (TAA) - The *additional* return earned by investing in the asset class benchmarks at our actual rather than midpoint weights.

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

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

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

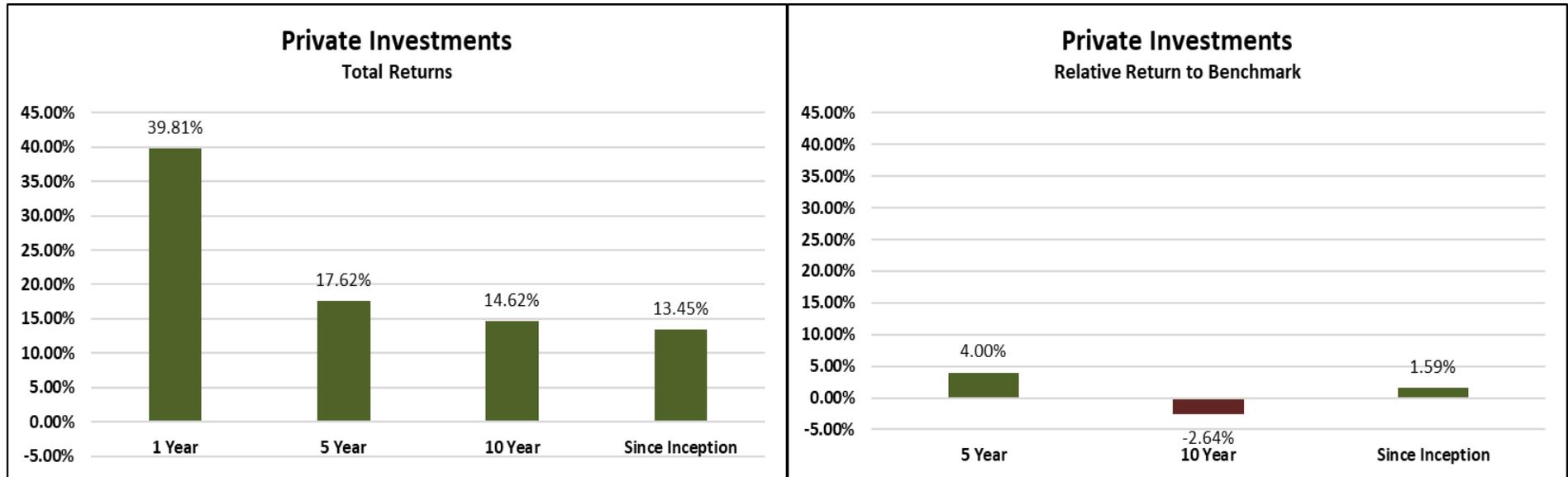
Macro Attribution



Private Investments Environment

- Private equity deal flow rebounded from 2020 and crushed the previous yearly levels. In 2021, 8,624 private equity-backed buyout deals were completed for a combined \$1.2 trillion, representing over 50% above the previous annual record for deal value.
- Intense competition for deals drove elevated valuations for buyouts last year. 2021 purchase price multiples came in at an average 13.7x EV/EBITDA. For comparison, the 2020 average was 12.8x EV/EBITDA and the 10-year average is 12.0x EV/EBITDA.
- Leverage or debt usage for buyouts came in at 5.8x EBITDA, compared to the 10-year average of 5.9x EBITDA.
- Accelerated capital deployment, and portfolio company realizations are allowing investment managers to return to the fundraising market more quickly than expected. The average years between funds is at the lowest level ever seen. Through Q4, private investment firms have closed 389 funds and raised a combined \$301 billion.
- Key takeaways – The entire Private Investments ecosystem appears to be firing on all cylinders from deal flow, performance, and fundraising. Valuations, debt usage, access to cheap credit and dry powder all remain at elevated levels compared to longer term historical levels.

Private Investments Net Performance



Private Investments Pension Asset Class (PAC) Custom Blend:

- From inception to 3/31/2017: S&P 1500 + 4% Qtr Lag
- 4/1/2017 to 12/31/2020: MSCI USA Small Cap Index
- 1/1/2021 to present: The portfolio weighted average of MSCI USA Small Cap Index and S&P LSTA US Leveraged Loan 100 Index
- Inception – 5/1/2002

Private Investments

Characteristics and Activity

- Total Market Value of \$2.26 billion as of 12/31/21
- North American-centric at ~76%, ~13% non-US developed, and ~11% emerging markets
- Direct/primary fund exposure focus at ~81% vs. Fund-of-Funds at ~19%
- Primarily focused on existing Private Investments relationships
- Net Cash Flow Profile
 - \$93.19 million for quarter ending 12/31/21
- Two new commitments
 - RiverGlade Capital Fund II - \$50 million
 - BRV Lotus Fund III - \$50 million

Real Estate Environment

- The recovery continues, fundamentals remain healthy with positive momentum
- US commercial property sales totaled a record \$809B in 2021, nearly double 2020's total, and shattering the previous record of \$600B in 2019
- Banks stopped tightening lending standards, rates are up, debt markets are open
- CMBS delinquencies declined through 2021, total issuance of \$111B, highest since GFC
- Cap rates have decreased, pushing valuations up across property types, the Green Street Commercial Property Price Index ended 2021 up 24%
- REITs delivered strong performance through 2021, up 43%
- Fundraising very strong in 2021 totaling \$185B
- Dry powder remains elevated
- Summary points – Strong fundamentals continue, robust deal market, rates on the rise with debt markets open, delinquencies down, issuance up, values increasing, REITs delivering, strong fundraising, dry powder remains elevated

Real Estate Net Performance



Real Estate – Pension Asset Class (PAC) Custom Blend:

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

Real Estate

Characteristics and Activity

- Total Net Asset Value of approx. \$1.57B as of 12/31/21
- US-centric, broadly diversified across property types, markets and geographies
- Continued focus on operators with property and market specific expertise
- Looking to establish separate accounts for longer duration holds, cash flow
- Focus on existing, high conviction managers, reducing core equity exposure, may continue to opportunistically add to existing REIT
- Cash Flow Profile
 - Negative cash flow of \$58.6M for the quarter ending 12/31/21
- New investment commitments/additions
- Total Leverage – 47.6% as of 9/30/21
 - Debt – 13.5%
 - Core – 21.8%
 - Core-Plus/Non-Core – 59.9%

Real Assets Environment

- Oil demand up, supply constrained, tight inventories ongoing, prices up
- US production stands at 11.7M barrels per day through January 2022
- Rig counts increasing, companies continue to focus on cash flow and debt reduction vs. production growth
- MLPs up over 40% in 2021, remain strong current yield play, capacity utilization at 88%
- Overall construction spending was up 8.8% in 3Q21, aggregates demand and pricing continue to prove resilient with stable growth
- Lumber and panel prices also increased over 4Q21, log prices were mixed across regions
- December housing starts rose to a multi-month high of 1.70M, 1.4% above November's 1.67M and 2.5% above December 2020's rate of 1.66M
- Real assets dry powder is high, approx. \$400B
- Summary points – Positive outlook for oil, MLPs delivering, aggregates remain resilient, log prices/demand strong, housing market remains robust, plenty of dry powder in the system

Real Assets Net Performance



Real Assets – Pension Asset Class (PAC) Custom Blend:

- From inception to 12/31/2020: MSCI ACWI Commodity Producers Index
- 1/1/2021 to present: 33.33% MSCI ACWI Commodity Producers Index, 33.33% MSCI ACWI Infrastructure Index, 33.34% Bloomberg Barclays US TIPS Index
- Inception – 4/1/2017

Real Assets

Characteristics and Activity

- Total Net Asset Value of approx. \$688M as of 12/31/21
 - Commodities-Related Portfolio – approx. \$373M as of 12/31/21
 - Infrastructure-Related Portfolio – approx. \$174M as of 12/31/21
 - Inflation-linked Bonds (TIPs) Portfolio – approx. \$141M as of 12/31/21
- Portfolios are primarily North American-centric, international exposure continues to grow with recent infrastructure commitments
- Exploring other types of strategies to further diversify and gain new exposures
- Cash Flow Profile
 - Positive cash flow of \$2.2M for the quarter ending 12/31/21
- New investment commitments
 - ITE Rail Fund, LP - \$100M
- Timber Portfolio Total Leverage – 5.3% as of 9/30/21

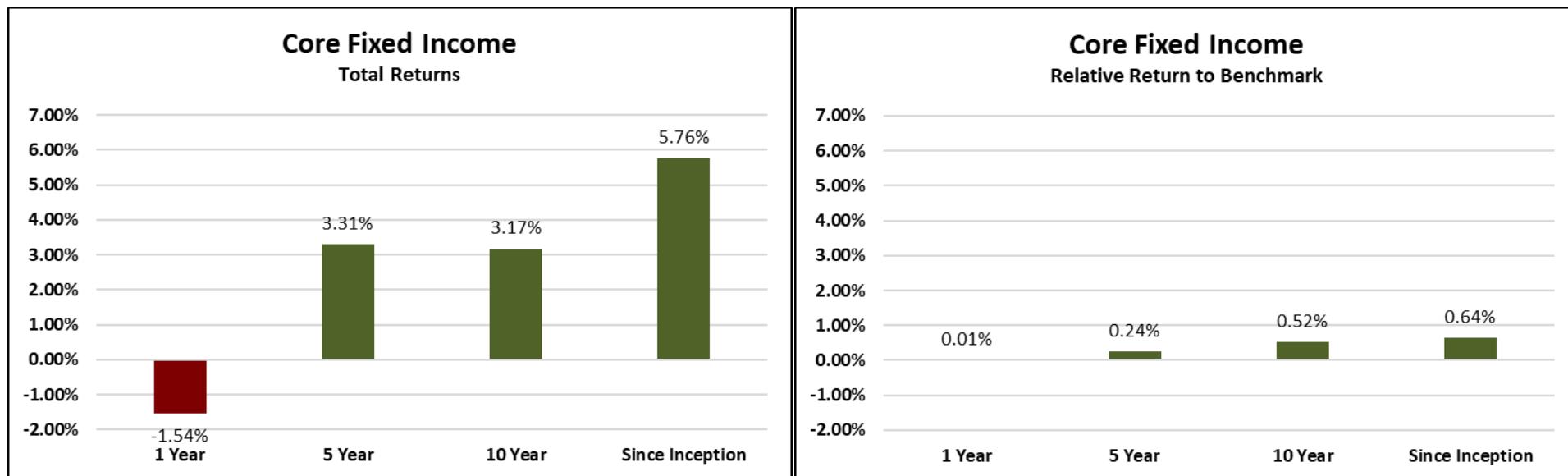
Core Fixed Income Environment

- The U.S. Treasury curve steepened over the last year predominately in the shorter maturities. The 5-year yield increased 90 bps while the 10-year and 30-year increased by 60 bps and 25 bps, respectively.
- The Federal Reserve held short-term rates steady with the Effective Rate in a tight range around 5 bps.
- Headline inflation posted a dramatic increase of 7.0% year over year, with significant variability throughout the year. Core inflation was 5.5% year over year.
- Money market yields continue to be very low. Commercial paper yields remain near record lows.
- Spreads on corporate bonds remained relatively steady finishing the year down 4 bps.

Core Fixed Income Environment

- Spreads on mortgage-backed securities (MBS) ended the year at 32 bps, down 9 bps. MBS spreads ranged from 7 bps to 41bps during the year.
- The Barclays Aggregate returned -1.54% on the year. The loss was due to higher interest rates.
- Bond market liquidity continued to be strong with robust corporate new issuance. Bid/ask spreads remained tight as the bond market remained confident.

Core Fixed Income Net Performance



Core Fixed Income - Pension Asset Class (PAC) Custom Blend:

- From Inception to 04/01/2017: Bloomberg Barclays U.S. Aggregate Bond Index
- 4/1/2017 to 11/29/2019: Intermediate TIPS, Intermediate US Treasury & Agency, Intermediate Investment Grade Credit, Mortgage Backed, and Diversified Strategies PACs.
- 11/29/2019 to present: Bloomberg Barclays U.S. Aggregate Bond Index
- Inception – 4/1/1995

Core Fixed Income

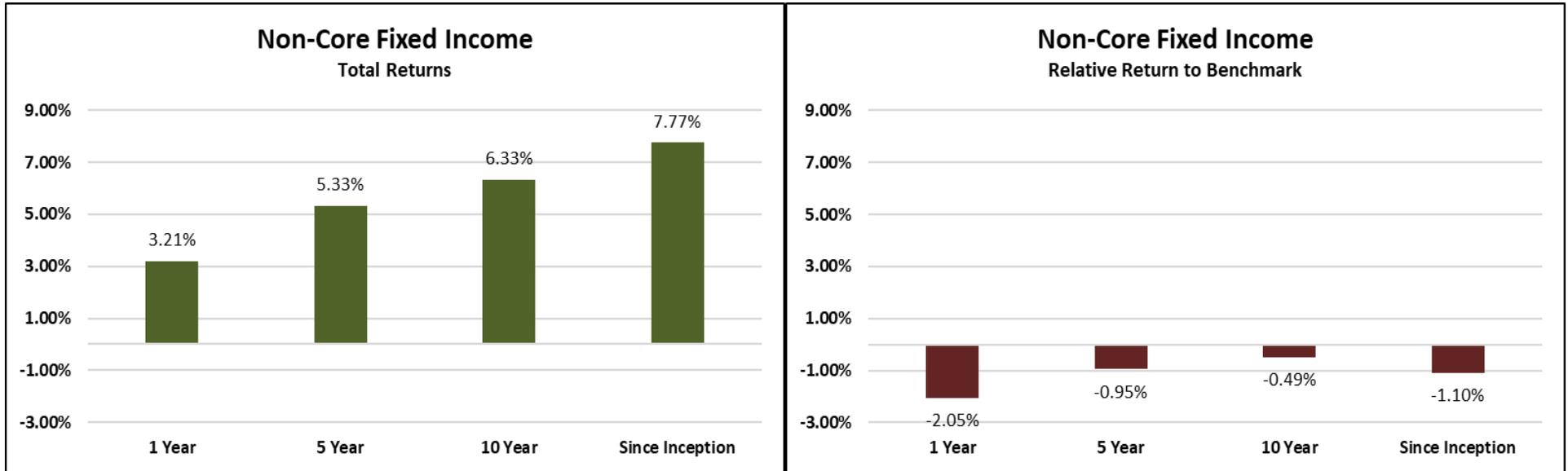
Performance, Characteristics, and Activity

- Negative total return of -1.54% on the year. The internal portfolio outperformed the index by 2 bps. Reams underperformed by 15 bps.
- Reams underperformed due to short duration partially offset by an overweight to credit. The internal portfolio matched the index as the benefit from short duration was offset by an underweight to corporates and by unfavorable curve positions.
- Total market value of approx. \$2.12 billion at quarter end.
- Duration was approx. 90% of the benchmark at year end. Significantly underweight the long end of the curve.
- Portfolio was overweight Treasuries/Agencies and underweight spread product at the end of the year. The duration of corporate securities was significantly shorter than the index.

Non-Core Fixed Income Environment

- US High Yield spreads widened through late November, but tightened with a strong rally in December
- Spread volatility in 2021 was low, and spreads remain at historically tight levels
- Default rate expectations for 2022 are extremely low
- Credit quality in the high yield market is very high, but technicals and sentiment have overshadowed credit fundamentals recently
- Emerging Market Debt lagged the asset class benchmark and finished off a lackluster year, as a more hawkish Fed, virus concerns, and a stronger US dollar weighed on returns
- Emerging market countries are dealing with the same inflation issues as in the developed world, and several EM countries have raised interest rates
- Preferred securities underperformed US High Yield, as the market digested an influx of issuance and reacted to expectations of rising interest rates

Non-Core Fixed Income Net Performance



Non-Core Fixed Income - Pension Asset Class (PAC) Custom Blend:

- From Inception to present Bloomberg Barclays US High Yield – 2% Issuer Cap
- High Yield Asset Class name changed to Non-Core Fixed Income 11/30/19
- Inception Date: 6/1/2009

Non-Core Fixed Income

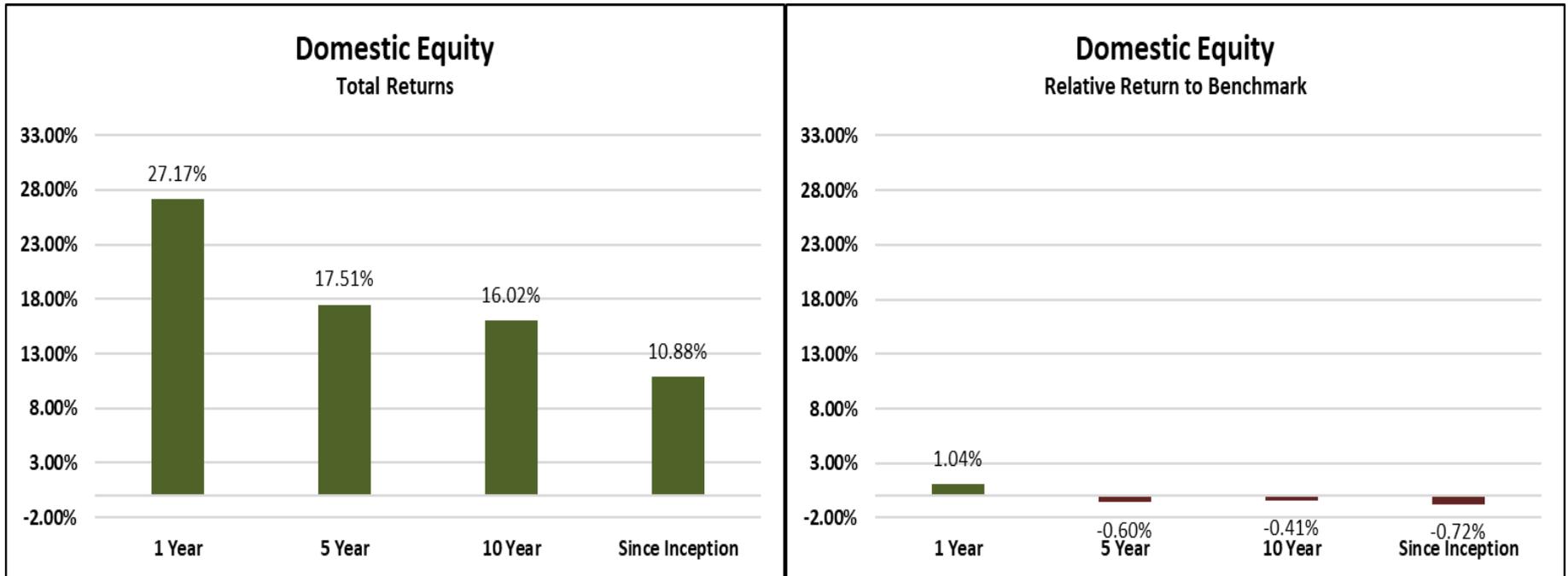
Performance, Characteristics, and Activity

- US High Yield bonds were once again the strongest performer in the Non-Core Fixed Income asset class, posting a positive return for the quarter (+0.69%). Both Emerging Market Debt and Preferred Securities had negative absolute returns
- High Yield manager performance was generally positive in the quarter. The Preferred Securities manager outperformed slightly, while the Emerging Market Debt manager had modest underperformance
- Credit selection by the High Yield managers added value, as the dispersion of returns among high-quality and low-quality bonds narrowed
- There was a small contribution to Emerging Market Debt in the quarter

Domestic Equity Environment

- Stocks rallied in the quarter, with the S&P returning +11.03% for the period. Large cap stocks were the top performers
- Markets are dealing with a regime shift from the post-GFC era of massive stimulus (both monetary and fiscal) and low inflation, to one with tighter financial conditions, higher inflation, and decelerating earnings growth
- At the end of December, the S&P 500 Index was valued at a generous 20.2x next 12-month earnings estimates. The top 10 constituents of the S&P 500 are valued at 33.2x, compared to a long-term average of 19.4x and a 19.7x P/E for the remaining stocks in the index
- The largest 10 stocks are 30.5% of the S&P 500, which compares to ~27% at the peak of the TMT bubble

Domestic Equity Net Performance



Domestic Equity - Pension Asset Class (PAC) Custom Blend:

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

Domestic Equity Performance

- The domestic equities asset class underperformed its benchmark during the quarter by -0.09% and outperformed for the last twelve months by +1.05%
- Active manager performance was generally positive for both the quarter and for the full year
- The overweight to small caps helped relative performance for the year, but was a drag in the fourth quarter
- The asset class has outperformed its benchmark for the 1-year period and has lagged slightly over the 5-year and 10-year periods ended December 31

Domestic Equity

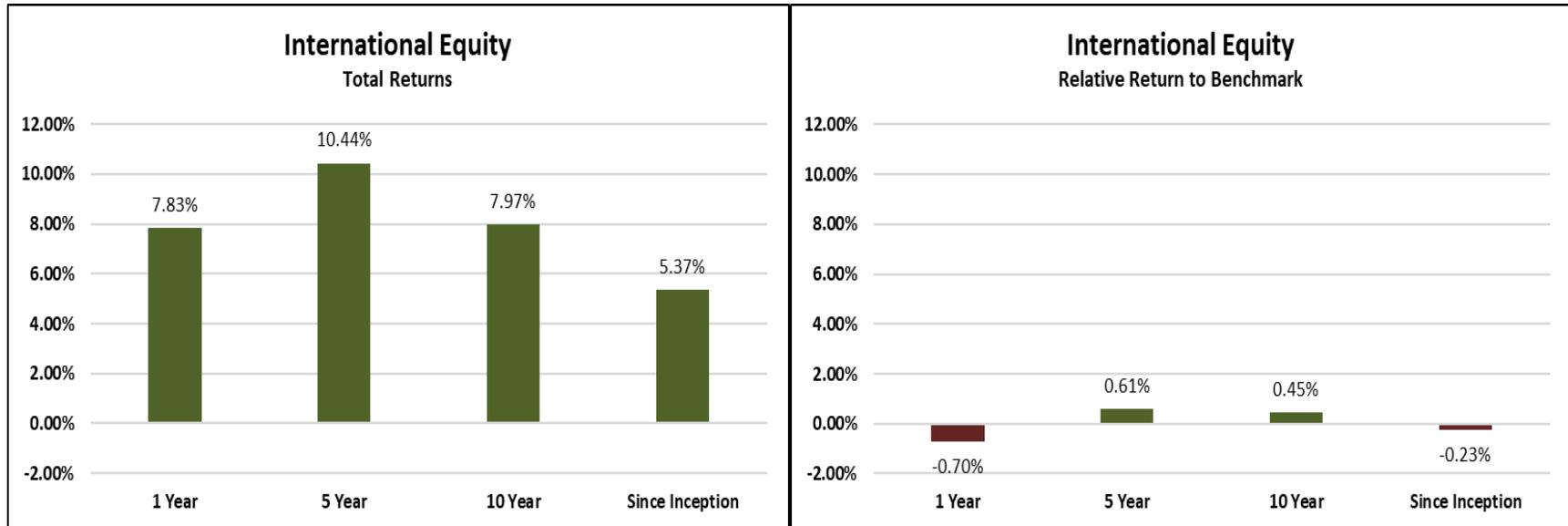
Characteristics and Activity

- Completed the transition to all passive investments during the quarter
- Small cap stocks are overweight to the benchmark weight
- Cash at the asset class level is minimal per policy
- Staff implemented a new, more cost-effective ETF trading process

International Equity Environment

- International equities posted a 1.64% return for the quarter and have lagged US stocks for the quarter and for the year
- Developed market stocks were up slightly in the quarter, with the MSCI World ex-US Index posting a 3.14% return. Emerging market stocks returned -1.31% (MSCI EM) and suffered from a weak Chinese market and broad weakness in Latin America
- At quarter end, the MSCI World ex-US Index (developed markets) was valued at 14.8x estimated next 12-month earnings, slightly higher than its 20-year average, but at its largest discount to US stocks in the last 20 years. The MSCI Emerging Markets Index was valued at 11.9x estimated next 12-month earnings

International Equity Net Performance



International Equity – Pension Asset Class (PAC) Custom Blend:

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

International Equity Performance

- The international equities asset class outperformed its benchmark during the quarter by 0.10% and underperformed for the last twelve months by -0.70%
- For the quarter, there was no strong theme to active manager performance, as results in both large caps and small caps were mixed. Acadian and Invesco outperformed for both the fourth quarter and the full year
- The asset class has underperformed its benchmark for the 1-year period and has outperformed over the 5-year and 10-year periods ended December 31

International Equity

Characteristics and Activity

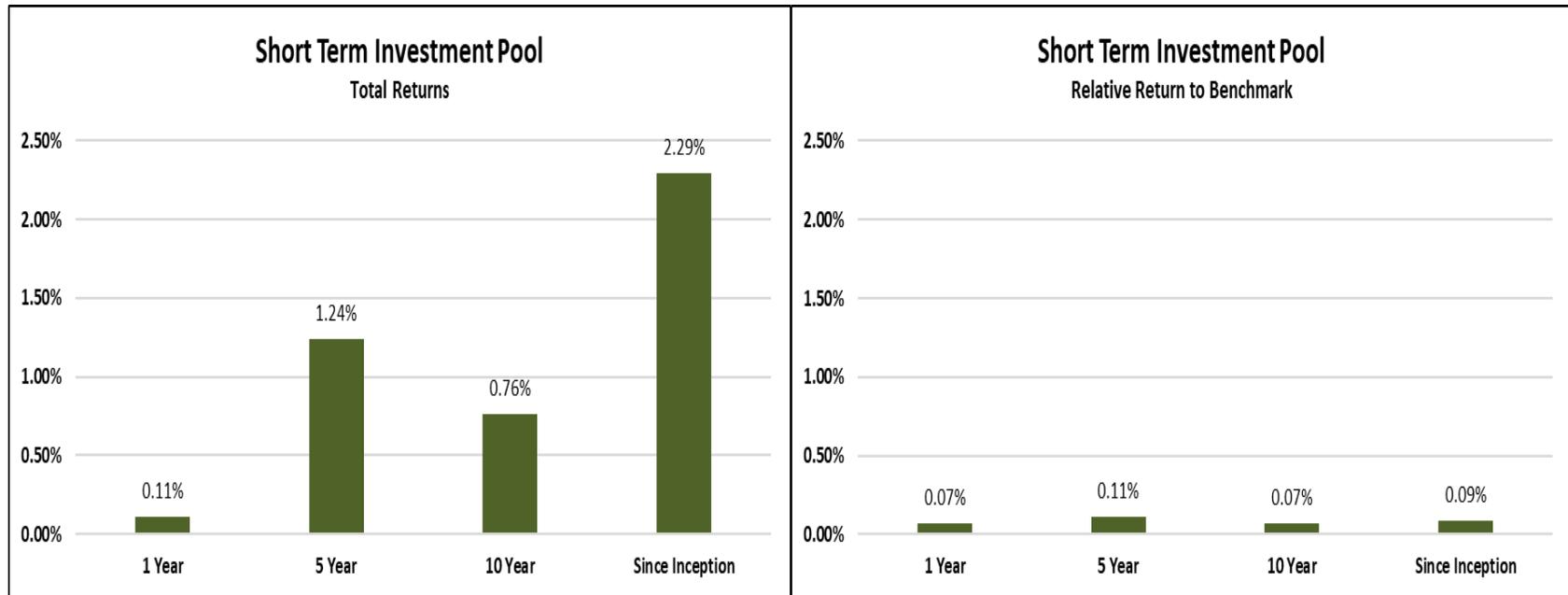
- The large cap allocation retains a significant weight to passive investments
- Small capitalization stocks are slightly overweight
- There is a slight underweight to emerging markets
- Cash at the asset class level is minimal per policy
- There were no changes to the manager lineup during the quarter
- Staff implemented a new ETF trading process and achieved cost savings in its ETF portfolio

Short Term Investment Pool

Performance, Characteristics, and Activity

- The yield on STIP was 0.14% at the end of December.
- Outperformed the index by 11 bps over the year, net of fees.
- Good performance versus the index over 3, 5, & 10 years.
- Treasuries, Agencies, and Government money market funds made up just under 30% of the Pool on 12/31/21, down from 32% on 12/31/20.
- Local Government participants' percentage was 29.7% on 12/31/21, down from 38.7% at calendar year end 2020.
- The STIP assets were \$6.37 billion on 12/31/21, up over \$900 million since 12/31/20.
- The STIP reserve was \$55.23 million on 12/31/21.

Short Term Investment Pool Net Performance



Short Term Investment Pool (STIP) Custom Blend:

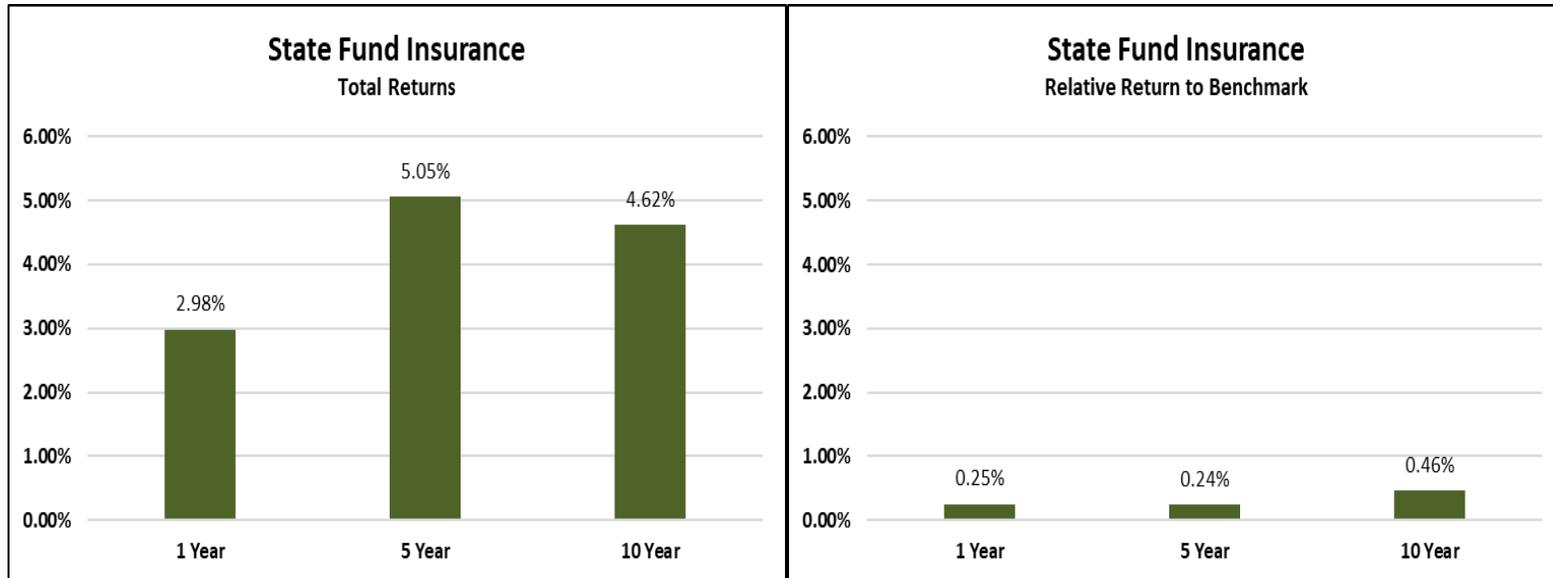
- Inception to 4/30/2018 - LIBOR 1 Month
- 5/1/2018 to present: Federal Reserve US Treasury 1M Constant Maturity Index
- Inception – 4/1/1997

State Fund Investment Portfolio

Performance, Characteristics, and Activity

- Total portfolio return was 2.98% over the last year. Led by Equities at 23.44%.
- Portfolio outperformed the benchmark by 25 bps over the year.
- The Investment Grade portfolio returned -1.03% over the year, outperforming its index by 27 bps due to short duration.
- Total market value of approx. \$1.57B at quarter end.
- Duration was short of the benchmark at quarter end.
- Continued overweight to spread product and underweight to Treasuries. Adding to MBS over time.
- Sold \$45 million of Equities during the year.

State Fund Investment Pool Net Performance



Montana State Fund Investment Pool (SFIP) Custom Blend:

- Inception to 3/31/2020 - Bloomberg Barclays Intermediate Aggregate Bond Index
- 3/31/20 To present - State Fund Custom Benchmark: Proportionately weighted Bloomberg Barclays Intermediate Aggregate Bond Index, S&P 500 Index, MSCI ACWI ex U.S. Index, NCREIF ODCCE Index
- Inception – 12/1/1993

Trust Funds Investment Portfolio Performance

- The Pool outperformed the benchmark by 78 bps on the year. Led by Real Estate with a return of 12.06%. The benchmark was changed during the year.
- High Yield had a return of 8.15% .
- The internal portfolio returned -1.30%, outperforming its benchmark by 24 bps due to short duration.

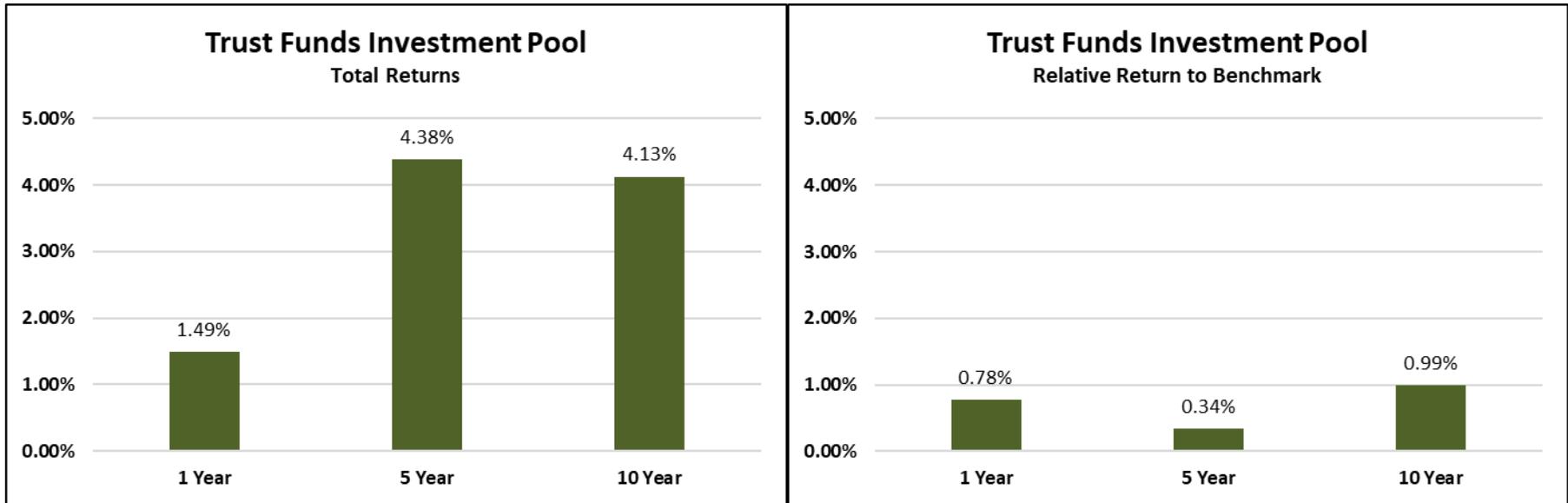
Trust Funds Investment Portfolio

Characteristics and Activity

- Total market value of approx. \$2.86B at quarter end.
- TFBP duration was below the benchmark at quarter end. Significantly underweight the long end of the curve.
- TFBP maintained overweight to Corporates, CMBS and ABS, and underweight to Treasuries and MBS.
- TFIP purchased approximately \$290 million of Real Estate during the year. Real Estate was almost 23% of the TFIP at year end.
- Staff continues to add to Real Estate in order to diversify and increase the yield of TFIP consistent with last year's change to the IPS.

Trust Funds Investment Portfolio

Net Performance

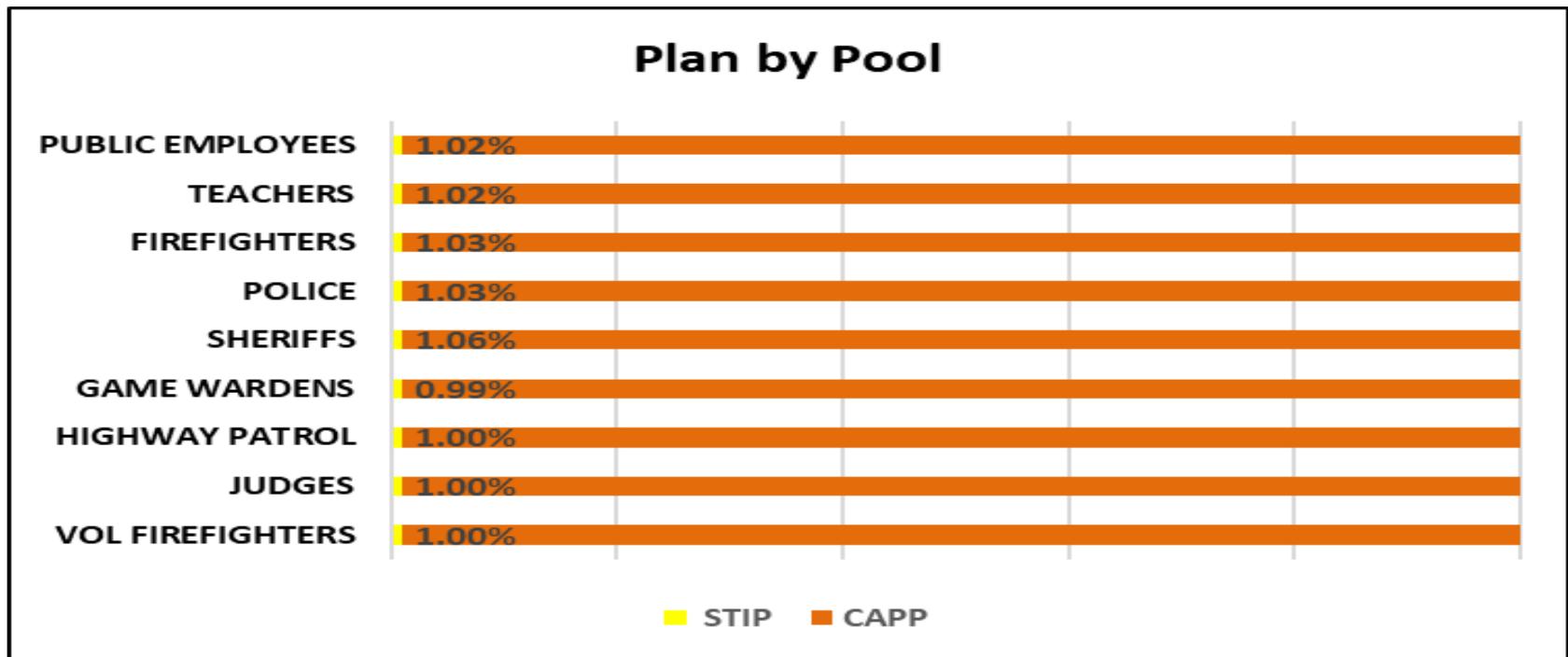


Trust Funds Investment Pool Custom Blend:

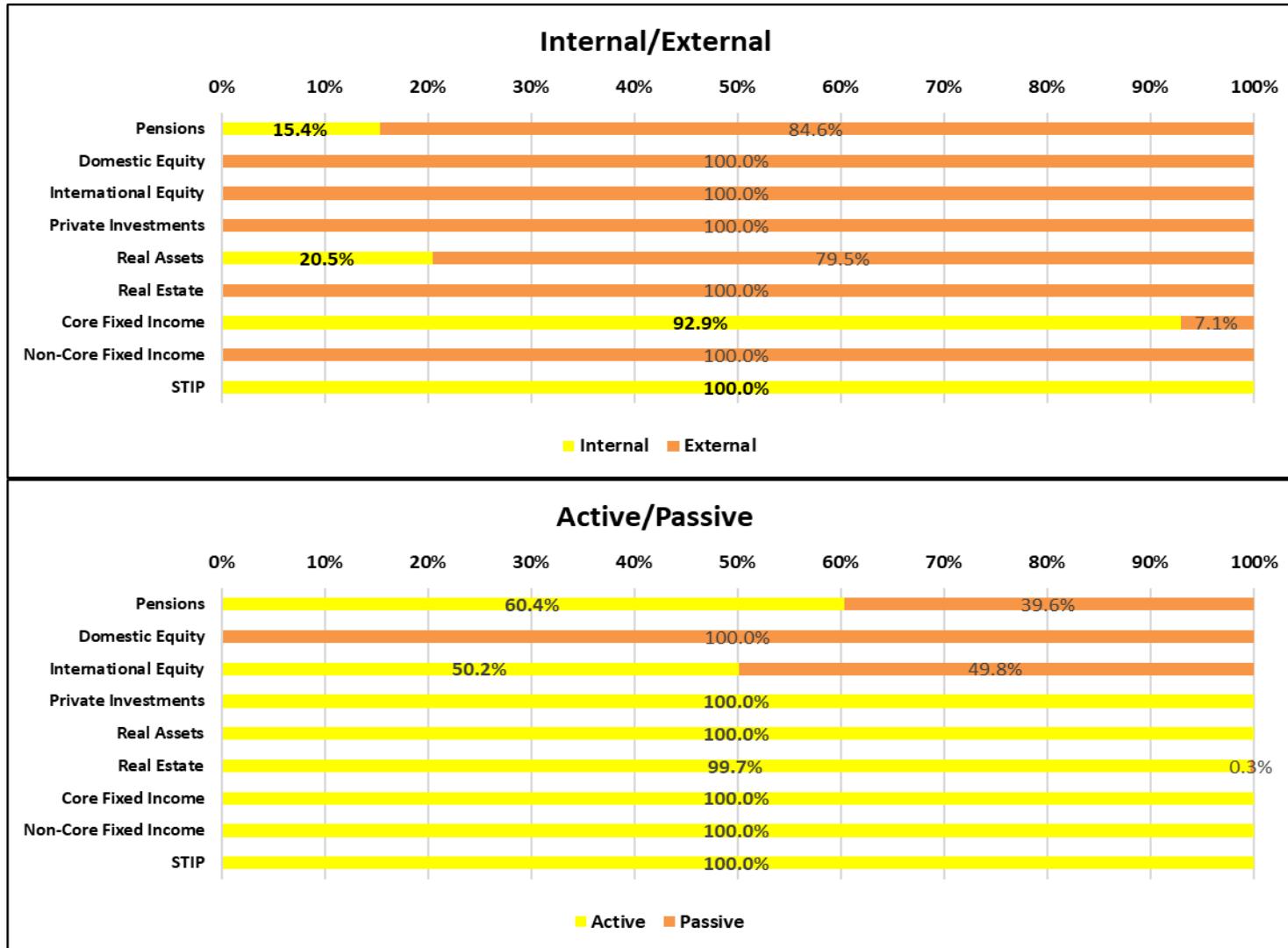
- Since Inception to 6/30/21 - Bloomberg Barclays U.S. Aggregate Bond Index
- 6/30/21 to present - Proportionately weighted Bloomberg Barclays US Aggregate Bond Index, Bloomberg Barclays US High Yield – 2% Issuer Cap Index and the NCREIF ODCE Index
- Inception - 10/1/1995

APPENDIX

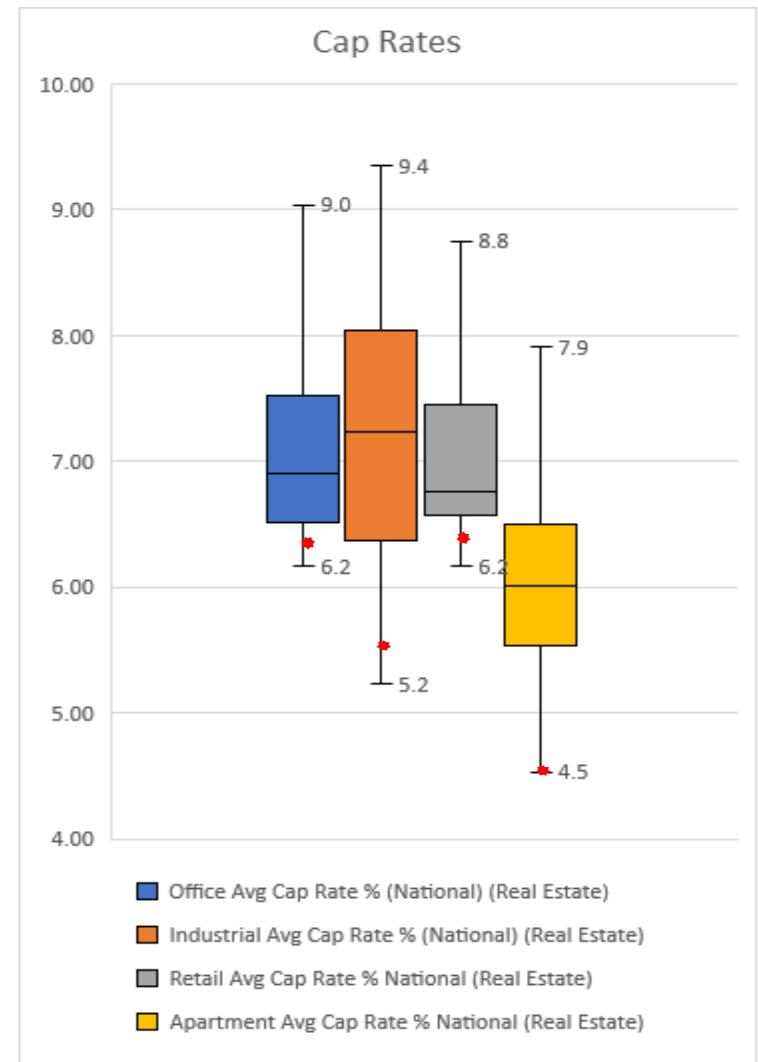
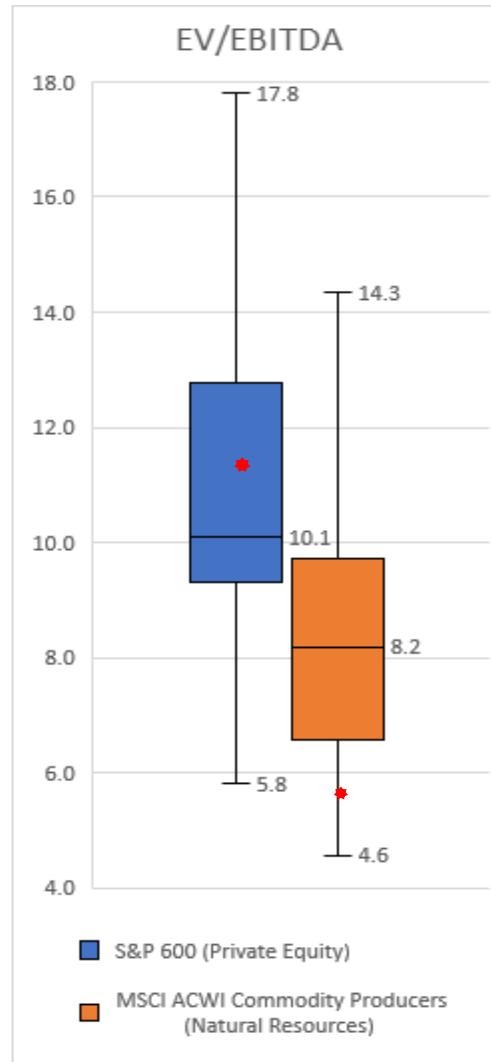
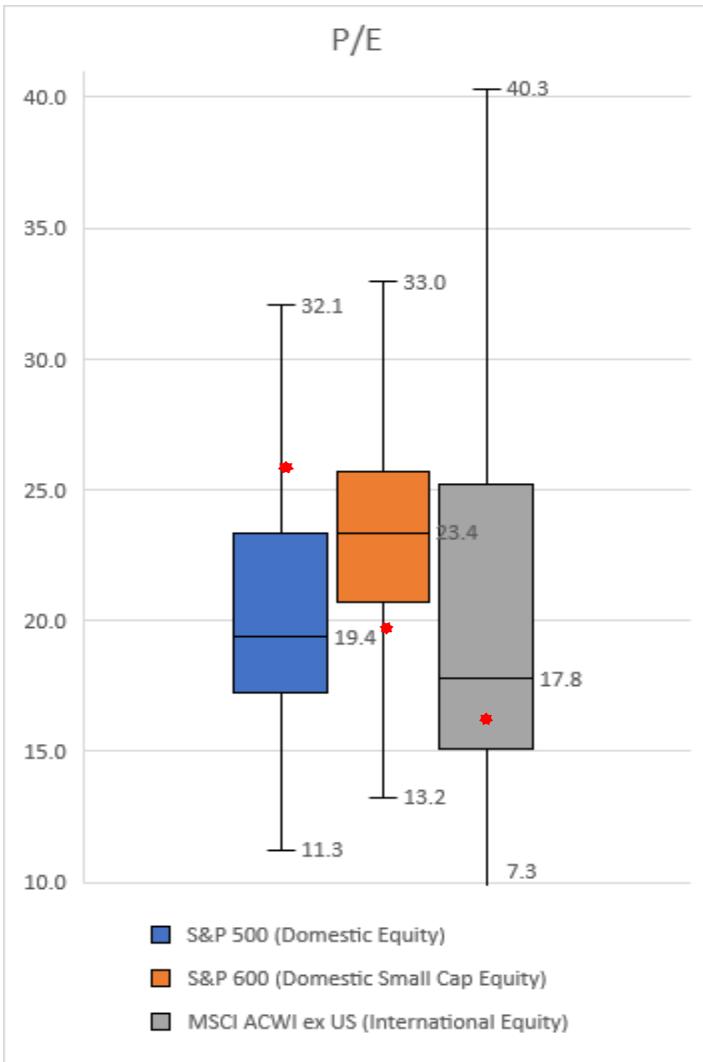
Retirement Plans Allocations by Pool



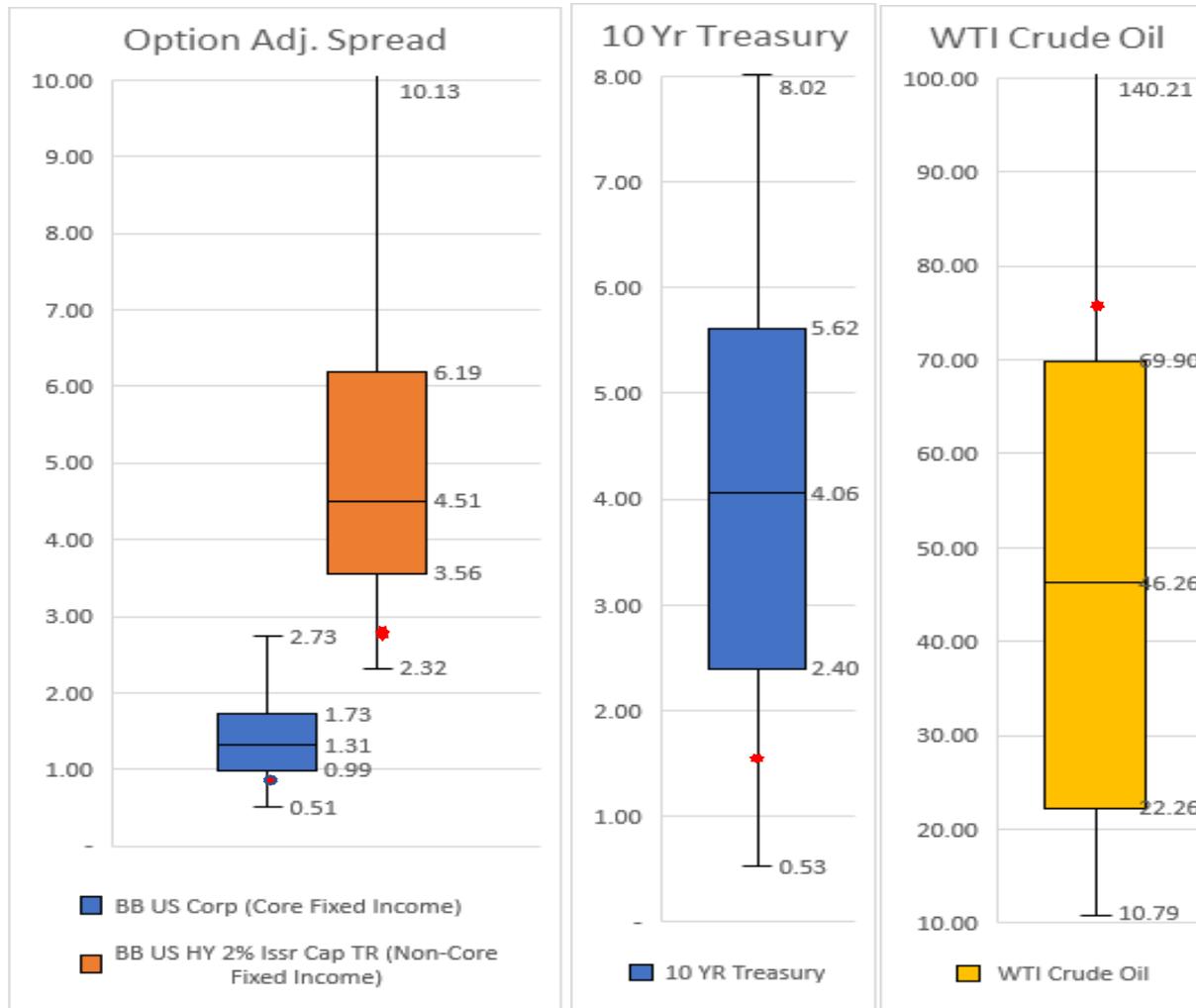
Retirement Plans Characteristics



Risk Management Benchmark Valuation

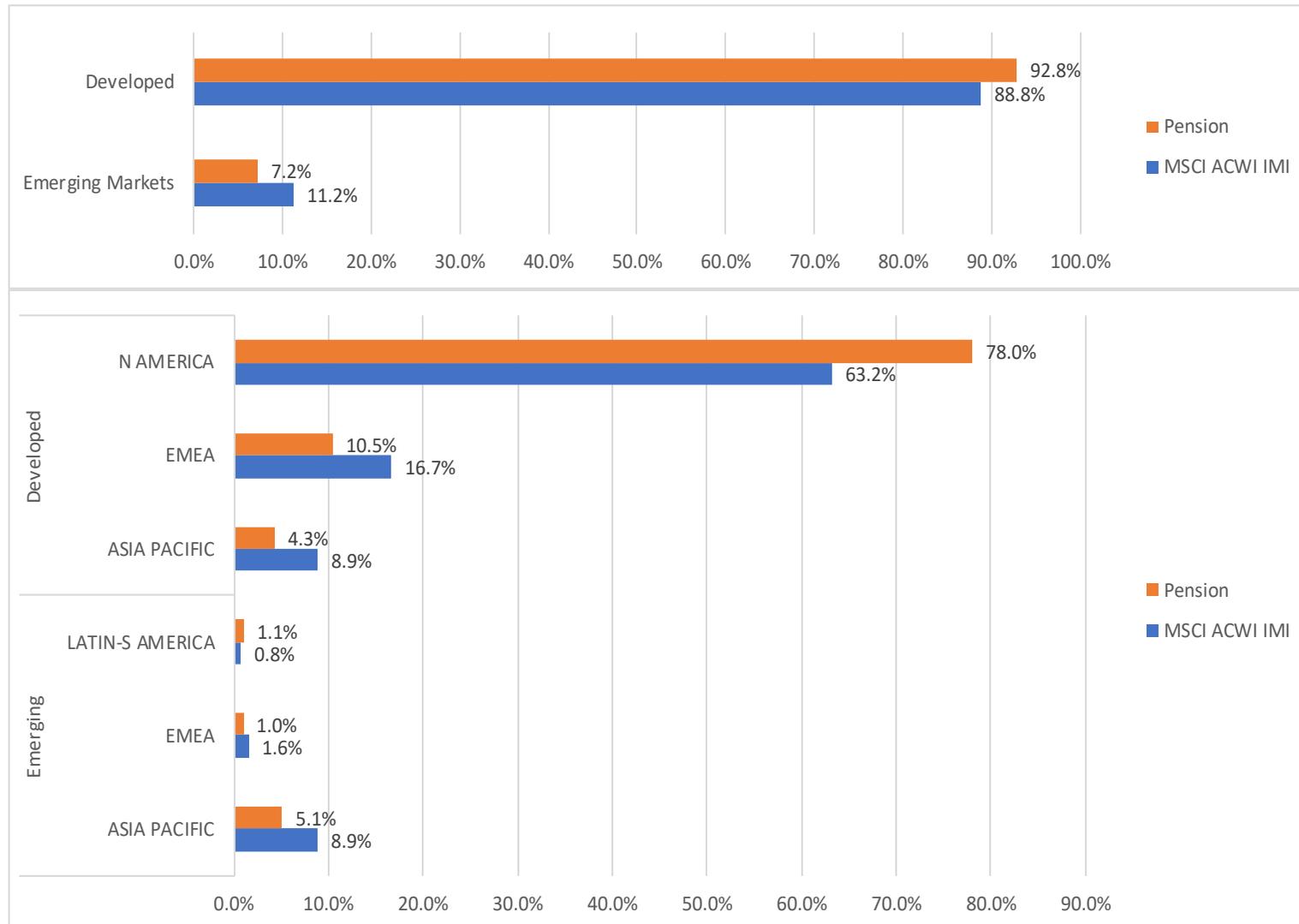


Risk Management Benchmark Valuation

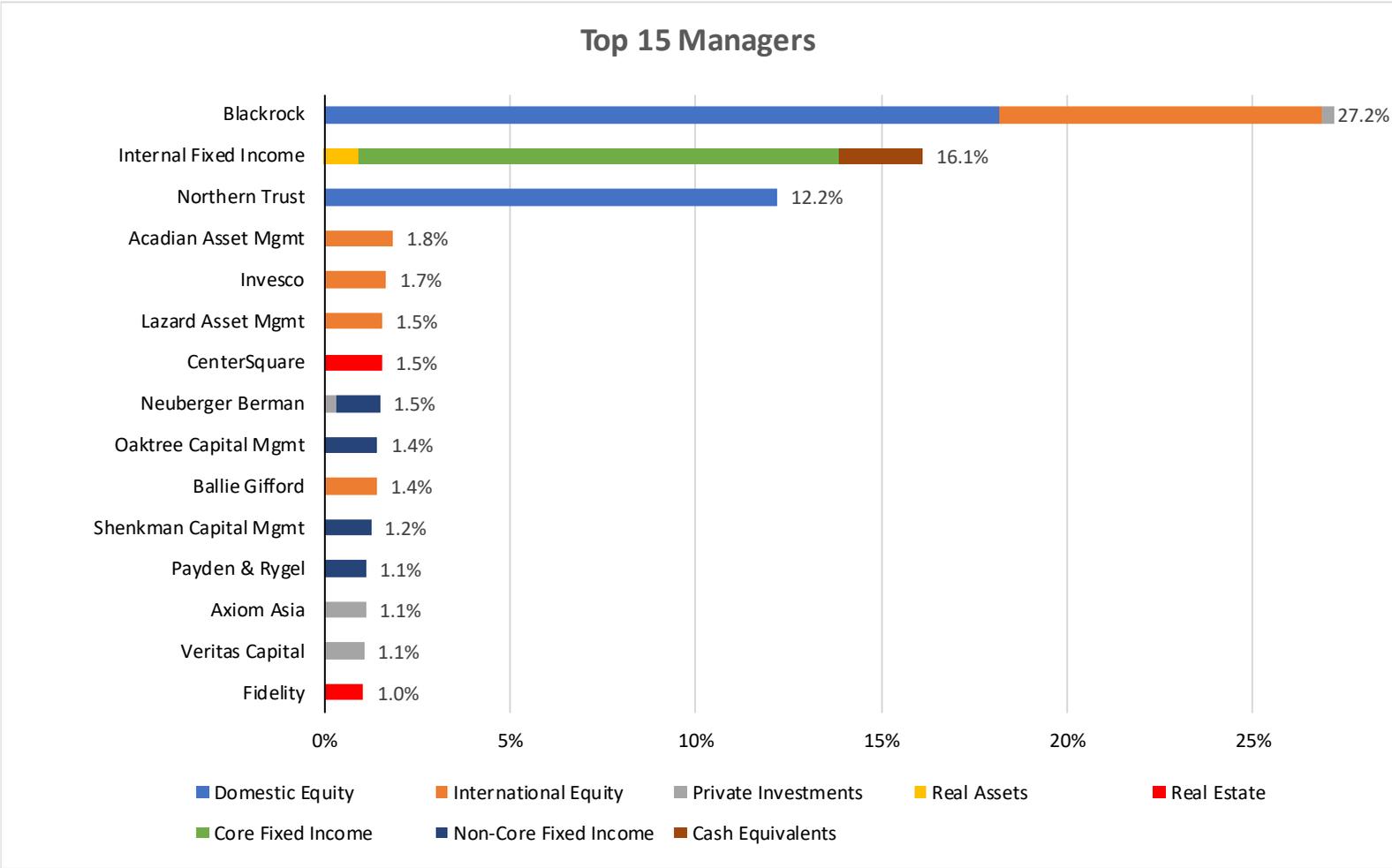


Risk Management

Pension Geographic

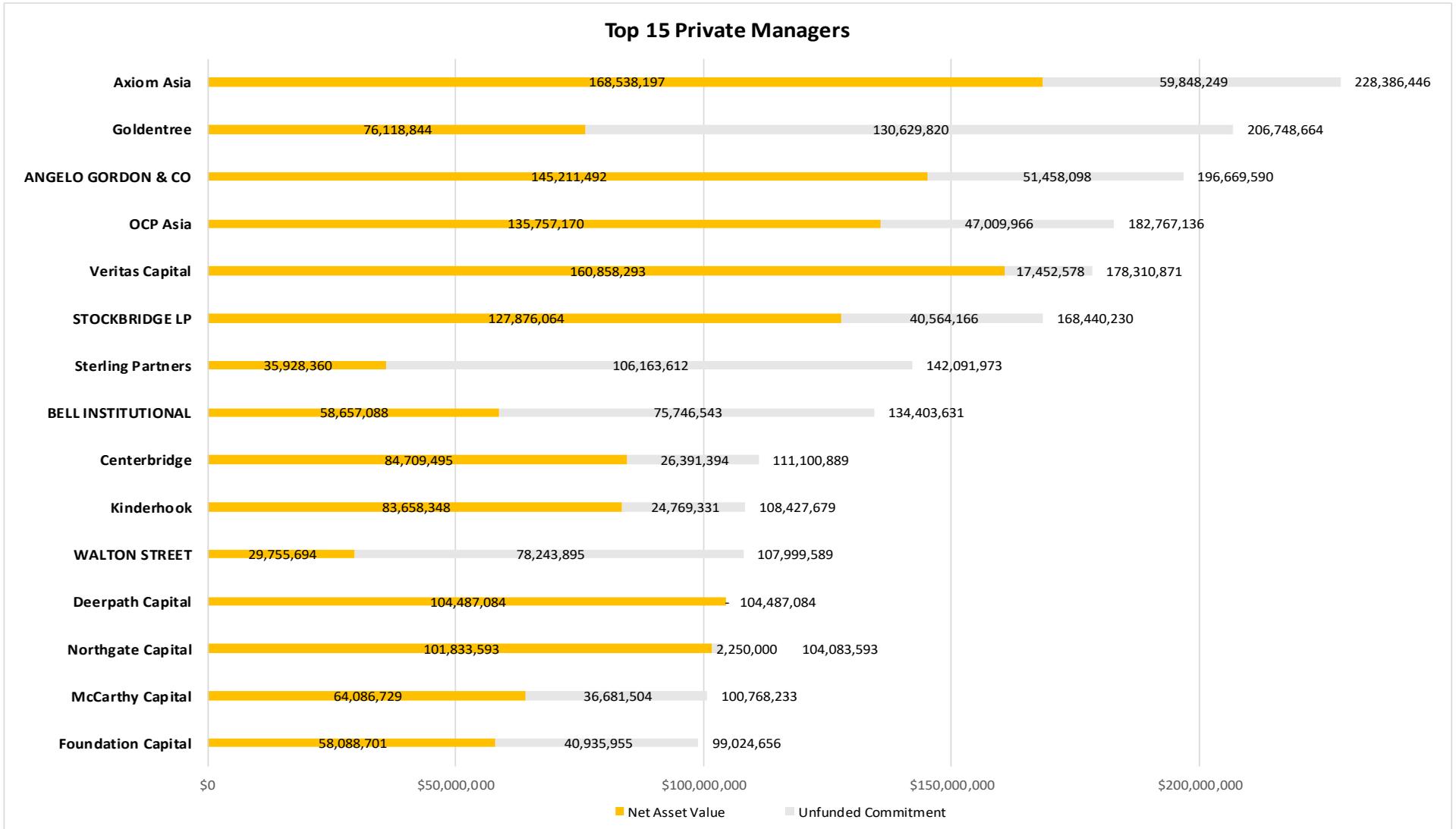


Risk Management Pension Holdings

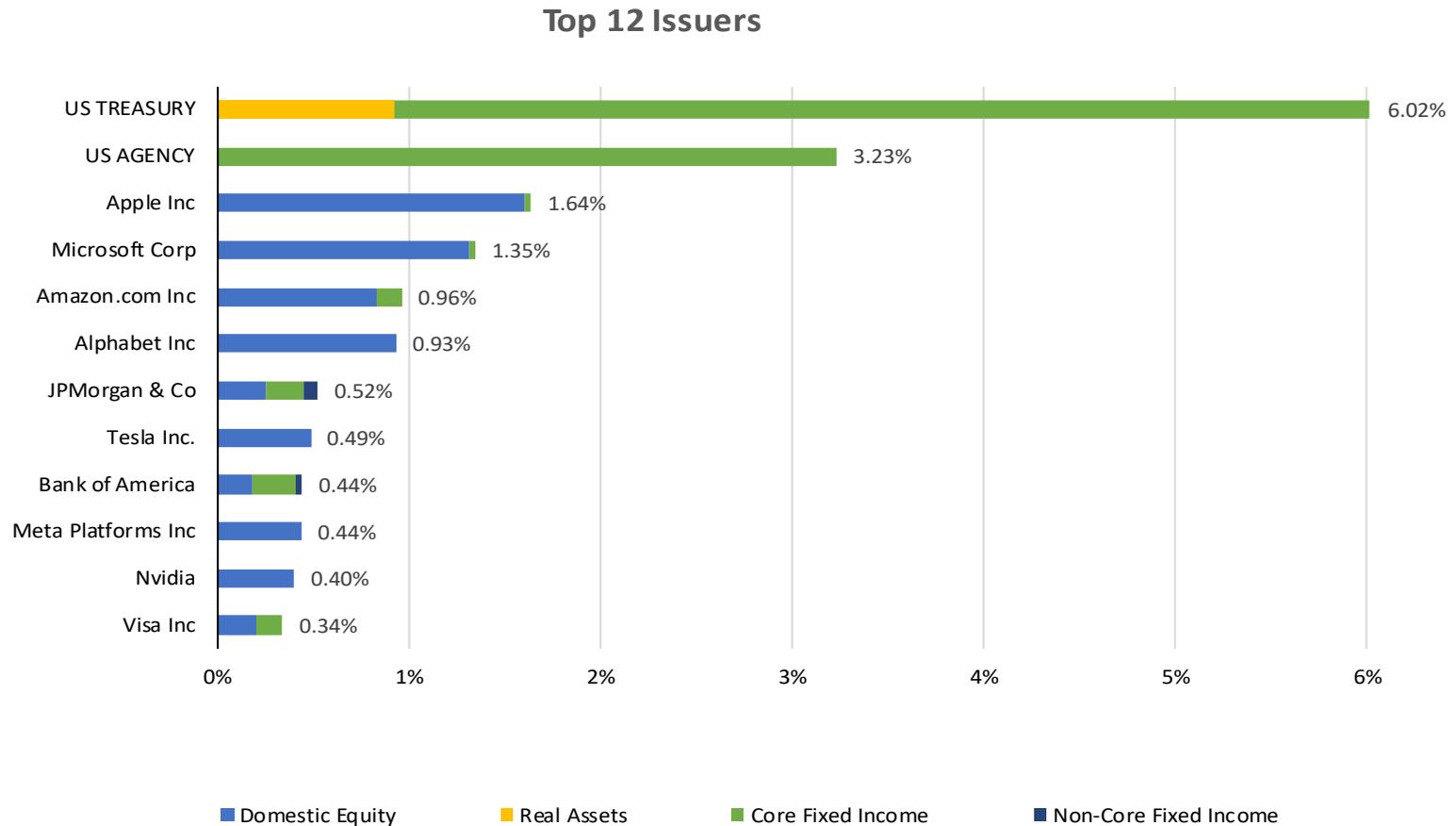


*Montana Public Retirement Plans shall have no greater than 5% of its Net Asset Value managed by any one external manager using an active investment strategy

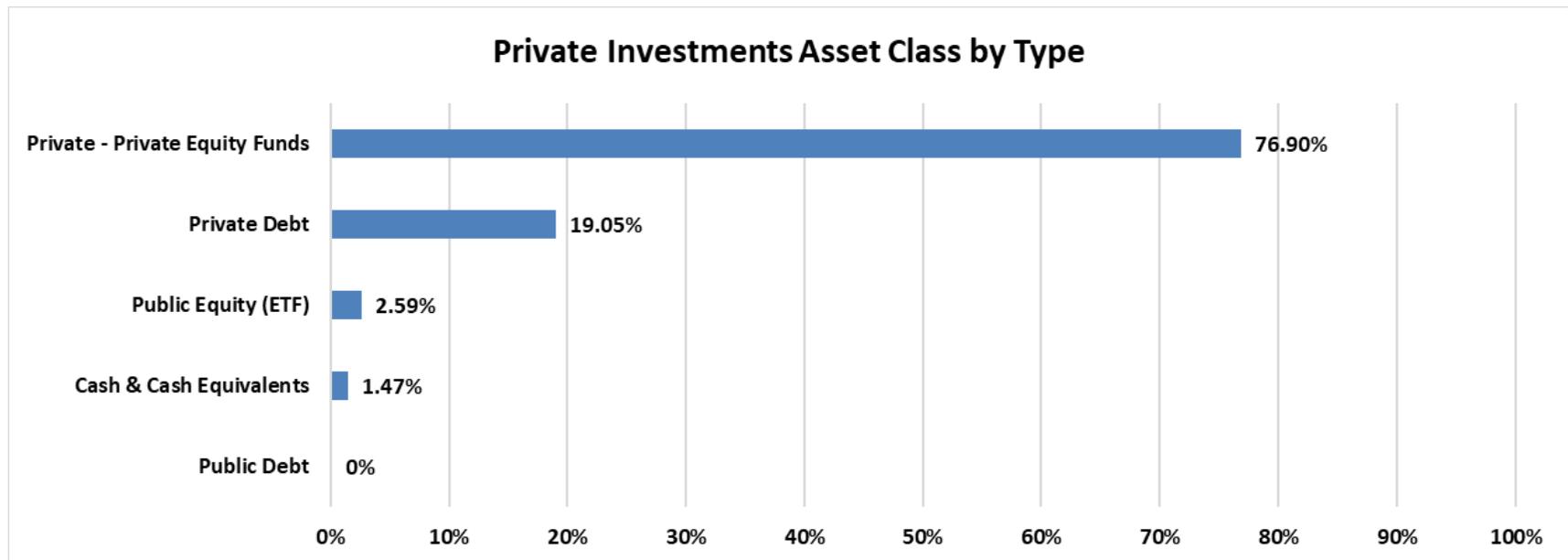
Risk Management Pension Holdings



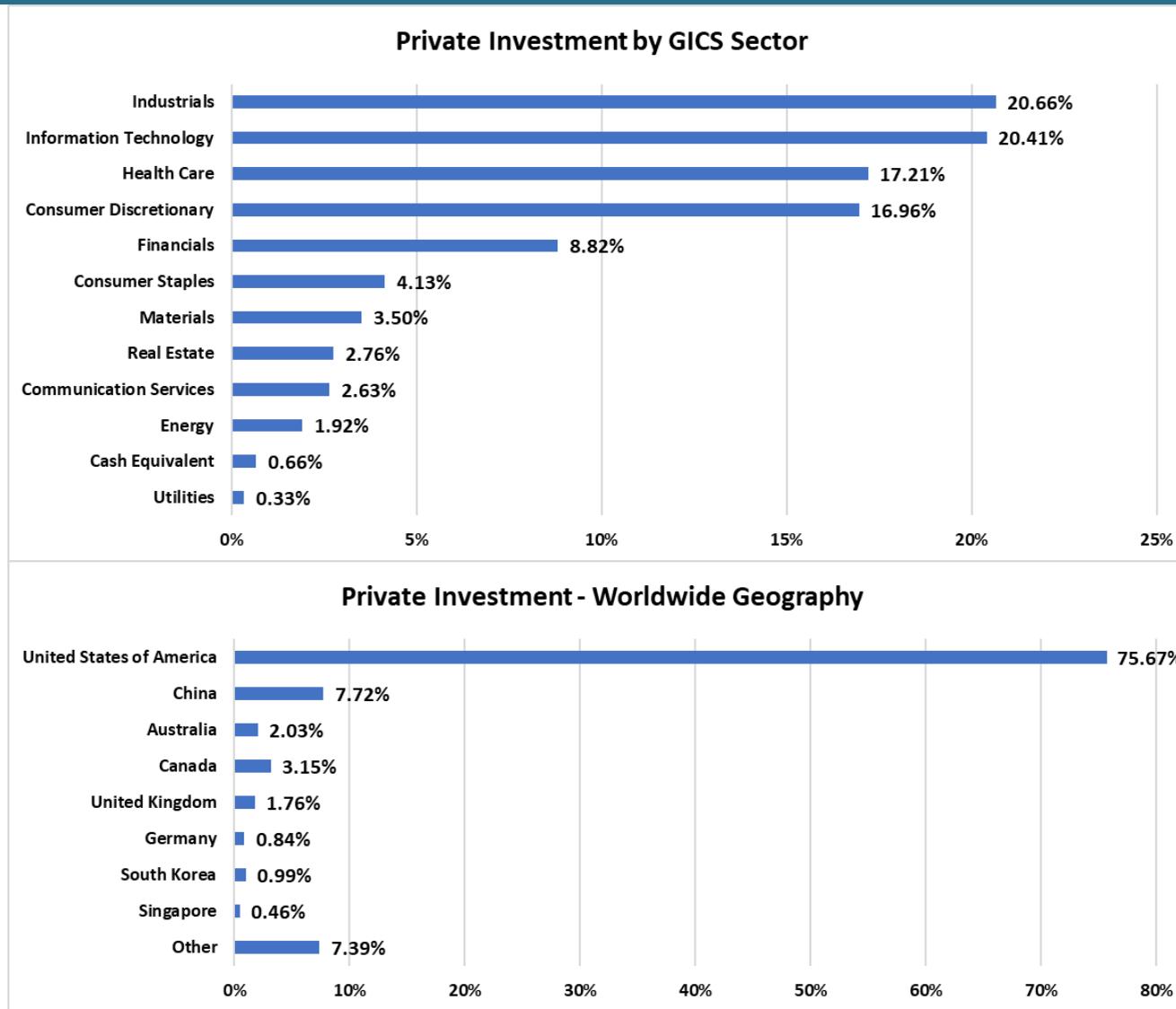
Risk Management Pension Holdings



Private Investments Characteristics

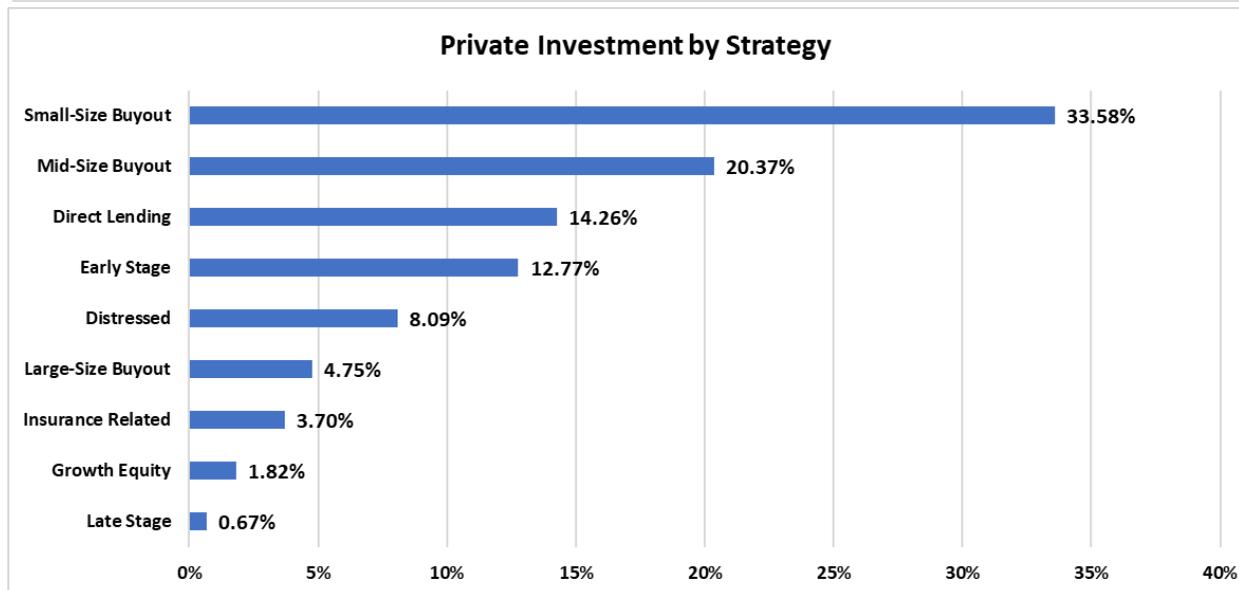
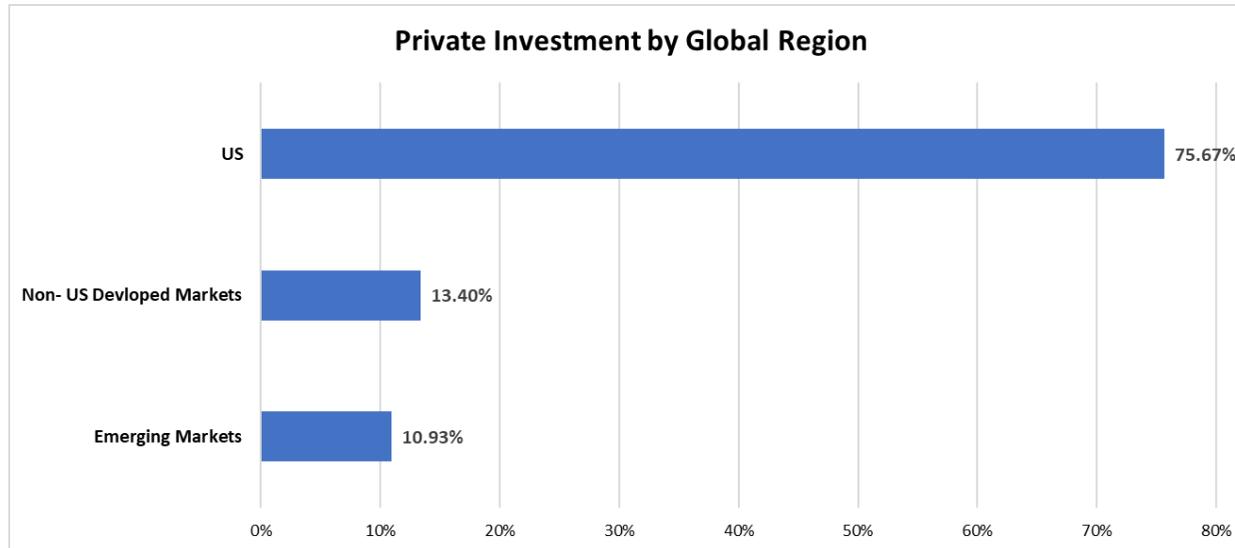


Private Investments Characteristics



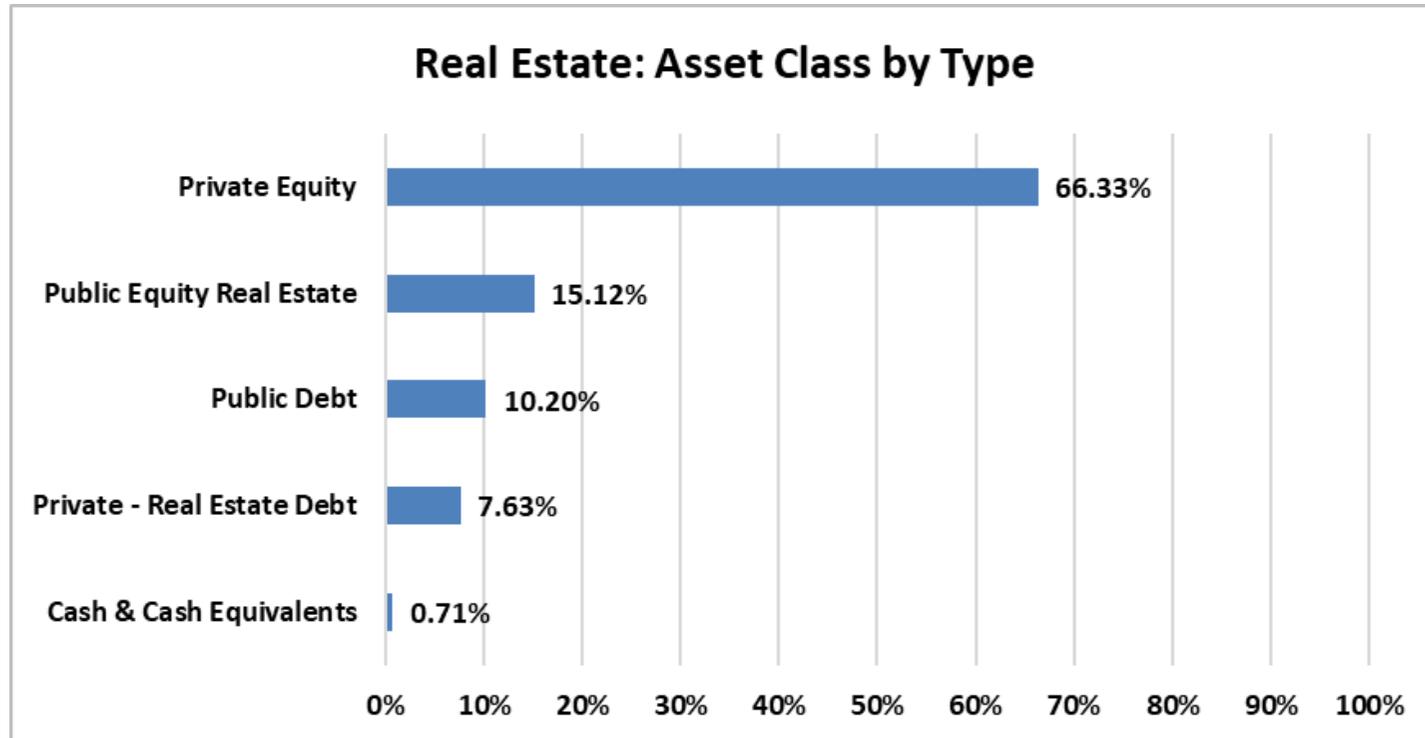
Note: Data reflects most recent GP-reported holdings as of 9/30/21
December 31, 2021

Private Investments Characteristics

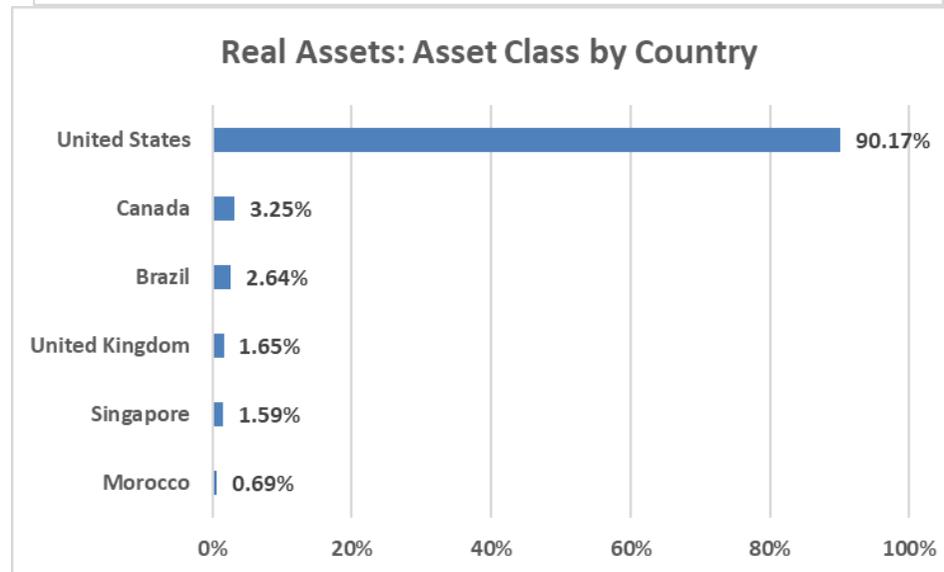
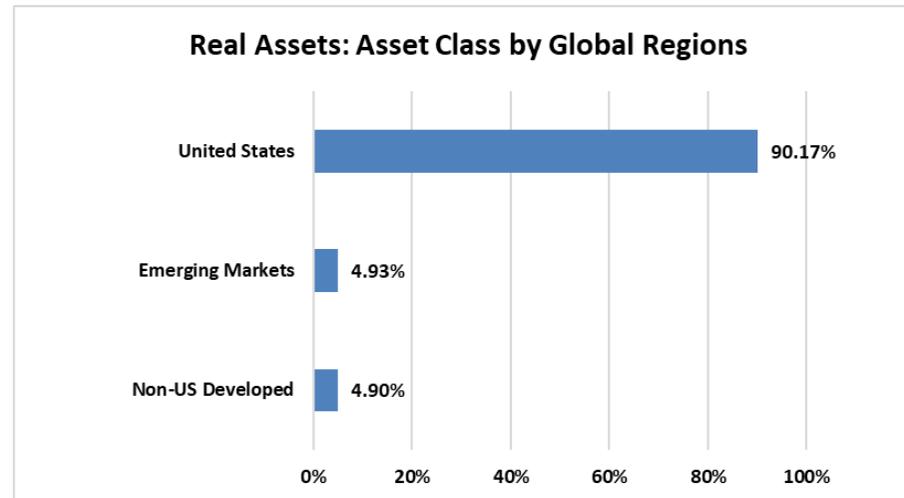


Note: Data reflects most recent GP-reported holdings as of 9/30/21
December 31, 2021

Real Estate Characteristics

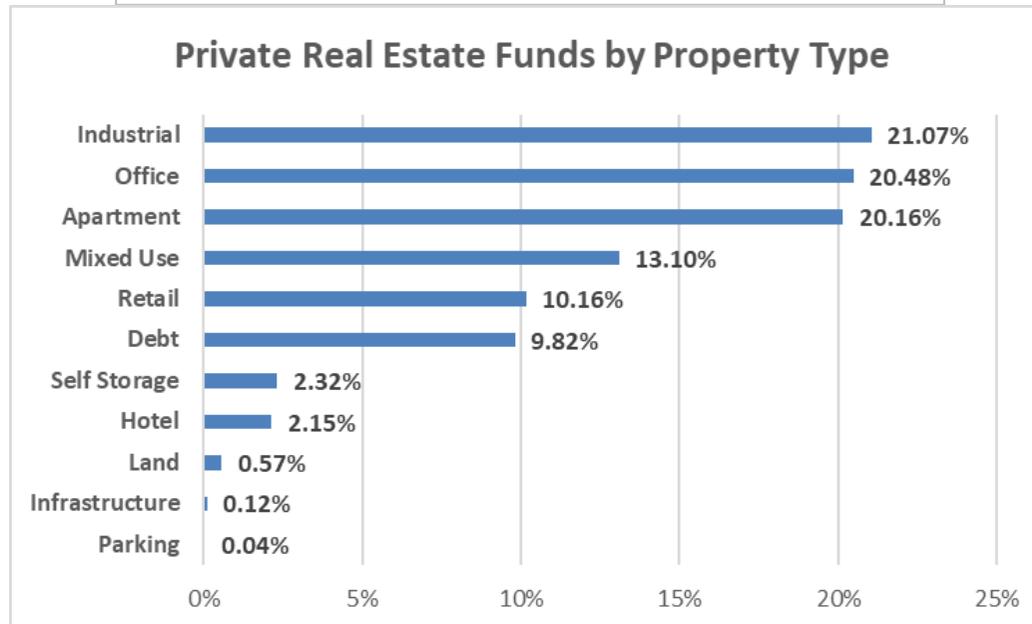
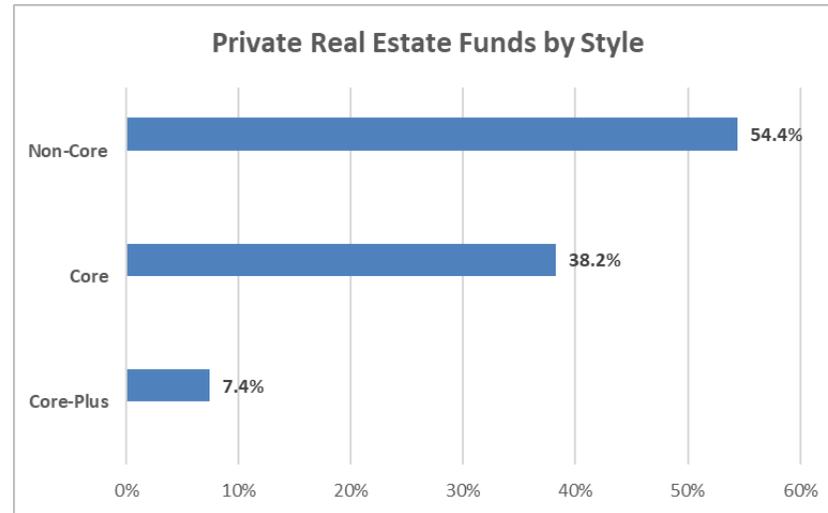


Real Estate Characteristics



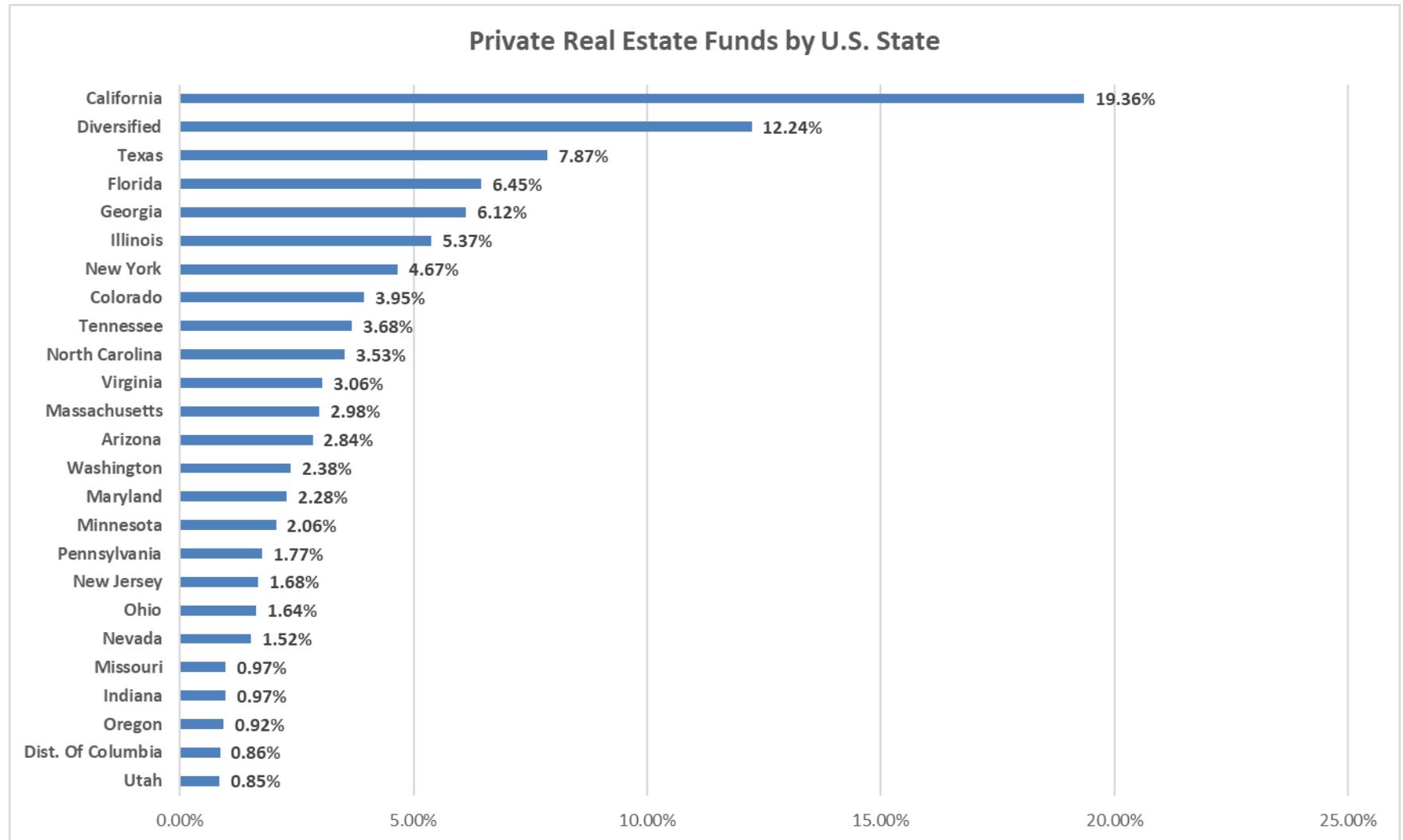
Note: Data reflects most recent GP-reported holdings as of 9/30/21
December 31, 2021

Real Estate Characteristics



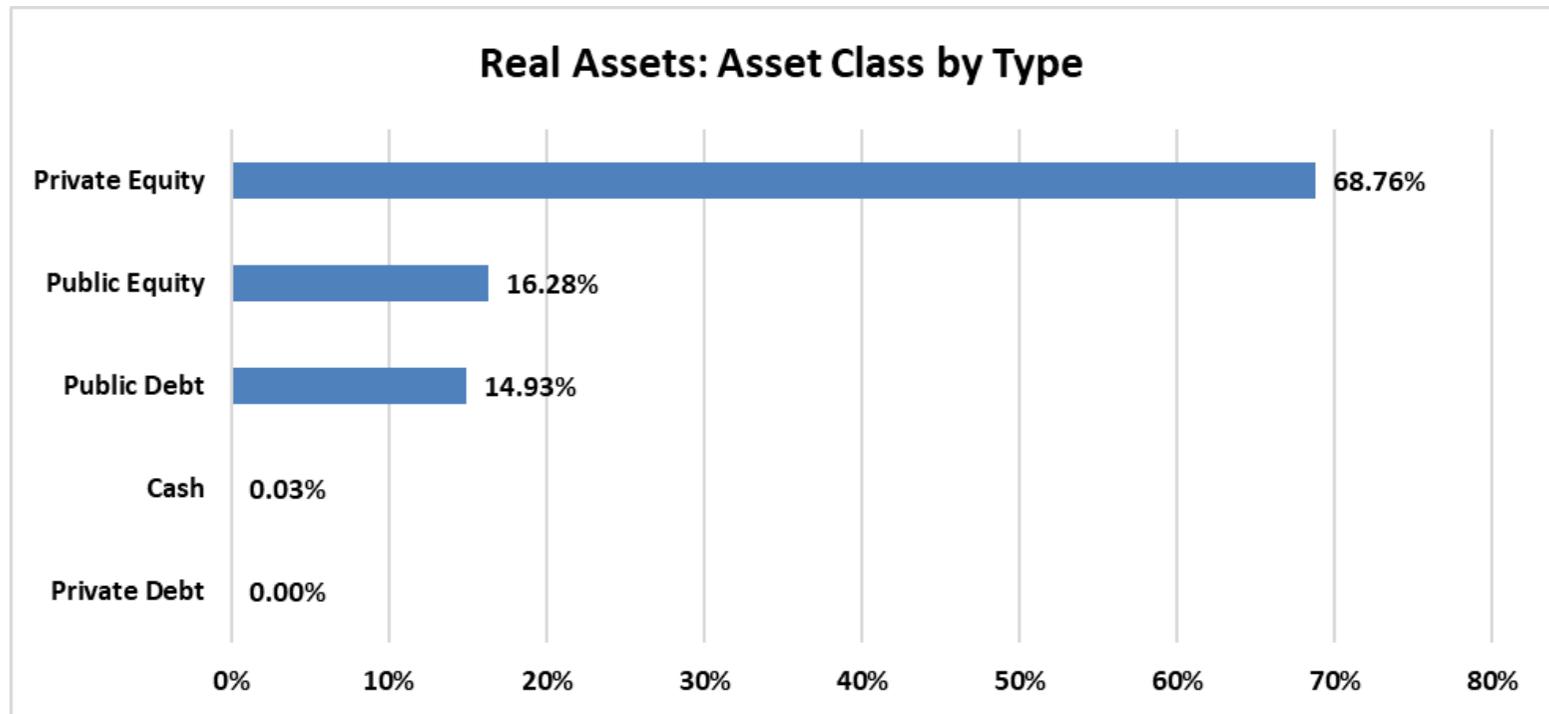
Note: Data reflects most recent GP-reported holdings as of 9/30/21
December 31, 2021

Real Estate Characteristics

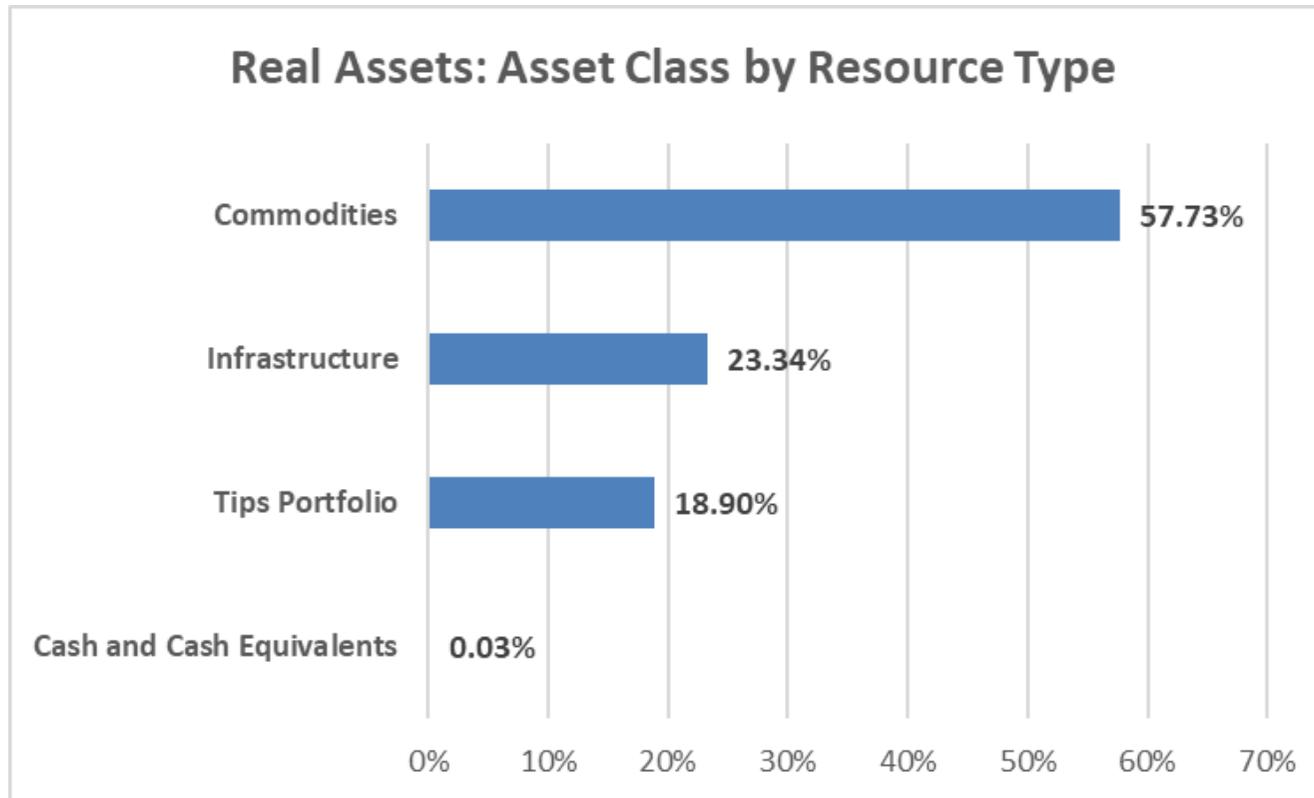


Note: Data reflects most recent GP-reported holdings as of 9/30/21
December 31, 2021

Real Assets Characteristics

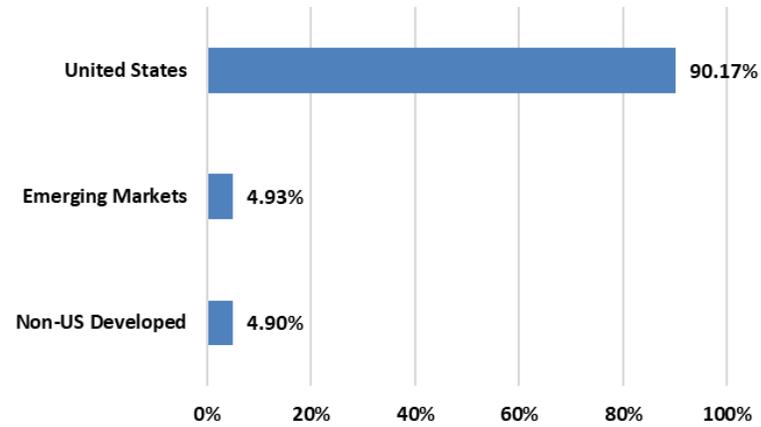


Real Assets Characteristics

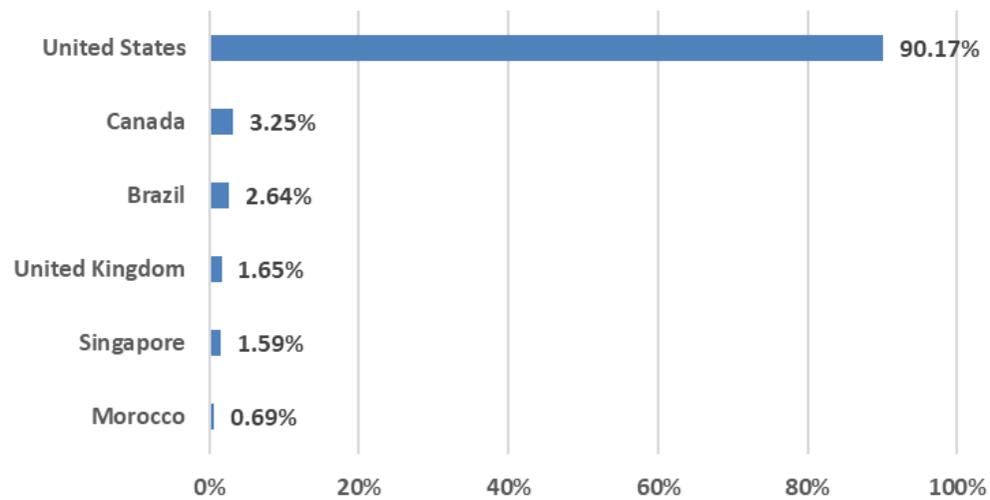


Real Assets Characteristics

Real Assets: Asset Class by Global Regions

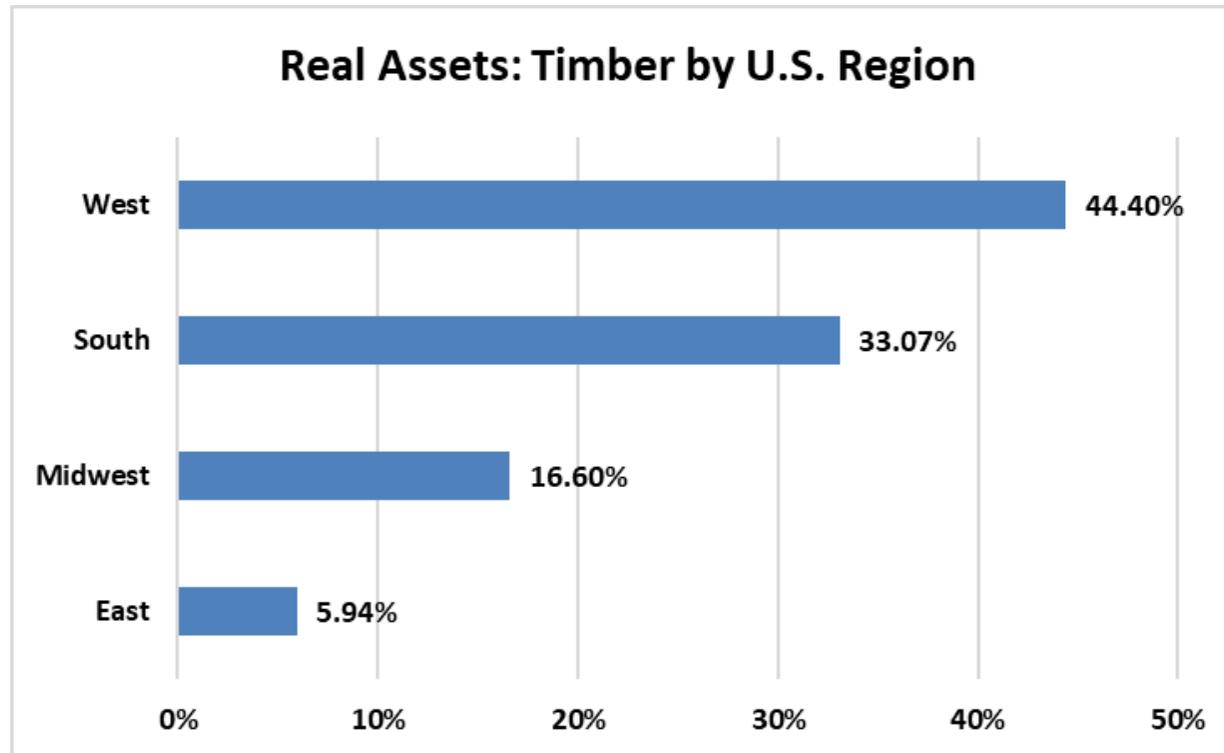


Real Assets: Asset Class by Country



Note: Data reflects most recent GP-reported holdings as of 9/30/21
December 31, 2021

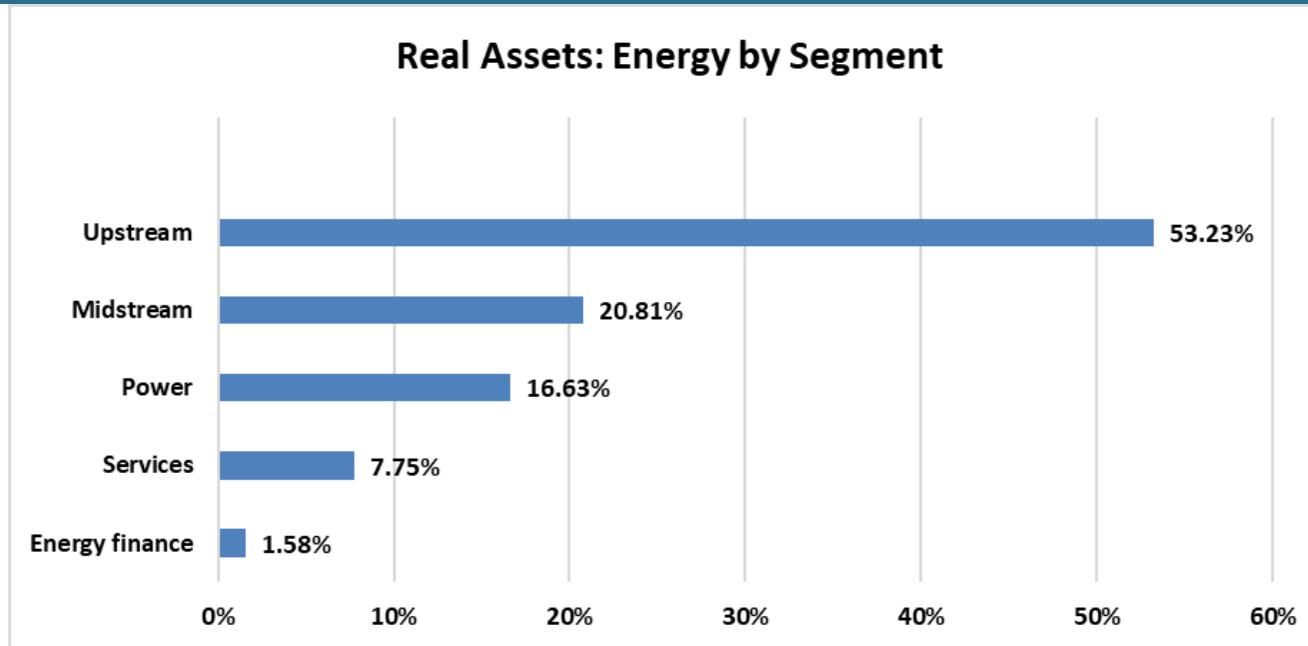
Real Assets Characteristics



Note: Data reflects most recent GP-reported holdings as of 9/30/21

December 31, 2021

Real Assets Characteristics



Upstream Exploration and production

Services Businesses that provide ancillary services and equipment required to explore for, produce and transport oil and gas

Power Generation plants that create power

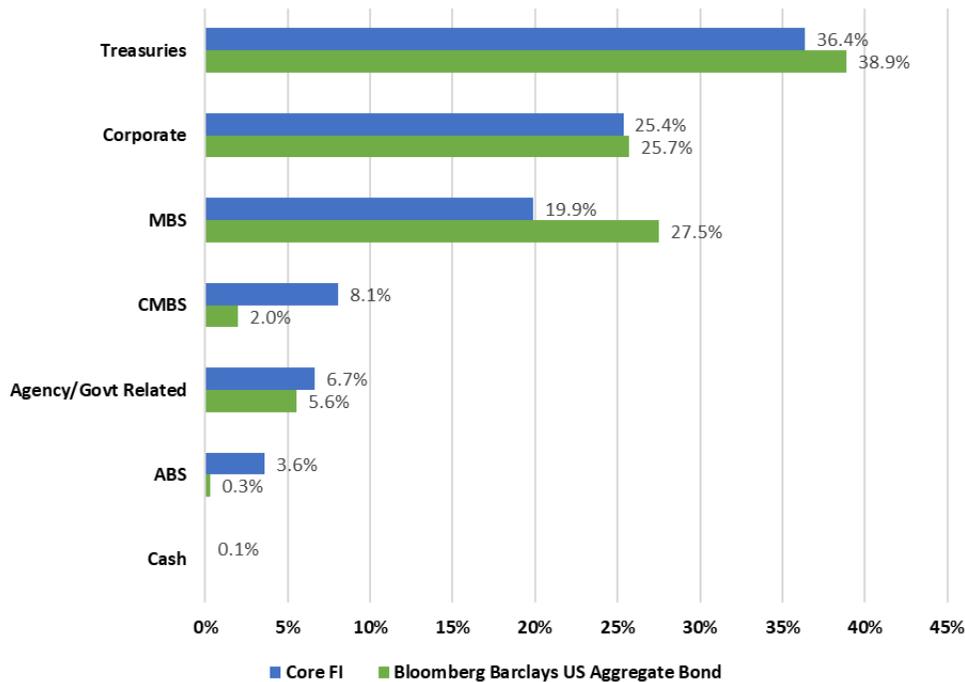
Midstream Pipelines, terminals and storage of oil and gas and involves the transportation of oil and gas

Energy Finance Investments in a portfolio of liquid or yield-oriented securities

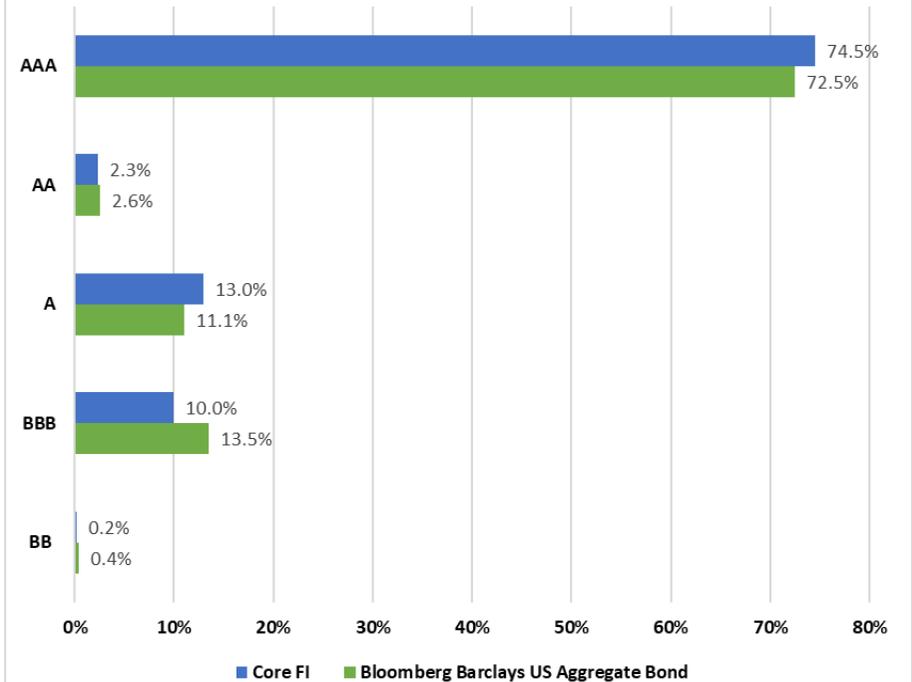
Note: Data reflects most recent GP-reported holdings as of 9/30/21
December 31, 2021

Core Fixed Income Characteristics

**Core Fixed Income
Sector Weights**

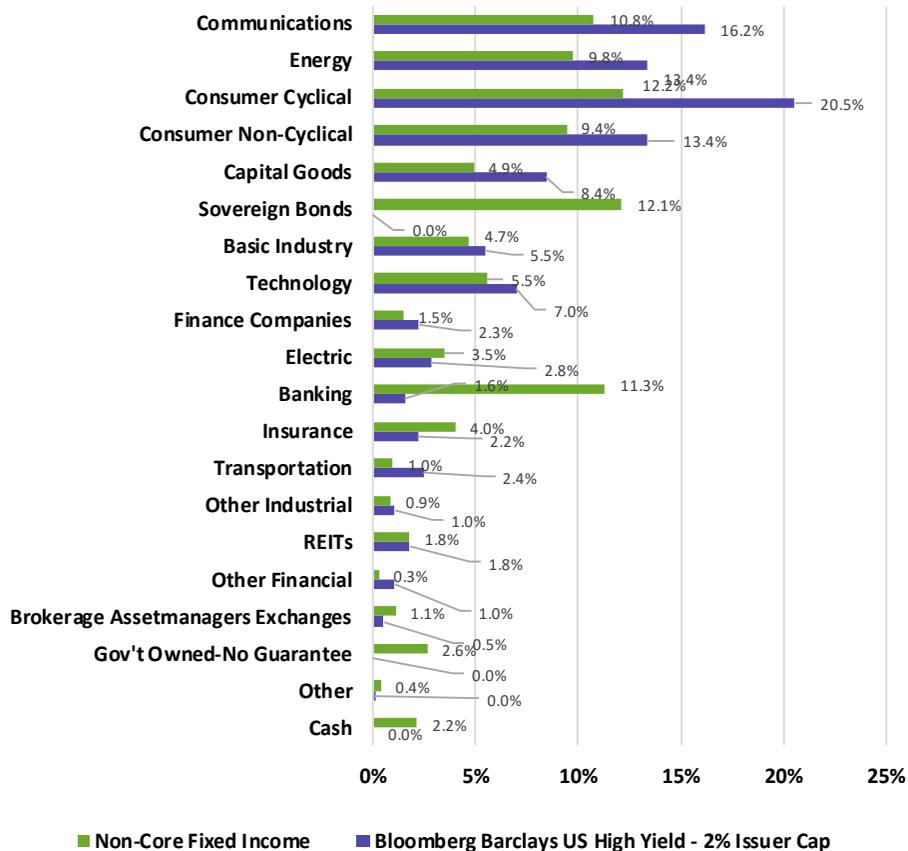


**Core Fixed Income
Credit Quality**

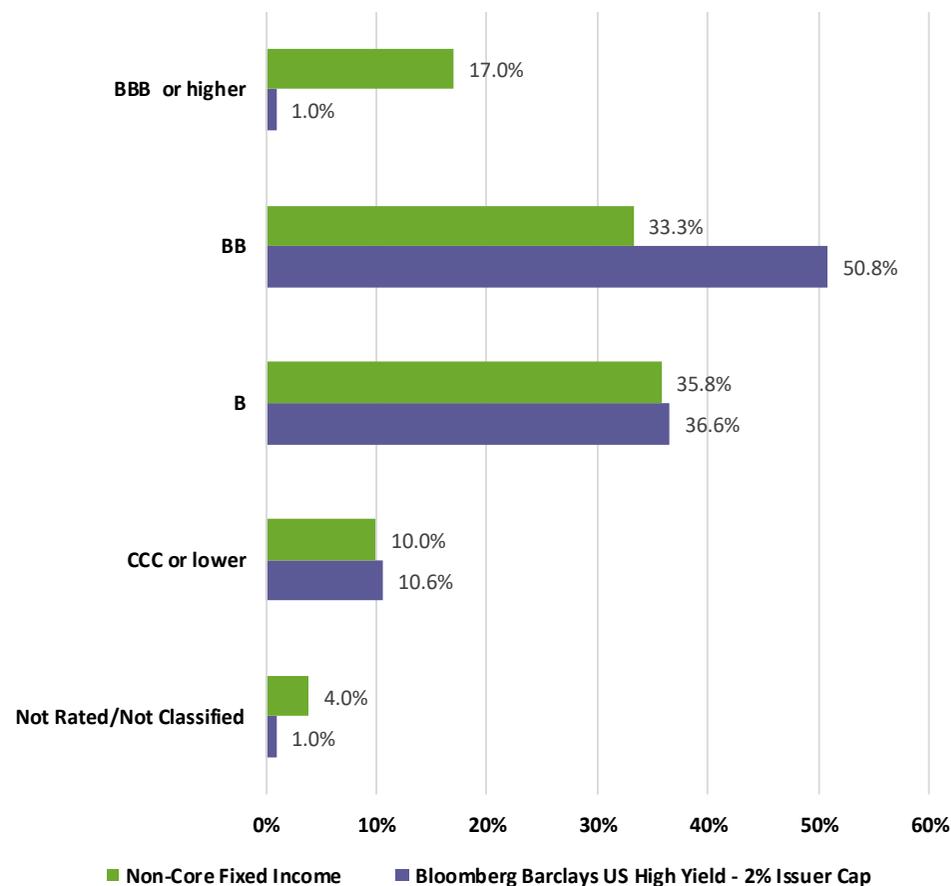


Non-Core Fixed Income Characteristics

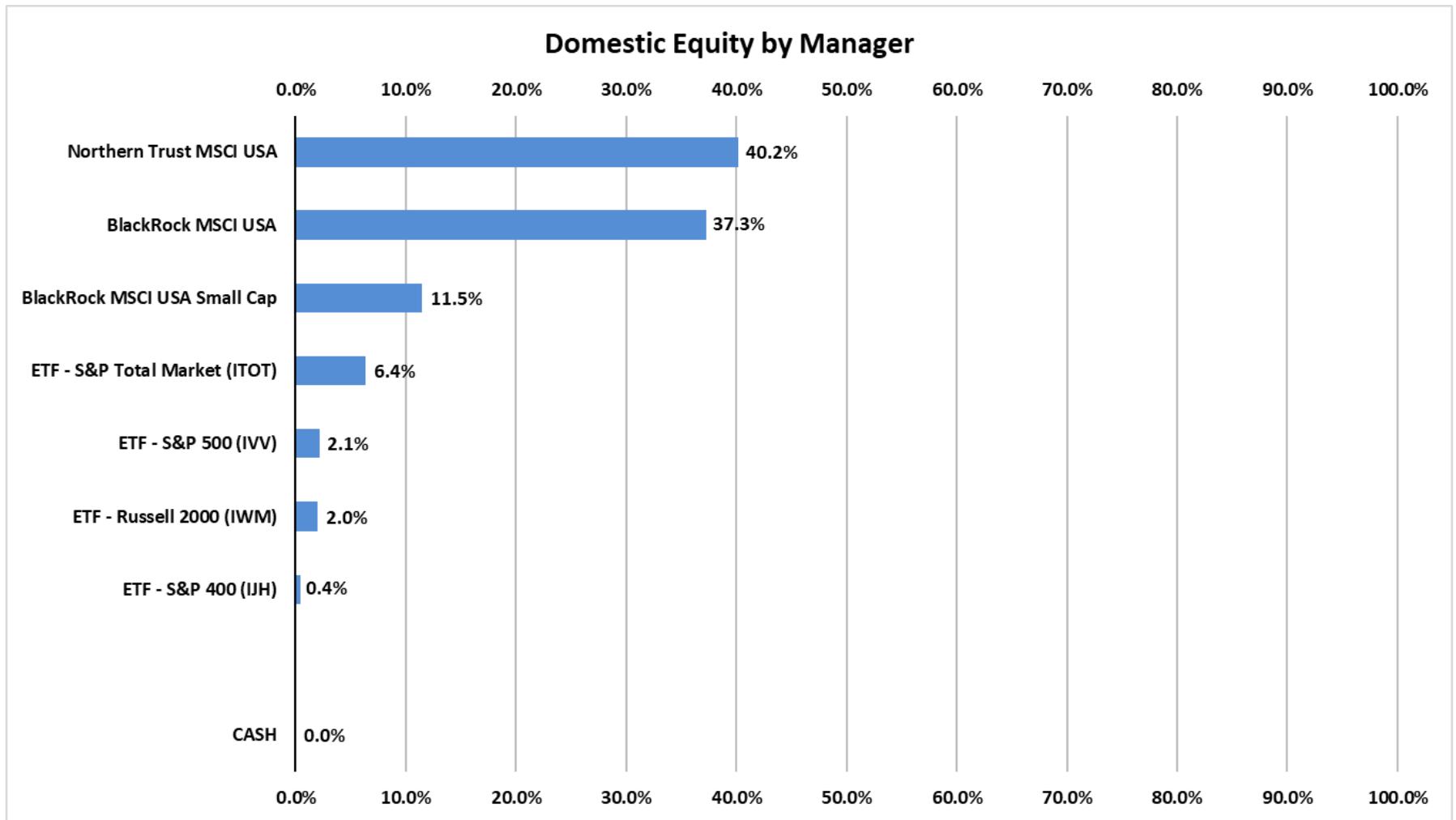
Non-Core Fixed Income Sector Weights



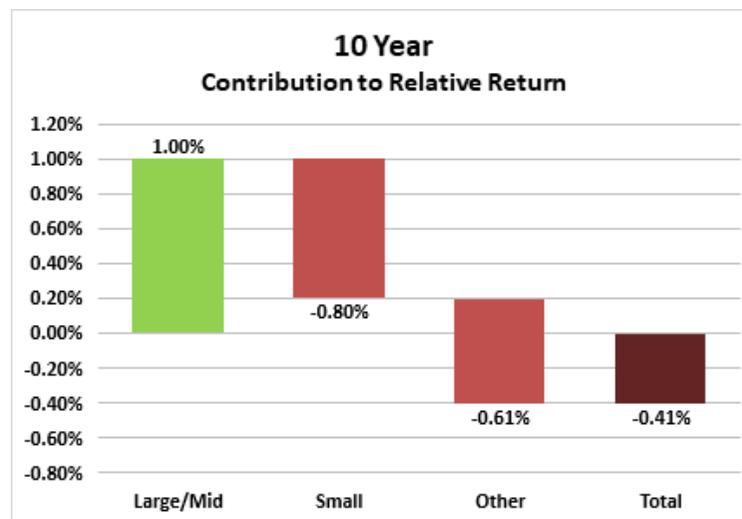
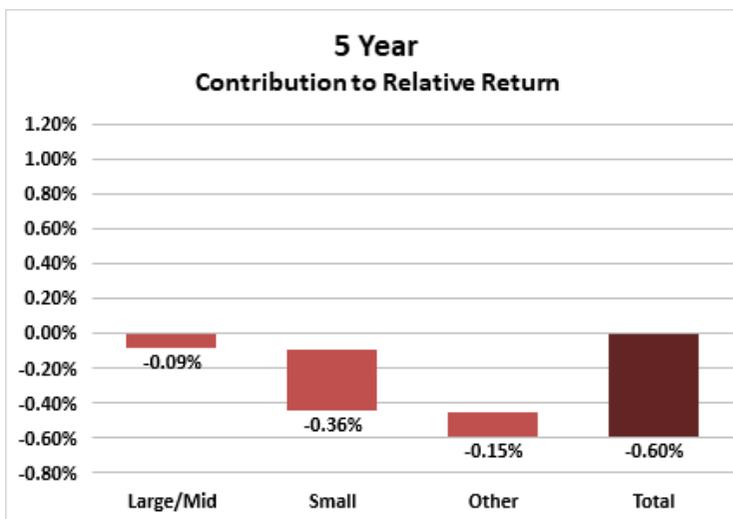
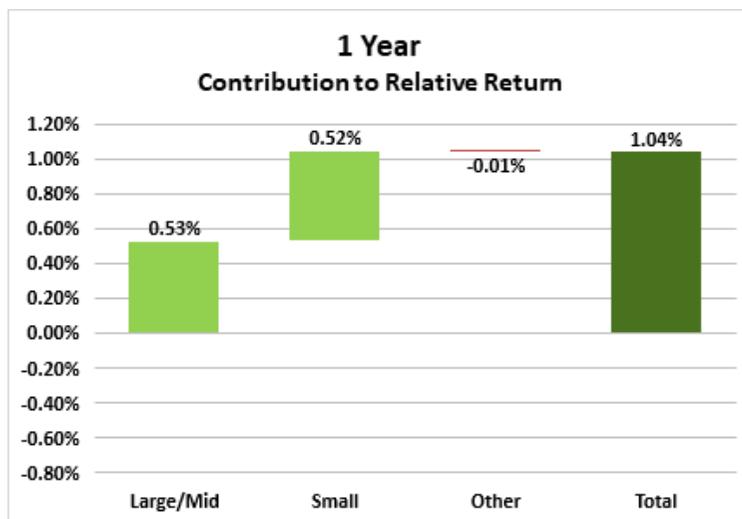
Non-Core Fixed Income Credit Quality



Domestic Equity Policy



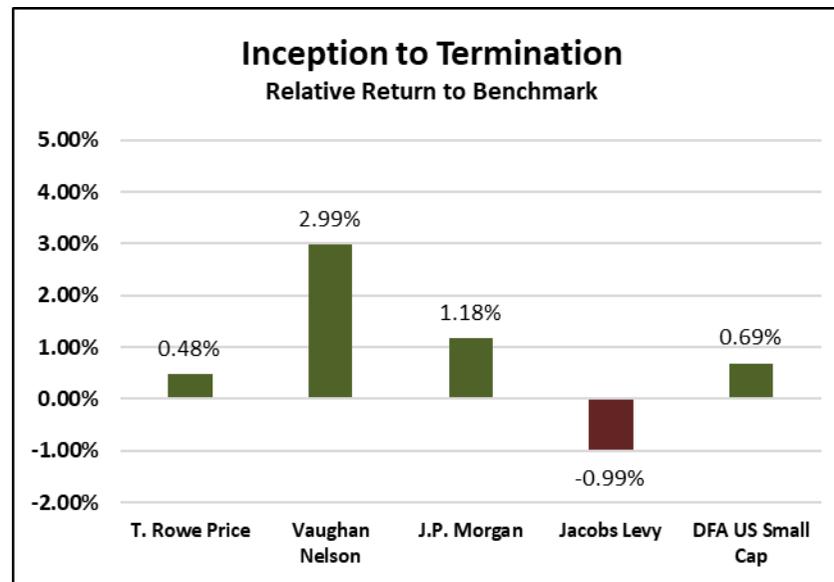
Domestic Equity Net Performance



Benchmark: Domestic Equity – PAC Custom Blend

December 31, 2021

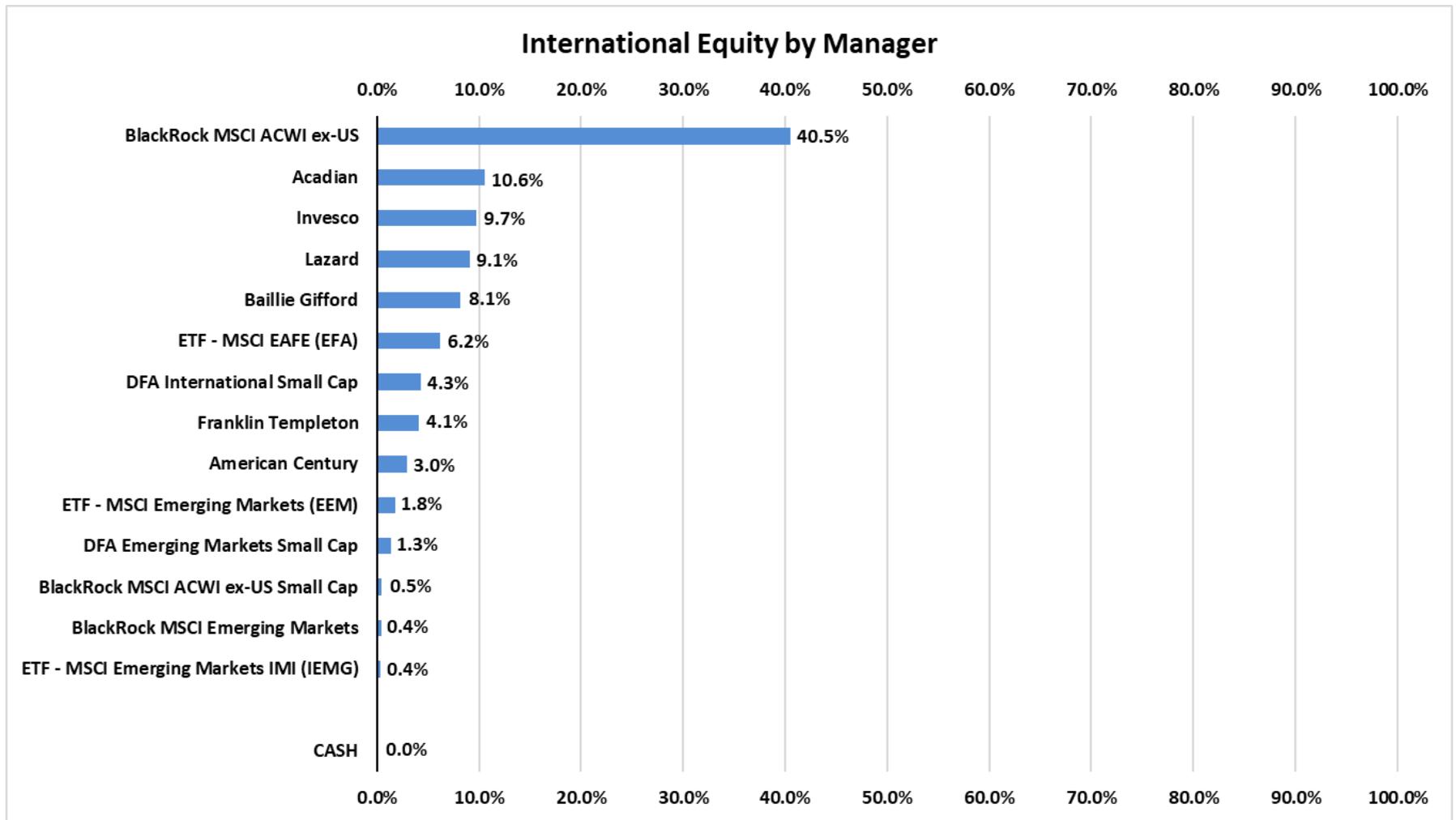
Domestic Equity – Active Managers Net Performance



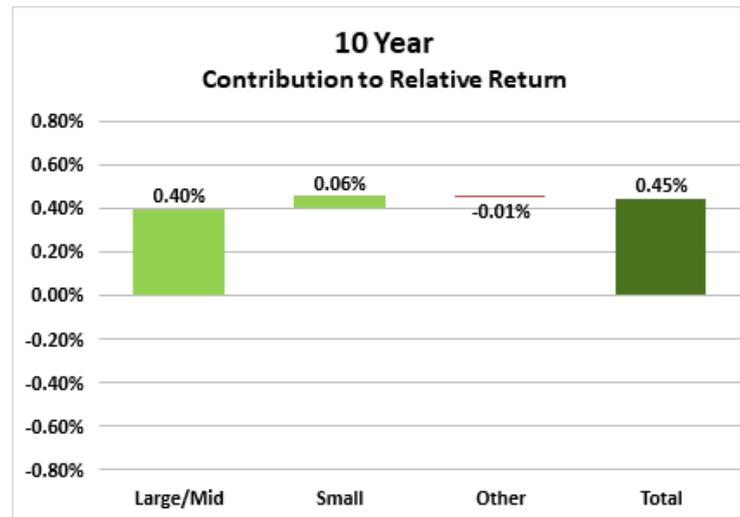
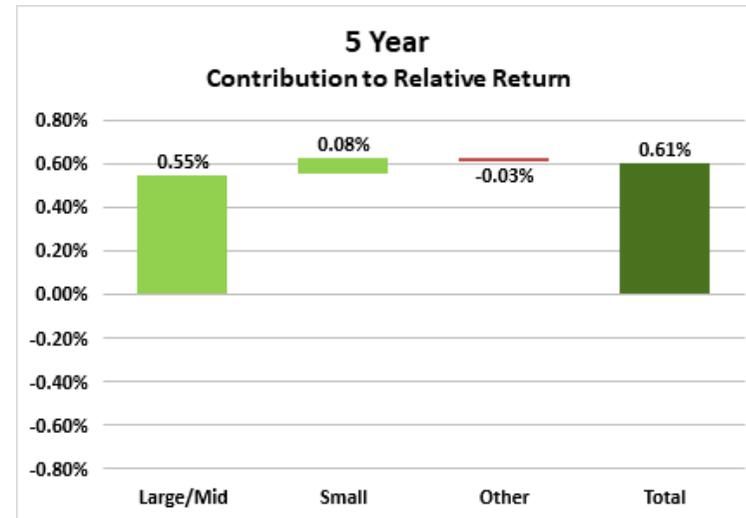
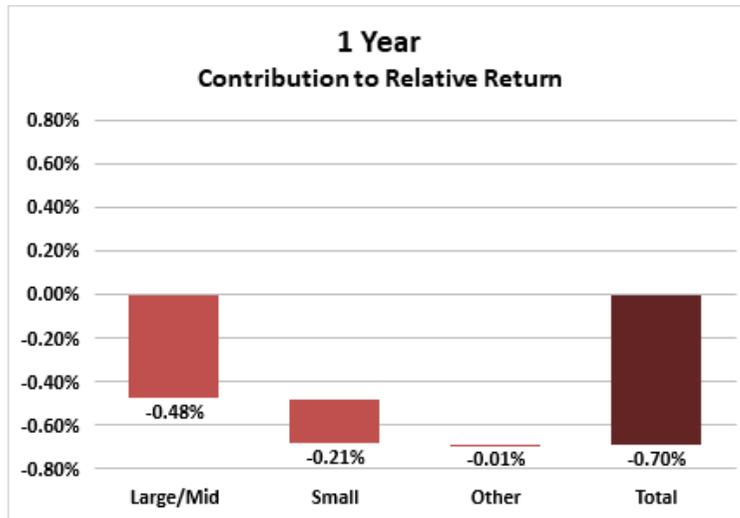
Inception Dates:
T. Rowe Price – 6/1/2006
Vaughan Nelson – 3/1/2007
J.P. Morgan – 3/1/2008
Jacobs Levy – 3/8/2018
DFA US Small Cap – 3/1/2003

Termination Dates:
T. Rowe Price – 11/9/2021
Vaughan Nelson – 11/9/2021
J.P. Morgan – 11/9/2021
Jacobs Levy – 11/9/2021
DFA US Small Cap – 11/11/2021

International Equity Policy



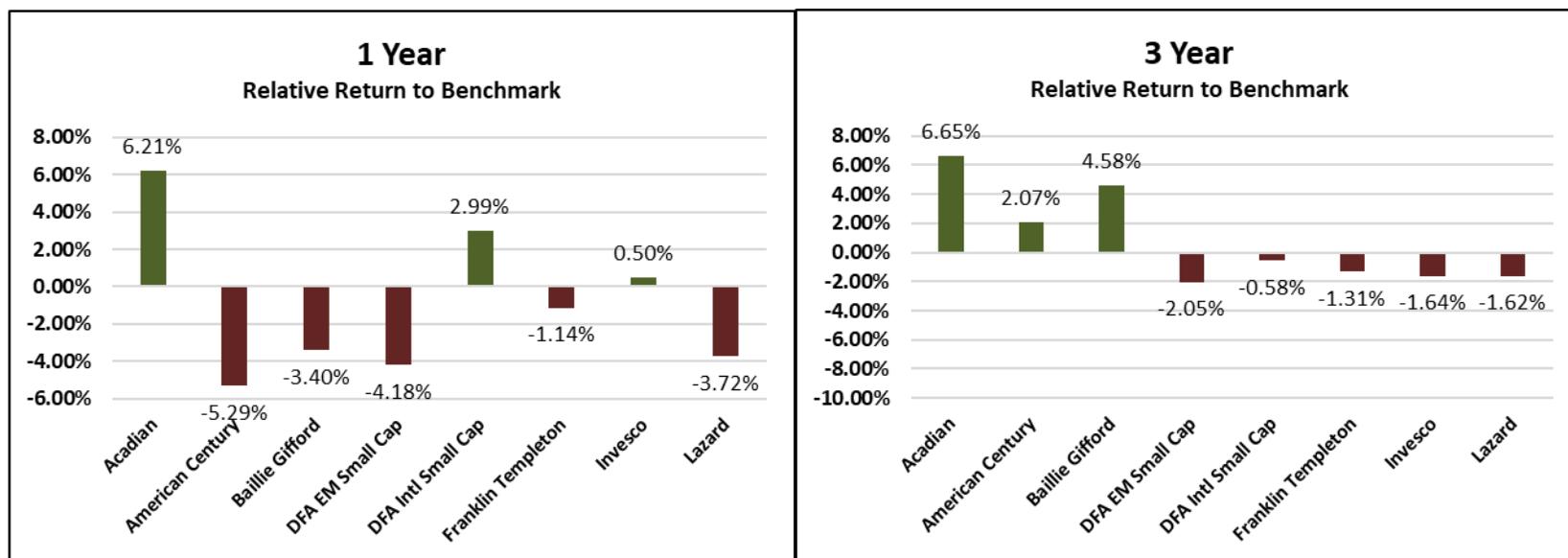
International Equity Net Performance



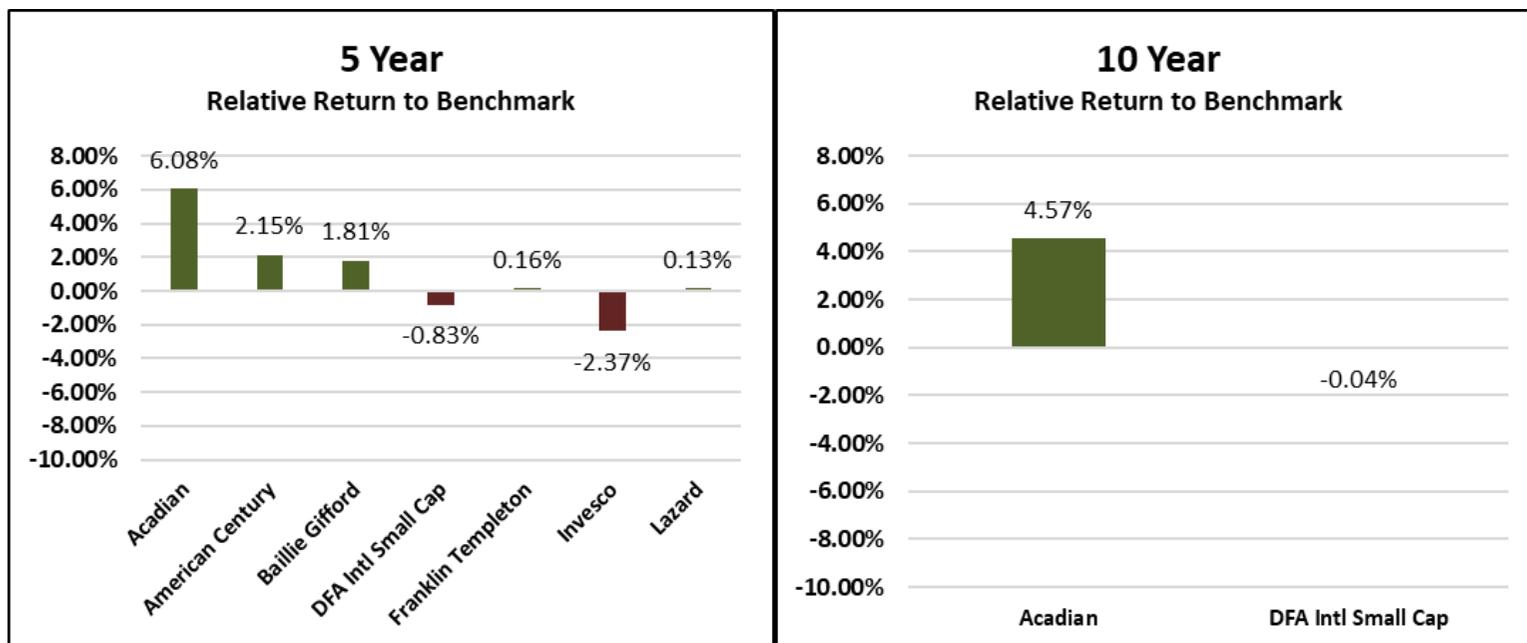
Benchmark: International Equity – PAC Custom Blend

December 31, 2021

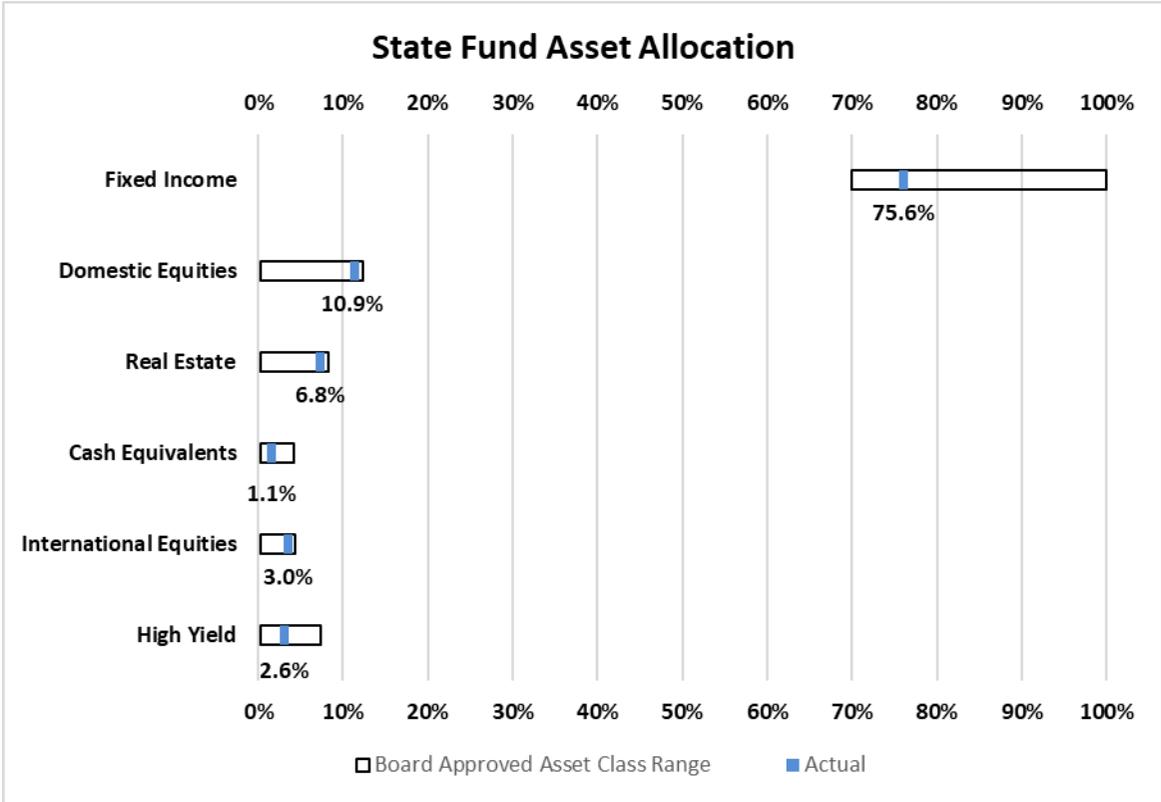
International Equity – Active Managers Net Performance



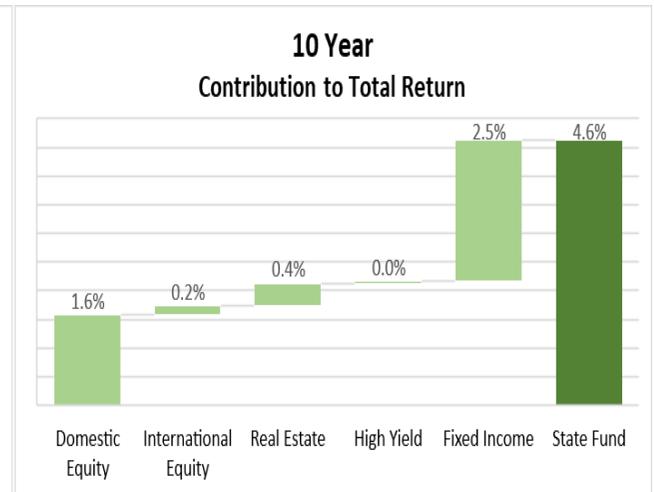
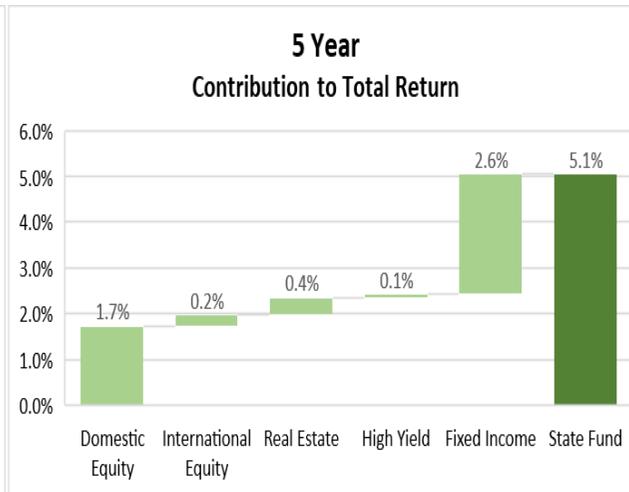
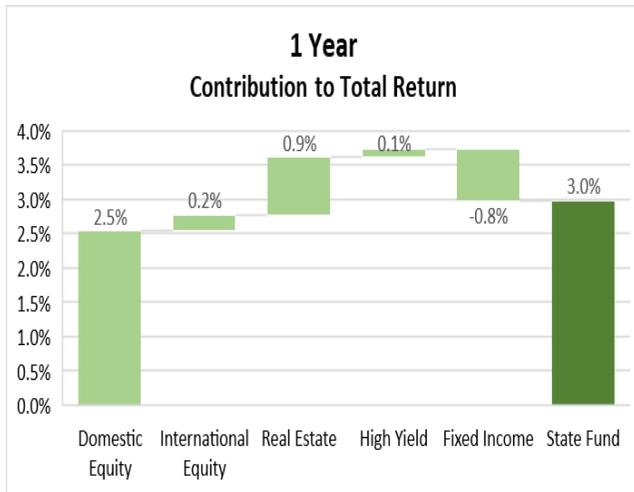
International Equity – Active Managers Net Performance



State Fund Policy

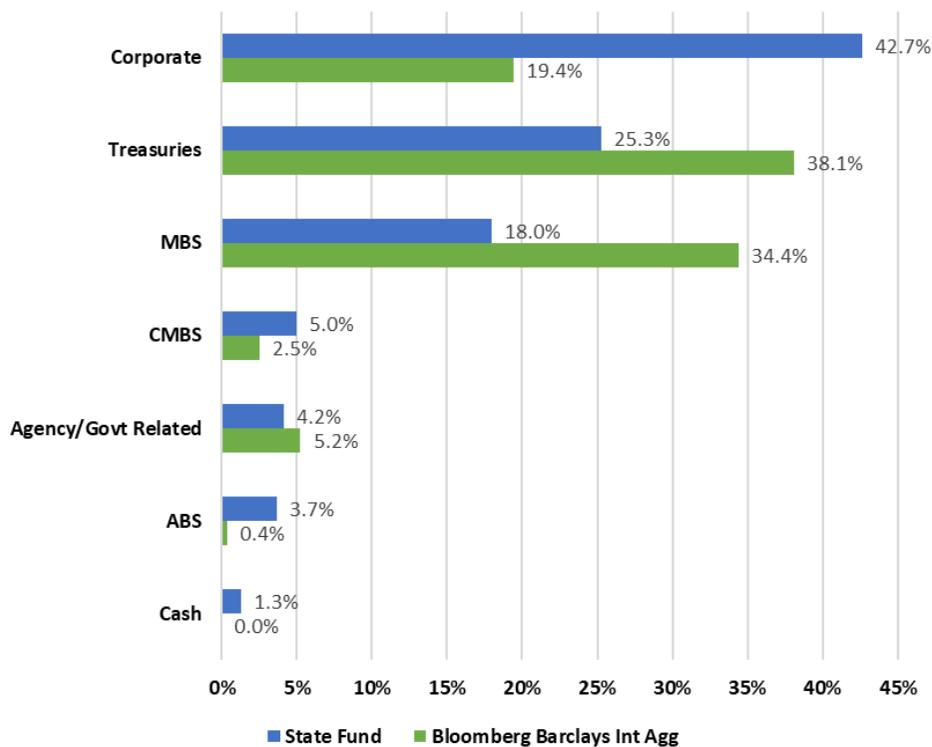


State Fund Performance

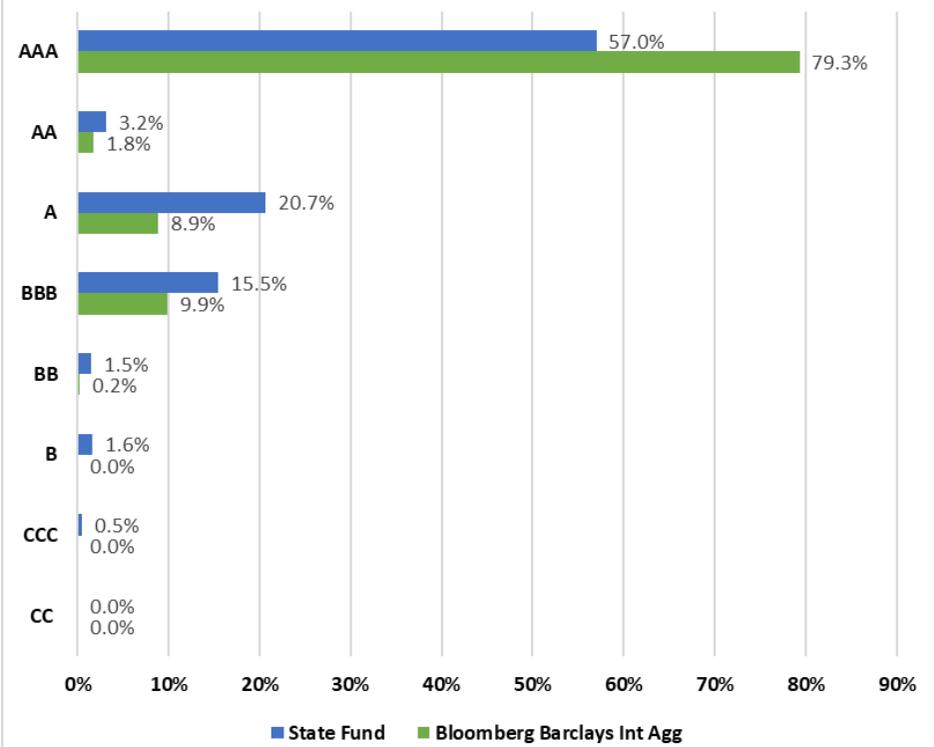


State Fund Investment Pool Characteristics

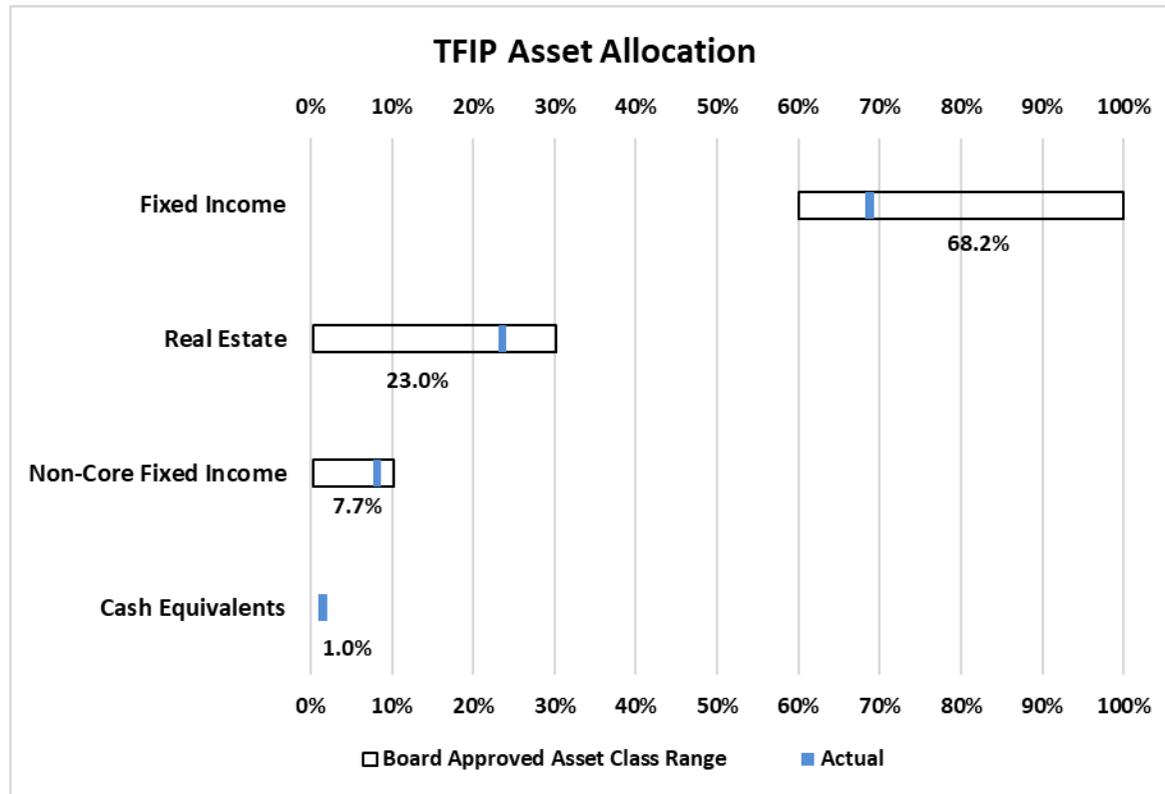
State Fund Bond Portfolio Sector Weights



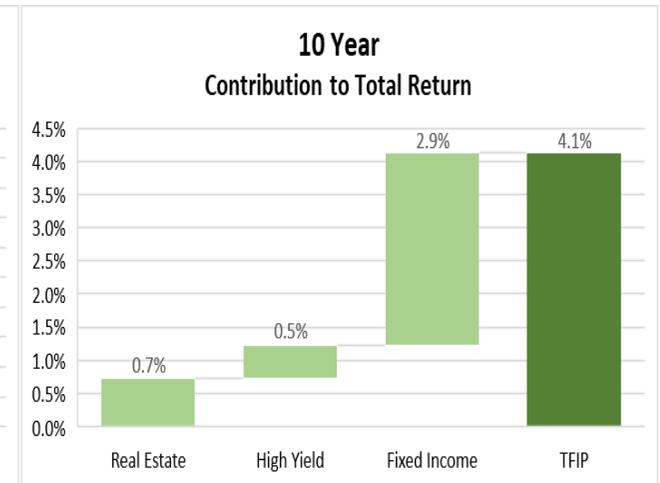
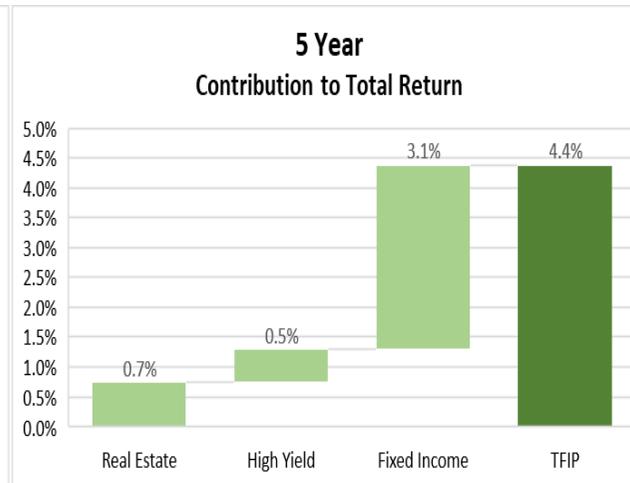
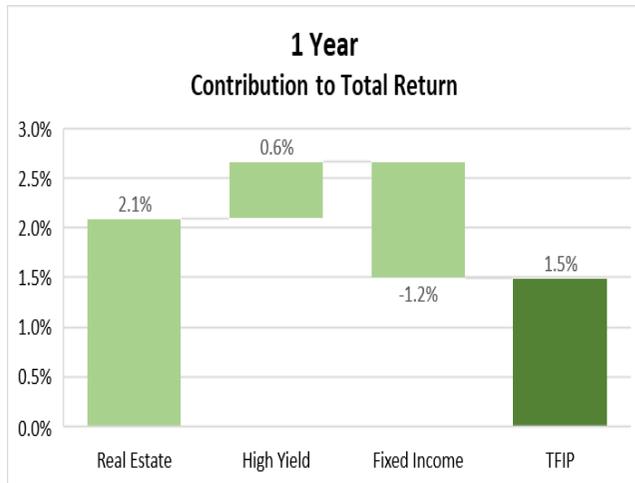
State Fund Bond Portfolio Credit Quality



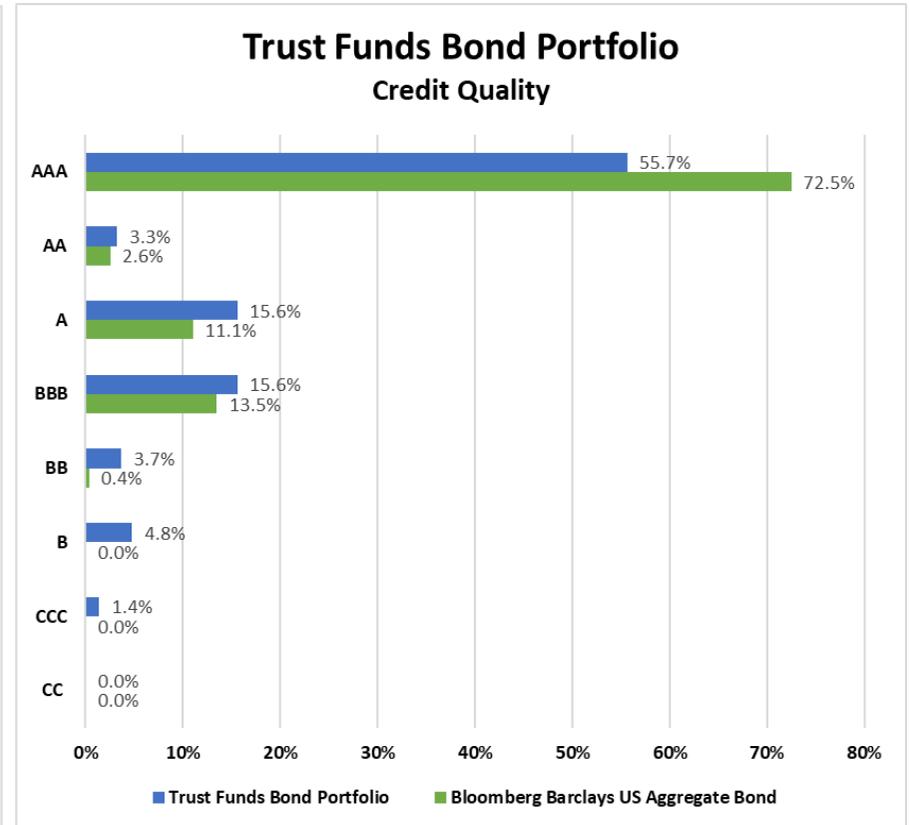
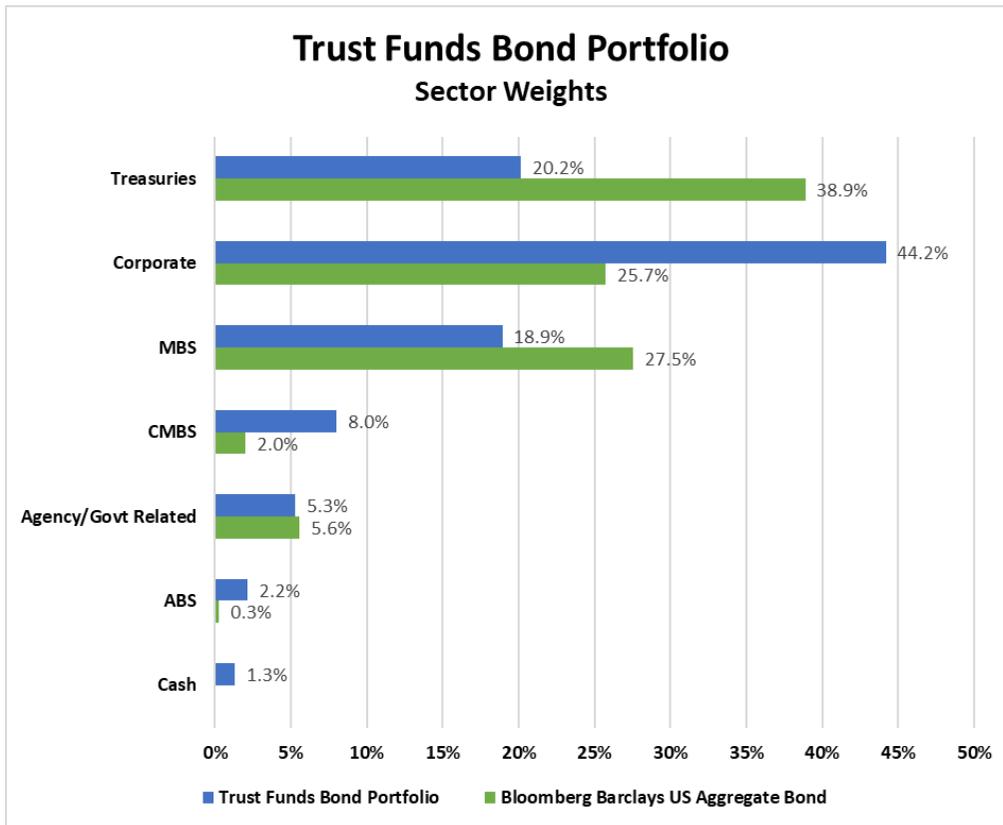
Trust Funds Investment Pool Policy



Trust Funds Investment Pool Performance

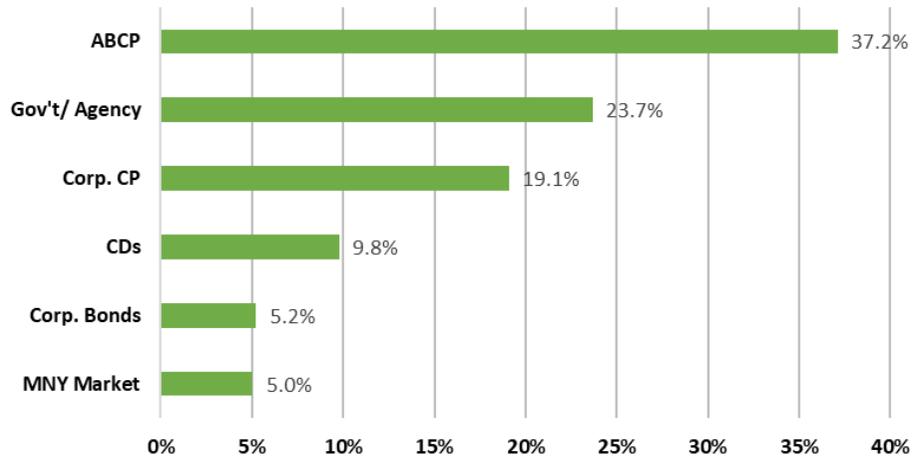


Trust Funds Investment Pool Characteristics

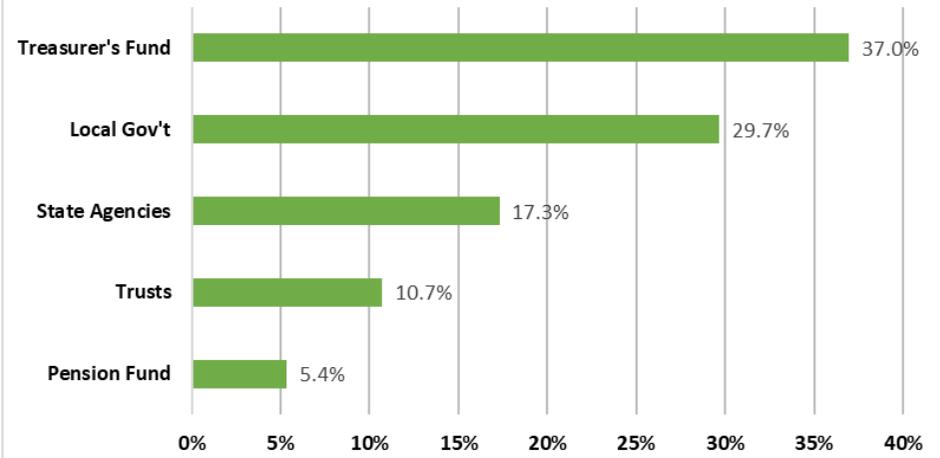


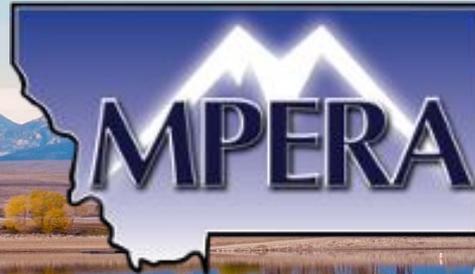
Short Term Investment Pool Characteristics

Assets by Type



Participant by Type

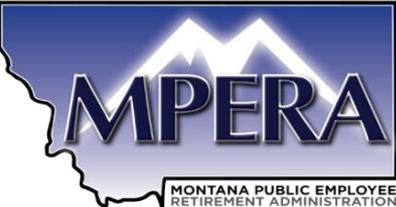




Montana Public Employee Retirement Administration

**Overview of Defined Contribution and
Deferred Compensation Plan Processes
February 16, 2022**

**Dore Schwinden, Executive Director, MPERA
William Holahan, Deputy Director, MPERA**



Montana DC and 457 Plans

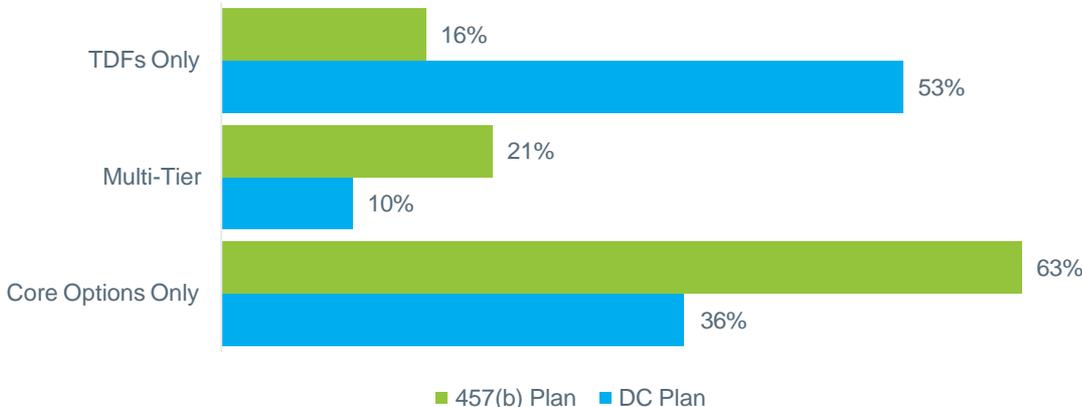
Montana PERA Plans



How Are Participants Using the Investment Options?

- The majority of 457(b) participants invest in Core funds while half of DC participants use TDFs Only.
- 21% of 457(b) participants invest in both target date and core.

Participant's Allocations by Plan



TDFs: Tier I Target Date Funds

Core: Tier II & III Investment Alternatives

Participant balances are as of 6/30/2021 and were provided by Empower. Allocations shown may not sum up to 100% exactly due to rounding. Total Participant Population: 13,694. Asset values do not include forfeitures.

DC Investment Menu - Number of Options: 20*

	Tier I	Tier II	Tier III
	Target Date Funds	Passively Managed Options	Actively Managed Options
	T Rowe Price*		
Global Equity			American Funds Nper;R6 (RNPGX)
US Large Cap Equity	✓	BlackRock Eq Idx F L (CF)	Vanguard Equity Inc;Adm (VEIRX) JPMorgan:US Eq;R6 (JUEMX) Alger:Capital Apprec;Z (ACAZX)
US Mid Cap Equity	✓	Vanguard Md-Cp I;Adm (VIMAX)	MFS Mid Cap Value;R6 (MVCKX) Jns Hndsn:Enterprise;N (JDMNX)
US Small Cap Equity	✓	Vanguard S-C Id;Inst (VSCIX) Vanguard SC G Id;Ins (VSGIX)	BlackRock Advantage SCC (BDSKX)
Broad International Equity	✓	Vanguard Tot I S;Adm (VTIAX)	Oakmark Internat;Inv (OAKIX)
Emerging Markets Equity	✓		Invsc Oppen Dev Mkt;Y (ODVYX)
Core Plus Fixed Income	✓		PGIM Tot Rtn Bond;R6 (PTRQX)
Core Fixed Income		Vanguard Tot Bd;Adm (VBTLX)	
High Yield	✓		Neuberger Hi Inc B;Inst (NHILX)
Real Return / TIPS	✓		
Balanced	Vanguard Bal Idx;Inst (VBAIX)		
Stable Value			State of Montana Stable Value (SA)

*T Rowe Price Retirement suite is counted as one option although is offered in five-year vintages from the 2005 fund to the 2060 fund, in addition to an Income fund for those at or in retirement.

457 Investment Menu - Number of Options: 21*

	Tier I Target Date Funds	Tier II Passively Managed Options	Tier III Actively Managed Options
	T Rowe Price*		
Global Equity			American Funds Nper;R6 (RNPGX)
US Large Cap Equity	✓	Vanguard Instl Indx;Inst (VINIX)	Vanguard Equity Inc;Adm (VEIRX) Parnassus:Core Eqty;Inst (PRILX) Fidelity Contrafund K6 (FLCNX)
US Mid Cap Equity	✓	Vanguard Md-Cp I;Adm (VIMAX)	MFS Mid Cap Value;R6 (MVCKX) Jns Hndsn:Enterprise;N (JDMNX)
US Small Cap Equity	✓	Vanguard S-C Id;Inst (VSCIX) Vanguard SC G Id;Ins (VSGIX)	Neuberger Genesis;R6 (NRGSX)
Broad International Equity	✓	Vanguard Tot I S;Adm (VTIAX)	Dodge & Cox Intl Stock (DODFX) Artisan:Internatl;Inv (ARTIX)
Emerging Markets Equity	✓		Invsc Oppen Dev Mkt;Y (ODVYX)
Core Plus Fixed Income	✓		PGIM Tot Rtn Bond;R6 (PTRQX)
Core Fixed Income		Vanguard Tot Bd;Adm (VBTLX)	
High Yield	✓		Neuberger Hi Inc B;Inst (NHILX)
Real Return / TIPS	✓		
Balanced	Vanguard Bal Idx;Inst (VBAIX)		
Stable Value			State of Montana Stable Value (SA)

*T Rowe Price Retirement suite is counted as one option although is offered in five-year vintages from the 2005 fund to the 2060 fund, in addition to an Income fund for those at or in retirement.



Defining Potential Roles and Responsibilities

MPERA

- Administer Plan Choice Elections within internal database
- Separate and reconcile reported employer and employee contributions into appropriate plan (DB/DC/457)
- Transmit daily contributions and salary deferrals in data file to Empower Retirement
- Deposit contributions to custodial account w/ payment to Empower
- Notice affected plan members of changes in investment lineup before changes are made

Board of Investments

- Manage the investment of DC and 457 plan assets of plan members
- Construct fund lineup and provide investment options to plan members of each plan (fund mapping)
- Provide quarterly/annual reports to the MPERA Board on the performance of investment options
- Coordinate with MPERA and MPERA Board of potential changes in investment lineup

Empower Retirement

- Recordkeeping
- Client Service Representatives
- Enrollment Process and Confirmation
- Participation Data and Records Management
- Receive contributions /deferrals from MPERA to invest within fund lineup
- Written Publications and Forms
- Communications Plan

MONTANA PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION

TITLE: State of Montana Investment Policy Statement
401(a) Defined Contribution Retirement Plan

POLICY NO: BOARD Admin 11

EFFECTIVE DATE: 02/11/2021

I. INTRODUCTION

The State of Montana Public Employee Defined Contribution Plan (the “Plan”) was formally adopted by the 1999 legislature and began operation in 2002. The Plan is a qualified pension plan established for the exclusive benefit of participants and their beneficiaries.

The Montana Public Employees’ Retirement Board (the “Board”), the plan sponsor, is the named fiduciary of the Plan. Participants make individual investment decisions, subject to the investments offered under the Plan and, ultimately, bear the risks and rewards of investment returns. The Board has the duty to ensure the investment alternatives offered to Participants:

1. are prudent investments;
2. are diversified appropriately with materially different risk and return characteristics;
3. allow Participants the opportunity to exercise control; and
4. allow Participants to choose from a broad range of investment alternatives.

The purpose of this Investment Policy Statement (the “Policy”) is to:

1. provide investment guidelines for a long-term retirement-savings vehicle which permits Participants to invest employer and participant contributions on a tax-deferred basis;
2. create procedures and processes that allow the Board to meet its fiduciary responsibilities and evaluate the progress of the Plan, and;
3. address the duplication of investment alternatives between the Plan and the State of Montana 457(b) Deferred Compensation Plan (the “457(b) Plan”) while ensuring the above responsibilities, established investment structures,

and procedures for review and changing investment alternatives are met.

The Board will review this Policy periodically and can make modifications, in whole or in part, at any point in time.

II. OBJECTIVES

It is the intent of the Board to make available a broad range of diversified investment alternatives that have varying degrees of risk and return that allow participants, by choosing among such investment alternatives, the opportunity to diversify their account balances and construct portfolios consistent with their unique individual circumstances (e.g. age, income, and individual retirement goals).

It is also the intent of the Board to offer a series of asset allocation funds that allow participants to choose a single fund that is based on their expected target retirement date. Each target date fund includes a professionally managed portfolio where the investment manager adjusts and rebalances the allocation of investments over time to reduce the expected risk as each fund progresses toward its target date.

III. INVESTMENT ALTERNATIVES

The Board will maintain at least eight investment alternatives in the Plan. The investment alternatives must include a fixed income alternative and a stable value alternative. The investment alternatives may include publicly traded mutual funds, separate accounts, and/or commingled funds.

Investment guidelines for the stable value alternative are specified in a separate investment policy statement, within the “State of Montana Public Employees’ Pooled Trust – Montana Fixed Fund”. As such, the remainder of this Policy does not apply to the stable value alternative.

A. Investment Spectrum Guidelines

The Board expects to offer investment alternatives in the following categories, which may include active and/or passive fund management:

1. Bonds
2. US Large-cap equity
3. US Small/Mid-cap equity
4. International equity
5. Global equity
6. Balanced – combination of equity and bond investments
7. Target date funds

The Board may offer additional investment alternatives such as, but not limited to, risk profile/asset allocation funds. The Board may also change the categories of investment alternatives to meet Participants' changing needs or changes in the investment industry.

B. Investment Selection Guidelines

The minimum criteria for selecting and evaluating investment alternatives are:

1. **Requirements:**

Investment alternatives must:

- a. have a minimum of 3 years of measurable operating history. A fund that has not been operating for at least 3 years may be measured by its investment manager's history of at least 5 years operating funds that have similar management and investment objectives as the fund being measured. The investment manager's relevant operating history may consist of the management of commingled funds, mutual funds, or a composite of funds. A composite is a group of "separate account" funds managed under the performance standards of the CFA Institute.
- b. have no front or back-end load fees.

2. **Quantitative Measures:**

Actively managed investment alternatives are expected to:

- a. Meet or exceed the performance of an appropriate benchmark over a market cycle (3 to 5 years).
- b. Meet or exceed the median return of an appropriate peer group over a market cycle (3 to 5 years).
- c. Have competitive and reasonable fees.
- d. Adhere to stated investment objectives and style discipline over time.
- e. Have sufficient investment strategy and fund assets under management.

Target date funds will be:

1. Measured against appropriate composite indices and peer groups.

2. Have the underlying investment funds measured against the appropriate index and the asset allocation compared to stated target weight objectives as established by the target date fund prospectus or similar disclosure.

Passively managed investment alternatives are expected to:

- a. Track the return and risk characteristics of a specific index.
- b. Have competitive and reasonable fees.
- c. Have sufficient investment strategy and funds under management.

Investment alternatives with strong performance records over longer time periods, such as ten years, may be retained within the Plan even if the investment alternative has underperformed peers or benchmarks over shorter time periods. Rolling 5-year periods, when available, is to be used when analyzing the above quantitative measures.

3. Qualitative Measures:

Investment alternatives will be reviewed for qualitative or non-quantifiable measures, including but not limited to:

- a. Investment philosophy and process, including the strategy objective, discipline, valuation process, implementation, and research capabilities, and any changes to these attributes over time;
- b. Personnel structure, including portfolio manager and research team experience, quality, tenure, and any continuing or recent turnover;
- c. Business goals and structure, including ownership, compensation, and incentive practices, and any changes to these attributes over time; and
- d. Industry standard operations and technology platforms.

4. Duplication of Investment Alternatives:

Investment alternatives within the Plan and the 457(b) Plan may be the same to the extent that all criteria, benchmarks and other requirements of the Plans' Policies are met. When determining if duplication of investment alternatives is appropriate, the Board will exercise its fiduciary responsibilities by also assessing the continued ability for Participants to diversify, and cost efficiencies that may either be gained or lost by the

duplication.

C. Evaluation of Investment Alternatives

Investment alternative evaluations will be conducted by an appropriate third-party provider, the Employee Investment Advisory Council (EIAC), or the Montana Board of Investments. Although investment alternatives are chosen with long-term expected return and risk profiles in mind, the performance will be reviewed periodically in an effort to identify adverse performance trends, and if necessary, take steps to rectify them. Investment alternatives that are determined to have a sub-standard performance evaluation or other negative indicators may be recommended for one of the following statuses by EIAC.

1. Review Status

- a. "Review" generally means that factors, including but not limited to performance, bear ongoing assessment and analysis for future action,
- b. Investment alternatives in a review status typically will be elevated to a "probation" status prior to termination.

2. Probation Status

- a. "Probation" generally means that factors, including but not limited to performance, bear a higher level of assessment and analysis using the quantitative and qualitative measures established in Section III.B.
- b. Investment alternatives typically will be in a probation status prior to termination.

3. Continue an existing "Review" or "Probation" status

4. Termination

- a. Investment alternatives will generally be terminated only when ongoing assessment and analysis over a reasonable period of time warrant termination. The reasonable period of time may vary depending upon the investment alternative's class and category, factors being assessed, and extent of the lapse from the established measures or potential harm to participants. Considerable judgement after thorough and documented analysis must be exercised in the termination decision process.

5. Investment Alternative Replacement

- a. In the event a replacement investment alternative is needed, it is reasonable that a viable replacement may exist in the 457(b) Plan. It is also

reasonable, in the event an investment alternative within the same asset class and category is discontinued within the Plan and the 457(b) Plan, that the replacement option could be the same across both Plans.

The EIAC will report the evaluation results and EIAC's recommendations to the Board, which will make the final determination as to the action regarding the investment alternative's status. Additionally, EIAC will state the rationale for their recommendations, expectations for future actions and intended timelines. Plan investment alternatives which have been placed on a review or probation status by the Board will be evaluated on a quarterly basis.

D. Closure of an Investment Alternative

The Board will notify participants in a to-be terminated investment alternative to transfer their fund balance to another investment alternative within a reasonable period of time (usually 3 months). If a participant fails to transfer a fund balance in the time provided, the Board will direct the transfer of the fund balance from the terminated investment alternative to an investment alternative similar in investment category and style selected by the Board to replace the terminated investment alternative. If a terminated investment alternative is not replaced, the Board may direct the transfer of the fund balance into an existing investment alternative with similar objectives and strategies or to the default investment alternative.

IV. CONSTRAINTS

- A. Liquidity Needs: Participants may, on a daily basis, move their assets from one investment alternative to another, subject only to the limitations set by the specific investment alternative. The Board seeks to offer a range of investment alternatives within the plan that provides sufficient liquidity to accommodate participant-driven transfers and withdrawals.
- B. Time Horizon: Time horizons vary for individual participants. Because participants direct their own investments, there is no specific time horizon expressed for the total Plan.
- C. Tax Considerations: The Plan is exempt from federal and state income taxes. Participants' contributions to the Plan are not taxed. The appreciation of Participants' assets in the Plan is not taxed. Therefore, tax-advantaged investments are not offered by the Board.
- D. Legal Considerations: The Plan is governed by applicable federal and state statutes and regulations, including Section 401(a) of the Internal Revenue Code of 1986, as amended, and Title 19, chapters 2 and 3 of the Montana Code Annotated. MPERB's Defined Contribution Plan Document provides additional

legal information.

V. CROSS REFERENCE GUIDE

Section 19-3-2104, MCA Section 19-3-2122, MCA ARM 2.43.1002
Transferred to ARM 2.43.3502

VI. HISTORY

Approved July 12, 2002
Amended May 7, 2004
Amended May 25, 2007
Amended December 1, 2008
Amended January 8, 2009
Amended February 11, 2010
Amended May 12, 2011
Amended August 11, 2011
Amended May 9, 2013
Amended June 11, 2015
Amended May 11, 2017
Amended February 8, 2018
Amended February 14, 2019
Amended February 13, 2020
Amended February 11, 2021

MONTANA PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION

TITLE: State of Montana Investment Policy Statement
457(b) Deferred Compensation Plan

POLICY NO: BOARD Admin 12

EFFECTIVE DATE: 02/11/2021

I. INTRODUCTION AND PURPOSE

The State of Montana Public Employee 457(b) Deferred Compensation Plan (the “Plan”) was formally adopted by the 1973 legislature and began operation in 1976. The plan is for the exclusive benefit of participants and their beneficiaries.

The Montana Public Employees’ Retirement Board (the “Board”), the plan sponsor, is the named fiduciary of the Plan. Participants make individual investment decisions, subject to the investments offered under the Plan and, ultimately, bear the risks and rewards of investment returns. The Board has the duty to ensure the investment alternatives offered to Participants:

1. are prudent investments;
2. are diversified appropriately with materially different risk and return characteristics;
3. allow Participants the opportunity to exercise control; and
4. allow Participants to choose from a broad range of investment alternatives.

The purpose of this Investment Policy Statement (the “Policy”) is to:

1. provide investment guidelines for a supplemental retirement-savings vehicle which permits Participants to invest on a tax-deferred or after-tax basis;
2. create procedures and processes that allow the Board to meet its fiduciary responsibilities and evaluate the progress of the Plan, and;
3. address the duplication of investment alternatives between the Plan and the State of Montana 401(a) Defined Contribution Plan (the “401(a) DC Plan”) while ensuring the above responsibilities, established investment structures, and procedures for review and changing investment alternatives are met.

The Board will review this Policy periodically and can make modifications, in whole or in part, at any point in time.

II. OBJECTIVES

It is the intent of the Board to make available a broad range of diversified investment alternatives that have varying degrees of risk and return that allow participants, by choosing among such investment alternatives, the opportunity to diversify their account balances and construct portfolios consistent with their unique individual circumstances (e.g. age, income, and individual retirement goals).

It is also the intent of the Board to offer a series of asset allocation funds that allow participants to choose a single fund that is based on their expected target retirement date. Each target date fund includes a professionally managed portfolio where the investment manager adjusts and rebalances the allocation of investments over time to reduce the expected risk as each fund progresses toward its target date.

III. INVESTMENT ALTERNATIVES

Investment alternatives may include publicly traded mutual funds, separate accounts, and/or commingled funds. Investment guidelines for the stable value alternative are specified in a separate investment policy statement within the “State of Montana Public Employees’ Pooled Trust – Montana Fixed Fund”. As such, the remainder of this Policy does not apply to the stable value alternative.

A. Investment Spectrum Guidelines

The Board expects to offer investment alternatives in the following categories, which may active and/or passive fund management:

1. Bonds
2. US Large-cap equity
3. US Small/Mid-cap equity
4. International equity
5. Global equity
6. Balanced – combination of equity and bond investments
7. Socially responsible fund
8. Target date funds

The Board may offer additional investment alternatives such as, but not limited to, risk profile/asset allocation funds. The Board may also change the categories of investment alternatives to meet Participants’ changing needs or changes in the investment industry.

B. Investment Selection Guidelines

The minimum criteria for selecting and evaluating the investment alternatives are:

1. **Requirements:**

Investment alternatives must:

- a. have a minimum of 3 years of measurable operating history. A fund that has not been operating for at least 3 years may be measured by its investment manager's history of at least 5 years operating funds that have similar management and investment objectives as the fund being measured. The investment manager's relevant operating history may consist of the management of commingled funds, mutual funds, or a composite of funds. A composite is a group of "separate account" funds managed under the performance standards of the CFA Institute.
- b. have no front or back-end load fees.

2. **Quantitative Measures:**

Actively managed investment alternatives are expected to:

- a. Meet or exceed the performance of an appropriate benchmark over a market cycle (3 to 5 years).
- b. Meet or exceed the median return of an appropriate peer group over a market cycle (3 to 5 years)
- c. Have competitive and reasonable fees.
- d. Adhere to stated investment objectives and style discipline over time.
- e. Have sufficient investment strategy and funds under management.
- f. Target date funds will be:
 1. Measured against appropriate composite indices and peer groups.
 2. Have the underlying investment funds measured against the appropriate index and the asset allocation regularly compared to stated target weight objectives as established by the Target date fund prospectus.

Passively managed investment alternatives are expected to:

- a. Track the return and risk characteristics of a specific index.

- b. Have competitive and reasonable fees.
- c. Have sufficient investment strategy and funds under management.

Investment alternatives with strong performance records over longer time periods, such as ten years, may be retained within the Plan even if the investment alternative has underperformed peers or benchmarks over shorter time periods. Rolling 5-year periods, when available, is to be used when analyzing the above quantitative measures.

3. Qualitative Measures:

Investment alternatives will be reviewed for qualitative or non-quantifiable measures, including but not limited to:

- a. Investment philosophy and process, including the strategy objective, discipline, valuation process, implementation, and research capabilities, and any changes over time;
- b. Personnel structure, including portfolio manager and research team experience, quality, tenure, and any continuing or recent turnover;
- c. Business goals and structure, including ownership, compensation, and incentive practices; and
- d. Industry standard operations and technology platforms.

4. Duplication of Investment Alternatives:

Investment alternatives within the Plan and the 401(a) DC Plan may be the same to the extent that all criteria, benchmarks and other requirements of the Plans' Policies are met. When determining if duplication of investment alternatives is appropriate, the Board will exercise its fiduciary responsibilities by also assessing the continued ability for Participants to diversify, and cost efficiencies that may either be gained or lost by the duplication.

C. Evaluation of Investment Alternatives

Investment alternative evaluations will be conducted by an appropriate third-party provider, the Employee Investment Advisory Council ("EIAC"), or the Montana Board of Investments. Although investment alternatives are chosen with long-term expected return and risk profiles in mind, the performance will be reviewed periodically in an effort to identify adverse performance trends, and if necessary, take steps to rectify them. Investment alternatives that are determined to have a sub-standard performance evaluation or other negative indicators may be

recommended for one of the following statuses by EIAC.

1. Review Status

- a. "Review" generally means that factors, including but not limited to performance, bear ongoing assessment and analysis for future action.
- b. Investment alternatives in a review status typically will be elevated to a "probation" status prior to termination.

2. Probation Status

- a. "Probation" generally means that factors, including but not limited to performance, bear a higher level of assessment and analysis using the quantitative and qualitative measures established in III. B.
- b. Investment alternatives typically will be in a probation status prior to termination.

3. Continue an existing "Review" or "Probation" status

4. Termination

- a. Investment alternatives will generally be terminated only when ongoing assessment and analysis over a reasonable period of time warrant termination. The reasonable period of time may vary depending upon the investment alternative's class and category, factors being assessed, and extent of the lapse from the established measures or potential harm to participants. Considerable judgement after thorough and documented analysis must be exercised in the termination decision process.

5. Investment Alternative Replacement

- a. In the event a replacement investment alternative is needed, it is reasonable that a viable replacement may exist in the 401(a) DC Plan. It is also reasonable, in the event an investment alternative within the same asset class and category is discontinued within the Plan and the 401(a) DC Plan, that the replacement option could be the same across both Plans.

The EIAC will report the evaluation results and EIAC's recommendations to the Board, which will make the final determination as to action regarding the investment alternative's status. Additionally, EIAC will state the rationale for their recommendations, expectations for future actions and intended timelines. Plan investment alternatives which have been placed on a review or probation status by the Board will be evaluated on a quarterly basis.

D. Closure of an Investment Alternative

The Board will notify participants in a to-be terminated investment alternative to transfer their fund balance to another investment alternative within a reasonable period of time (usually 3 months). If a participant fails to transfer a fund balance in the time provided, the Board will direct the transfer of the fund balance from the terminated investment alternative to an investment alternative similar in investment category and style selected by the Board to replace the terminated investment alternative. If a terminated investment alternative is not replaced, the Board may direct the transfer of the fund balance from the terminated investment alternative into an existing investment alternative with similar objectives and strategies, or to the default investment alternative.

IV. CONSTRAINTS

- A. Liquidity Needs: Participation in the plan is optional. Participants may withdraw or transfer their funds from the plan under certain circumstances, subject to possible adverse tax consequences. Participants may, on a daily basis, move their assets from one investment alternative to another, subject only to the limitations set by the specific investment alternative. The Board seeks to offer a range of investment alternatives within the plan that offers sufficiently liquidity to accommodate participant-driven transfers and withdrawals.
- B. Time Horizon: Time horizons vary for individual participants. Because participants direct their own investments, there is no specific time horizon expressed for the total Plan.
- C. Tax Considerations: The Plan is exempt from federal and state income taxes. Participants' contributions to the Plan are not taxed. The appreciation of Participants' assets in the Plan are not taxed. Therefore, tax-advantaged investments are not offered by the Board.
- D. Legal Considerations: The Plan is governed by applicable federal and state statutes and regulations, including Section 457(b) of the Internal Revenue Code of 1986, as amended, and Title 19, chapter 50 of the Montana Codes Annotated. MPERB's Deferred Compensation Plan Document provides additional legal information.

V. CROSS REFERENCE GUIDE

Section 19-50-102, MCA
ARM 2.43.1802
Transferred to ARM 2.43.5102

VI. HISTORY

Approved July 12, 2002
Amended May 7, 2004
Amended October 7, 2005

Amended May 25, 2007
Amended December 1, 2008
Amended January 8, 2009
Amended February 11, 2010
Amended May, 12, 2011
Amended August 11, 2011
Amended May 9, 2013
Amended June 11, 2015
Amended May 11, 2017
Amended February 8, 2018
Amended February 14, 2019
Amended February 13, 2020
Amended February 11, 2021



Quarterly Investment Performance Analysis

Montana Public Employee Retirement Administration

Period Ended: December 31, 2021



TABLE OF CONTENTS

CAPITAL MARKET REVIEW

This section is intended to review capital markets in general (i.e. not specific to MPERA). It highlights key events that impacted the markets during the quarter, main economic indicators, and a brief summary of the performance of different US Equity, International Equity and Fixed Income sectors. It concludes with an exhibit (often referred to as a quilt chart) that shows the historical and YTD performance of major market indices representing the broad range of investable asset classes. To find additional information and definitions of the main key economic indicators and exhibits, please reference the Addendum & Glossary section.

PLAN PERFORMANCE REVIEW

This section provides a review of the MPERA Plans' asset allocations across each of the investment tiers, followed by investment option comparative performance against appropriate benchmarks and peer groups, and a peer group analysis of the options' investment management fees. To find additional information on the indices shown in this section, please reference the Addendum & Glossary section.

INVESTMENT MANAGER PROFILES

This section provides product-specific performance, risk statistics, and investment holdings analyses for the MPERA investment options. To find additional information and definitions of the statistics and exhibits shown in this section, please reference the Addendum & Glossary section.

ADDENDUM & GLOSSARY

Addendum includes the fee schedule for MPERA investment options, general performance and resource comments, and index definitions. The Glossary covers all terms referenced throughout the performance report.

FOLLOW-UP ITEMS (AS NEEDED)

This section includes any follow-up items from the previous meeting material or supplemental material as needed.

Capital Markets Review

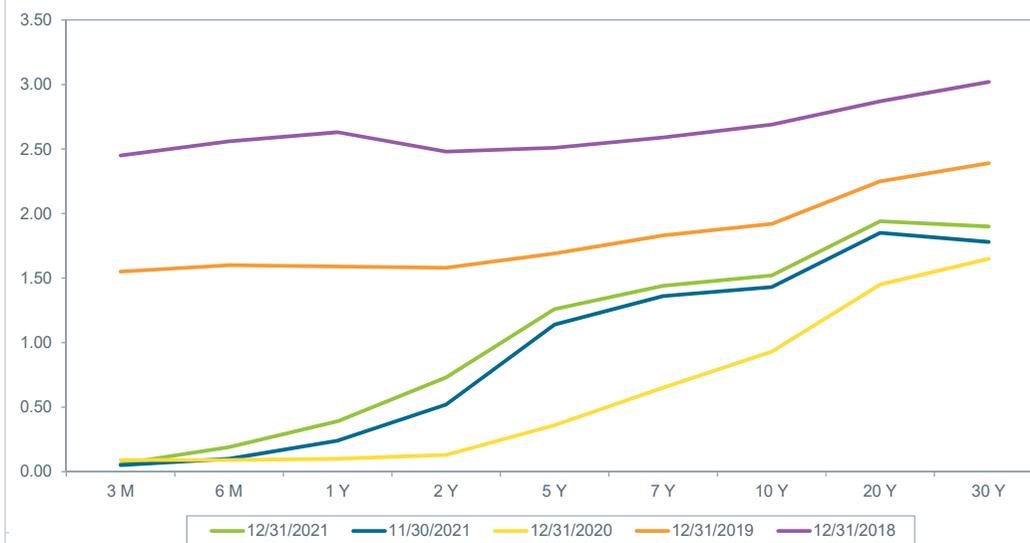


General Market Commentary

- Global equity markets rebounded in December, with all major indices finishing in positive territory. Both domestic and international indices posted low-to-mid single digit returns, with value stocks outperforming their growth counterparts.
- Despite headwinds due to the continued spread of the Omicron variant of COVID-19, persistent high inflation, and supply chain bottlenecks, stocks traded higher due to strong corporate earnings and generally positive economic data.
- Following its final meeting of 2021, the Federal Open Market Committee (FOMC) stated it will end its bond-buying program earlier than anticipated in order to reduce inflationary pressures on the economy. It is estimated that the bond-buying program could end as soon as March 2022. Additionally, recent projections show that the FOMC is expected to increase the federal funds rate as many as three times in 2022 in an effort to stem continued inflationary pressures.
- Equity markets posted positive returns in December as the S&P 500 (Cap Wtd) Index returned 4.48% and the MSCI EAFE (Net) Index returned 5.12%. Emerging markets returned 1.88% as measured by the MSCI EM (Net) Index.
- The Bloomberg US Aggregate Bond Index returned -0.26% in December, underperforming the -0.26% return by the Bloomberg US Treasury Intermediate Term Index. International fixed income markets returned -0.67%, as measured by the FTSE Non-US World Gov't Bond Index.
- Public real estate, as measured by the FTSE NAREIT Eq REITs Index (TR), returned 8.83% in December and 10.75% over the trailing five-year period.
- The Cambridge US Private Equity Index returned 52.33% for the trailing one-year period and 19.87% for the trailing five-year period ending September 2021.
- Absolute return strategies, as measured by the HFRI FOF Comp Index, returned 0.76% for the month and 6.53% over the trailing one-year period.
- Crude oil's price increased by 13.64% during the month, and has increased by 55.01% YoY.

Economic Indicators	Dec-21		Nov-21	Dec-20	10 Yr	20 Yr
Federal Funds Rate (%)	0.07	—	0.07	0.09	0.63	1.30
Breakeven Inflation - 5 Year (%)	2.91	▲	2.81	1.97	1.79	1.86
Breakeven Inflation - 10 Year (%)	2.59	▲	2.51	1.99	1.95	2.04
Breakeven Inflation - 30 Year (%)	2.38	▲	2.32	2.00	2.04	2.25
Bloomberg US Agg Bond Index - Yield (%)	1.75	▲	1.69	1.12	2.23	3.29
Bloomberg US Agg Bond Index - OAS (%)	0.36	▼	0.39	0.42	0.49	0.60
Bloomberg US Agg Credit Index - OAS (%)	0.87	▼	0.94	0.92	1.22	1.41
Bloomberg US Corp: HY Index - OAS (%)	2.83	▼	3.37	3.60	4.45	5.21
Capacity Utilization (%)	76.49	▼	76.62	74.11	76.49	76.54
Unemployment Rate (%)	3.9	▼	4.2	6.7	5.7	6.1
PMI - Manufacturing (%)	58.7	▼	61.1	60.5	54.3	53.5
Baltic Dry Index - Shipping	2,217	▼	3,018	1,366	1,248	2,386
Consumer Conf (Conf Board)	115.80	▲	111.90	87.10	101.46	90.79
CPI YoY (Headline) (%)	7.0	▲	6.8	1.4	1.9	2.2
CPI YoY (Core) (%)	5.5	▲	4.9	1.6	2.1	2.0
PPI YoY (%)	12.2	▼	13.3	-0.8	1.6	2.3
M2 YoY (%)	N/A	N/A	13.1	24.8	8.4	7.2
US Dollar Total Weighted Index	115.32	▼	116.22	111.33	107.28	103.10
WTI Crude Oil per Barrel (\$)	75	▲	66	49	66	64
Gold Spot per Oz (\$)	1,829	▲	1,775	1,898	1,425	1,086

Treasury Yield Curve (%)



Treasury Yield Curve (%)	Dec-21	Nov-21	Dec-20	Dec-19	Dec-18
3 Month	0.06	0.05	0.09	1.55	2.45
6 Month	0.19	0.10	0.09	1.60	2.56
1 Year	0.39	0.24	0.10	1.59	2.63
2 Year	0.73	0.52	0.13	1.58	2.48
5 Year	1.26	1.14	0.36	1.69	2.51
7 Year	1.44	1.36	0.65	1.83	2.59
10 Year	1.52	1.43	0.93	1.92	2.69
20 Year	1.94	1.85	1.45	2.25	2.87
30 Year	1.90	1.78	1.65	2.39	3.02

Market Performance (%)	MTD	QTD	CYTD	1 Yr	3 Yr	5 Yr	7 Yr	10 Yr
S&P 500 (Cap Wtd)	4.48	11.03	28.71	28.71	26.07	18.47	14.93	16.55
Russell 2000	2.23	2.14	14.82	14.82	20.02	12.02	10.76	13.23
MSCI EAFE (Net)	5.12	2.69	11.26	11.26	13.54	9.55	6.76	8.03
MSCI EAFE SC (Net)	4.36	0.07	10.10	10.10	15.62	11.04	9.52	10.80
MSCI EM (Net)	1.88	-1.31	-2.54	-2.54	10.94	9.87	6.11	5.49
Bloomberg US Agg Bond	-0.26	0.01	-1.55	-1.55	4.79	3.57	3.00	2.90
ICE BofAML 3 Mo US T-Bill	0.01	0.01	0.05	0.05	0.99	1.14	0.87	0.63
NCREIF ODCE (Gross)	7.97	7.97	22.17	22.17	9.20	8.71	9.60	10.45
FTSE NAREIT Eq REITs Index (TR)	8.83	16.31	43.24	43.24	18.41	10.75	9.32	11.38
HFRI FOF Comp Index	0.76	0.77	6.53	6.53	8.59	5.78	4.13	4.59
Bloomberg Cmtty Index (TR)	3.53	-1.56	27.11	27.11	9.86	3.66	0.11	-2.85

NCREIF performance is reported quarterly; MTD and QTD returns are shown as "N/A" on interim-quarter months and until available. Data shown is as of most recent quarter-end. Treasury data courtesy of the US Department of the Treasury. Economic data courtesy of Bloomberg Professional Service.



Fourth Quarter Economic Environment

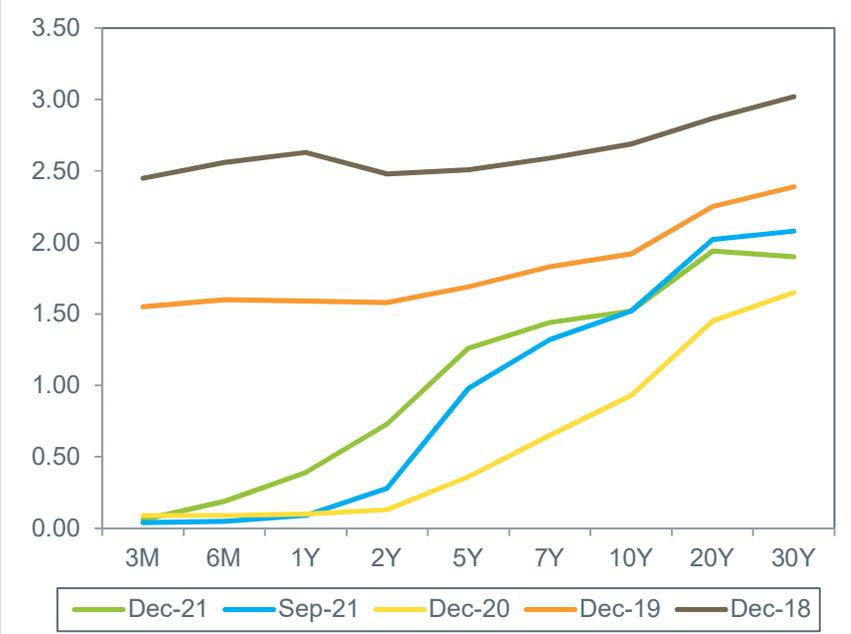
Inflation remained a top concern among investors as the year-over-year change in the CPI reached 7.0% according to the December reading, the highest level in 30 years. Nevertheless, consumer demand and the ability of companies to pass along increasing costs have buoyed corporate profits. Employment data has indicated mixed progress and has been complicated by releases missing expectations, only to be revised higher in subsequent reports. However, strong wage growth and a declining unemployment rate reflect incremental improvement in labor conditions. Headlines were dominated by the emergence of the omicron variant which early studies suggest spreads more quickly, but causes fewer hospitalizations. Continued vaccination efforts and the development of new treatments countered concerns regarding the increased spread of the virus. GDP growth estimates for 2022 were impacted with forecasts trending lower, but most continue to reflect healthy growth expected next year. For instance, the IMF released a 2022 GDP growth forecast of 4.9% in October representing a decline of 0.1% from its July estimate. In response to the current environment, the Federal Reserve has started to reduce measures taken during the pandemic. The tapering of bond purchases began in November and accelerated in December, a trend expected to continue in 2022. In response to these conditions, Treasury yields have trended upwards and credit spreads widened in the quarter.

Key Economic Indicators



Economic Indicators	Dec-21	Sep-21	Dec-20	Dec-18	20 Yr
Federal Funds Rate (%)	0.07 ▲	0.06	0.09	2.40	1.30
Breakeven Infl. - 5 Yr (%)	2.91 ▲	2.53	1.97	1.49	1.86
Breakeven Infl. - 10 Yr (%)	2.59 ▲	2.38	1.99	1.71	2.04
CPI YoY (Headline) (%)	7.0 ▲	5.4	1.4	1.9	2.2
Unemployment Rate (%)	3.9 ▼	4.7	6.7	3.9	6.1
Real GDP YoY (%)	N/A	4.9	-2.3	2.3	1.9
PMI - Manufacturing	58.7 ▼	61.1	60.5	54.8	53.5
USD Total Wtd Idx	115.32 ▲	114.67	111.33	115.57	103.10
WTI Crude Oil per Barrel (\$)	75.2 ▲	75.0	48.5	45.4	64.4
Gold Spot per Oz (\$)	1,829 ▲	1,757	1,898	1,282	1,086

Treasury Yield Curve (%)



Market Performance (%)	QTD	CYTD	1 Yr	5 Yr	10 Yr
S&P 500 (Cap Wtd)	11.03	28.71	28.71	18.47	16.55
Russell 2000	2.14	14.82	14.82	12.02	13.23
MSCI EAFE (Net)	2.69	11.26	11.26	9.55	8.03
MSCI EAFE SC (Net)	0.07	10.10	10.10	11.04	10.80
MSCI Emg Mkts (Net)	-1.31	-2.54	-2.54	9.87	5.49
Bloomberg US Agg Bond	0.01	-1.55	-1.55	3.57	2.90
ICE BofAML 3 Mo US T-Bill	0.01	0.05	0.05	1.14	0.63
NCREIF ODCE (Gross)	7.97	22.17	22.17	8.71	10.45
FTSE NAREIT Eq REIT (TR)	16.31	43.24	43.24	10.75	11.38
HFRI FOF Comp	0.77	6.53	6.53	5.78	4.59
Bloomberg Cmdty (TR)	-1.56	27.11	27.11	3.66	-2.85

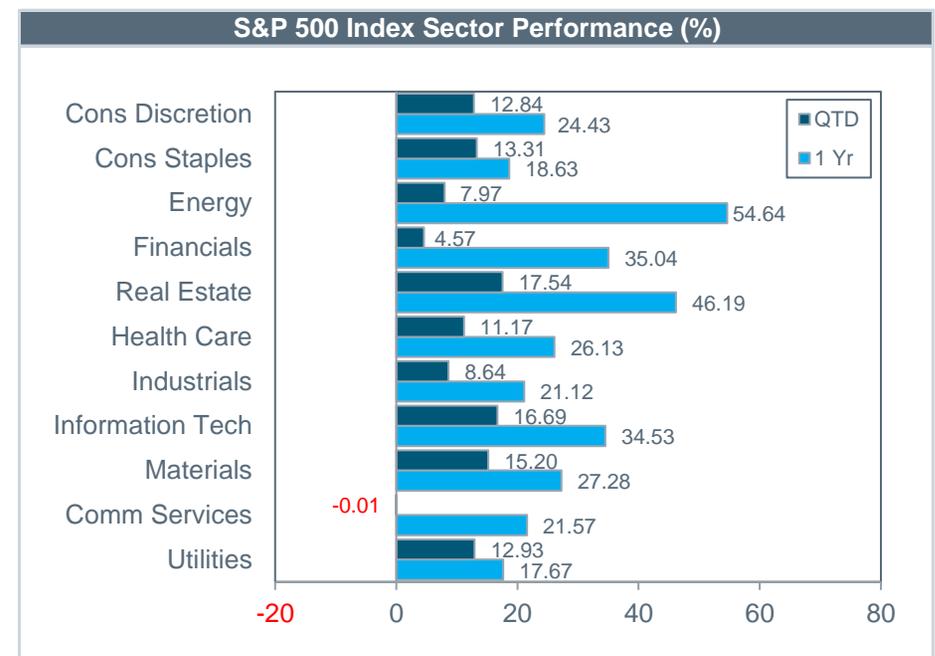
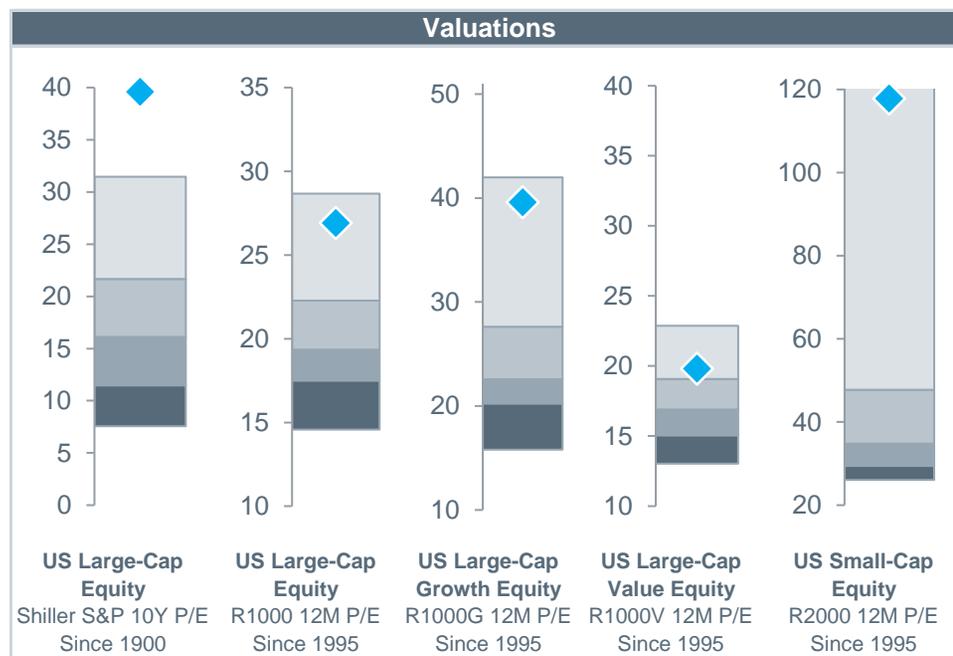


Fourth Quarter Review

Broad Market
 US equity markets finished the year with a strong Q4, providing low double digit returns despite heightened volatility due to the spread of the Omicron variant, inflation fears, and global growth concerns. Volatility expectations, as measured by the CBOE Volatility Index, jumped above 30 in early December. However, investor uncertainty subsided shortly thereafter. The S&P 500 return of 28.7% in 2021 was its third highest calendar year return since 2000.

Market Cap
 Large-cap stocks significantly outperformed their smaller-cap counterparts. The Russell 2000 Index returned 2.1% compared to 11.0% for the S&P 500.

Style and Sector
 At the beginning of Q4, growth stocks outperformed value stocks across all market capitalizations before a rotation into value stocks occurred later in the period. Active management performed well in Q4, except for large-cap growth managers, who struggled to keep up with their respective benchmarks.



Valuation data courtesy of Bloomberg Professional Service and Robert J. Shiller, Irrational Exuberance, Second Edition. P/E metrics shown represent the 5th through 95th percentiles to minimize the effect of outliers.



Fourth Quarter Review

Developed Markets

While international markets lagged behind the US equity market in Q4, developed international equities continued to participate in the recovery despite the COVID-19 surge led by the new Omicron variant. The MSCI EAFE Index saw a positive return of 2.7% for the quarter as growth stocks continued to outperform value from the prior quarter resulting in both growth and value performing in line for the calendar year. Large-cap stocks outperformed small-cap stocks.

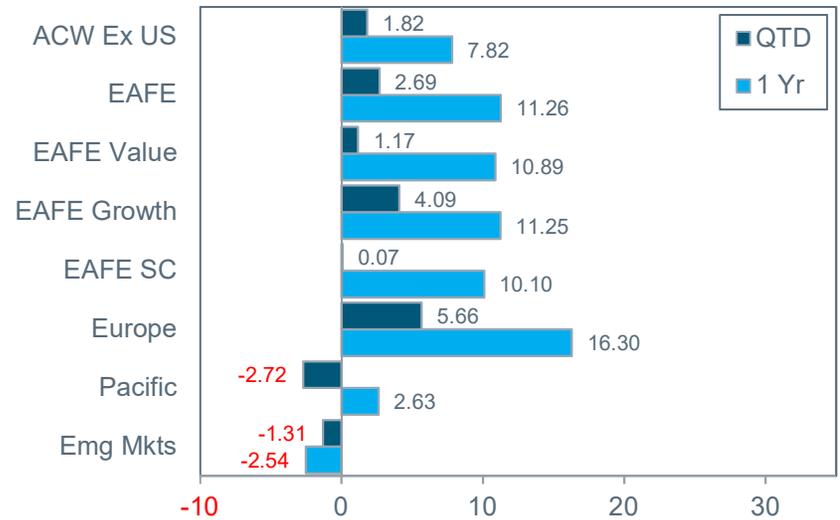
Emerging Markets

Emerging markets experienced moderately negative returns in Q4 with the MSCI EM Index returning -1.3% for the period. Value stocks continued their outperformance over growth while small-cap stocks outperformed large.

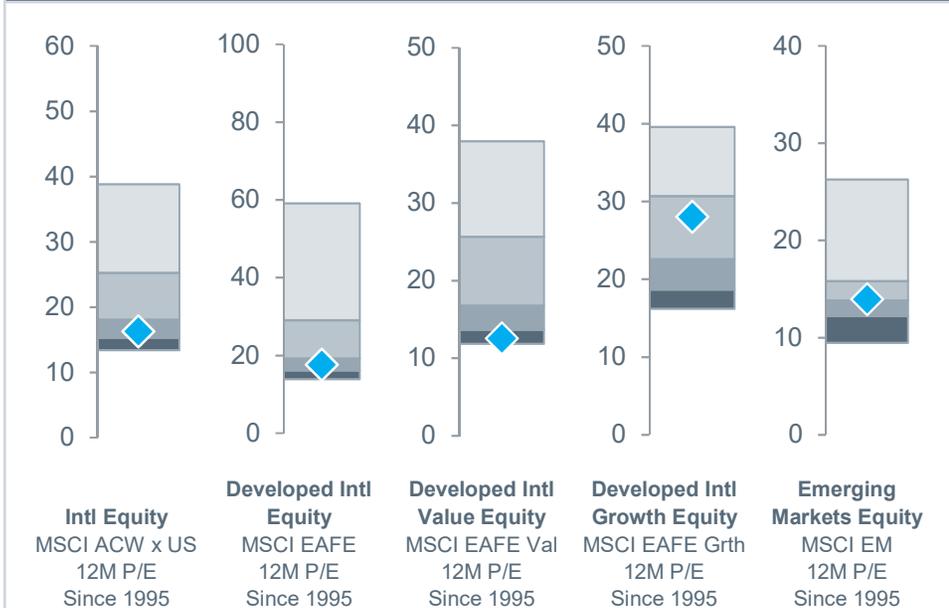
Market Cap & Style

In international markets, growth stocks outperformed value, while large-cap stocks outperformed small-cap. In emerging markets, value stocks outperformed growth, while small-cap stocks outperformed large-cap.

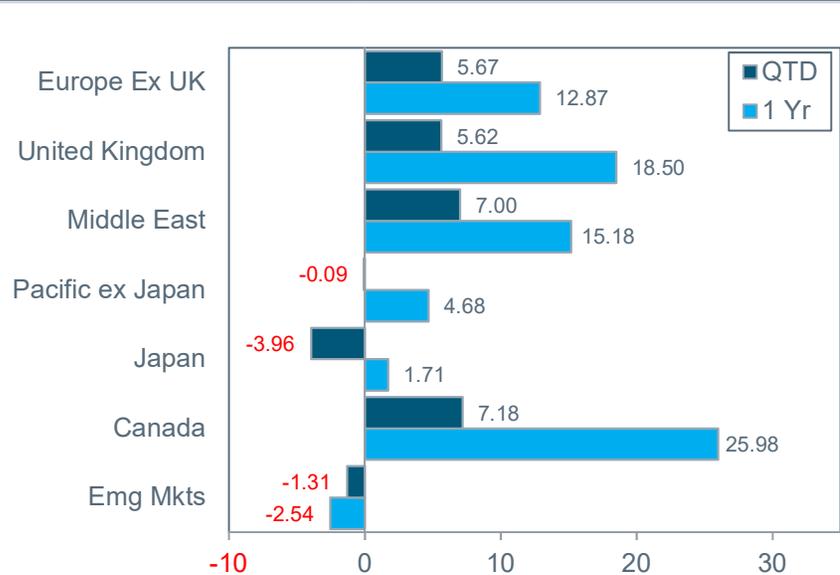
MSCI Style and Capitalization Market Performance (%)



Valuations



MSCI Region Performance (%)



Valuation data courtesy of Bloomberg Professional Service.

P/E metrics shown represent the 5th through 95th percentiles to minimize the effect of outliers.

All returns are shown net of foreign taxes on dividends.



Fourth Quarter Review

Broad Market

The Bloomberg US Aggregate Index ended the quarter flat, capping off the third most negative calendar year on record for the index with an overall annual return of -1.5%. An abrupt rise in interest rates at the start of the year due to inflation concerns and an uncertain outlook, followed by interest rate volatility and an ongoing uncertain outlook drove returns and yields.

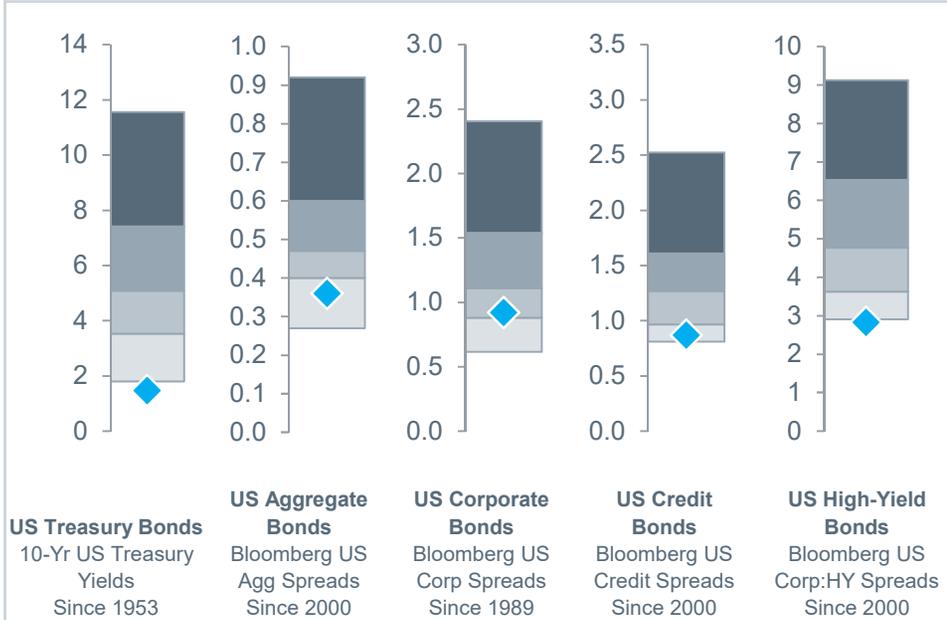
Credit Market

US investment grade credit detracted -1.1% YTD, while US High Yield returned 5.3%, as measured by the Bloomberg US Credit Index and Bloomberg US High Yield Index, respectively. The divergence in returns demonstrates low quality outperformance as investors sought yield in a low interest rate environment.

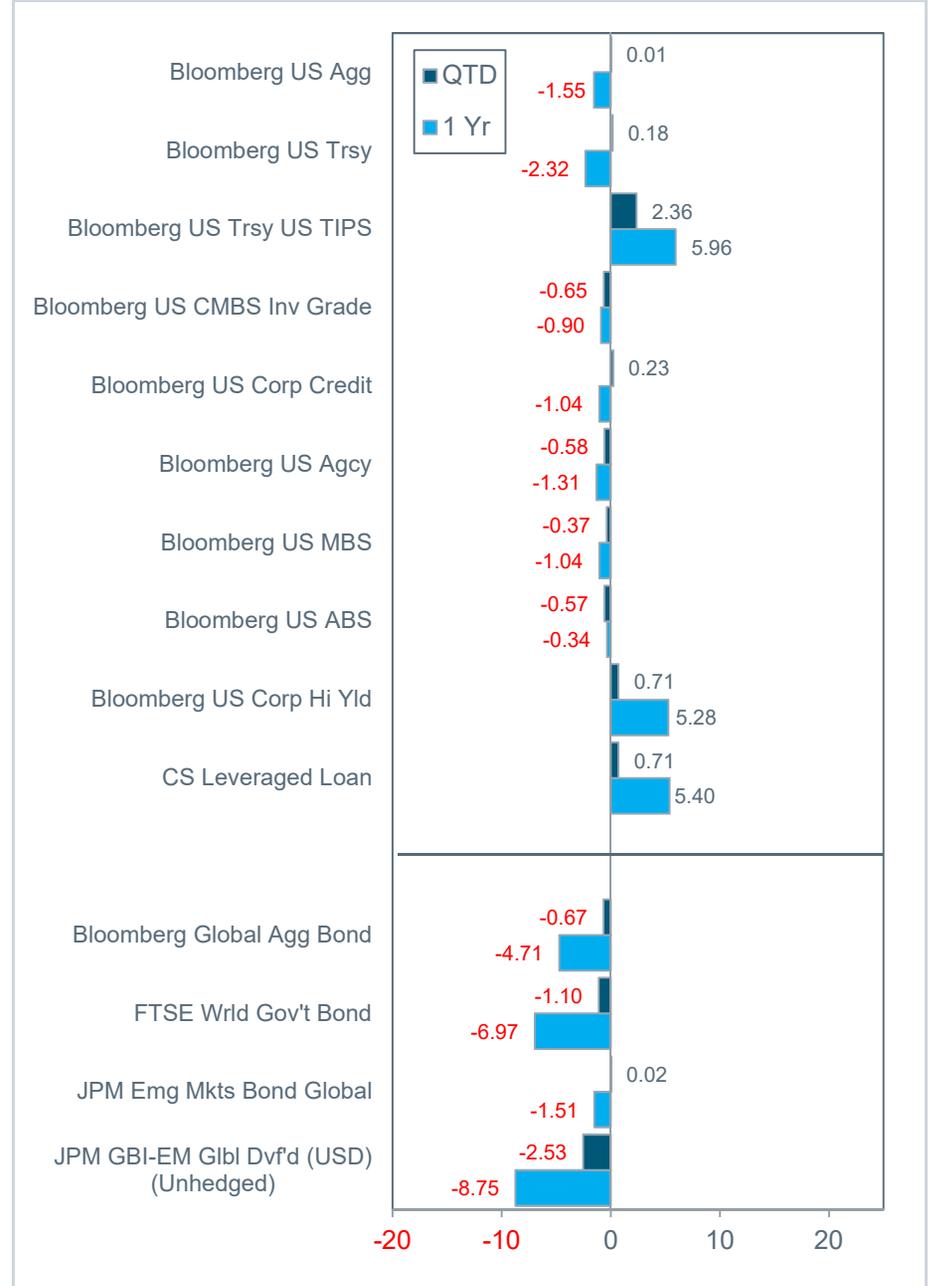
Emerging Market Debt

Despite a positive Q4, emerging market debt largely contracted over 2021, as each of the primary emerging market debt indices declined during the full year period.

Valuations



Fixed Income Performance (%)



Valuation data courtesy of Bloomberg Professional Service. Valuations shown represent the 5th through 95th percentiles to minimize the effect of outliers.



Annual Asset Class Performance

As of December 31, 2021

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	CYTD
Best	39.38	8.44	78.51	27.94	22.49	20.00	38.82	30.14	15.02	21.31	37.28	8.35	31.49	19.96	43.24
	16.23	5.24	58.21	26.85	15.99	18.23	32.39	19.31	9.59	17.13	33.01	1.87	26.00	18.40	28.71
	15.97	2.06	46.78	22.04	13.56	18.06	29.30	13.69	3.20	11.96	25.03	0.01	25.53	18.31	27.11
	11.63	-2.35	31.78	18.88	8.29	17.32	22.78	12.50	1.38	11.77	21.83	-1.26	24.96	16.12	22.17
	11.17	-10.01	28.01	16.83	7.84	16.35	13.94	5.97	0.55	11.19	14.65	-2.08	22.01	12.34	14.82
	10.25	-21.37	27.17	16.36	4.98	16.00	8.96	4.89	0.05	8.77	10.71	-4.02	19.59	10.99	11.26
	6.97	-26.16	26.46	15.12	2.11	15.81	7.44	3.64	-0.27	8.52	7.77	-4.38	18.44	10.88	10.10
	6.60	-33.79	18.91	15.06	0.10	10.94	2.47	3.37	-0.81	6.67	7.62	-4.62	14.32	7.82	6.53
	5.49	-35.65	11.47	10.16	-4.18	8.78	0.07	2.45	-1.44	4.68	7.50	-4.68	8.72	7.51	5.96
	5.00	-37.00	11.41	7.75	-5.72	6.98	-2.02	0.04	-3.30	2.65	5.23	-11.01	8.43	7.11	5.28
	1.87	-37.74	5.93	6.54	-12.14	4.79	-2.60	-2.19	-4.41	2.18	3.54	-11.25	8.39	1.19	0.05
	1.45	-43.38	1.92	6.31	-13.32	4.21	-8.61	-4.30	-4.47	1.00	3.01	-13.79	7.69	0.67	-1.55
	-1.57	-47.01	0.21	5.70	-15.94	0.11	-8.83	-4.95	-14.92	0.51	1.70	-14.58	5.34	-3.12	-2.52
Worst	-15.70	-53.33	-29.76	0.13	-18.42	-1.06	-9.52	-17.01	-24.66	0.33	0.86	-17.89	2.28	-8.00	-2.54
	S&P 500 - US Large Cap	R 2000 - US Small Cap	MSCI EAFE (Net) - Int'l Dev.	MSCI EAFE SC (Net) - Int'l SC	MSCI EM (Net) - Int'l Emg Mkts	Bloombrg US Agg Bond - FI	Bloombrg US Corp Hi Yield - FI	Bloombrg US Trsy US TIPS - FI	Bloombrg US Gov Credit Lng - FI	NCREIF ODCE (Gross) - Real Estate	FTSE NAREIT Eq REITs Index (TR)	HFRI FOF Comp Index - ARS	Bloombrg Cmdty (TR) - Commod.	ICE BofAML 3 Mo T-Bill - Cash Equiv	

NCREIF ODCE (Gross) performance is reported quarterly; performance is shown N/A in interim-quarter months.



Plan Performance Review



Montana Public Employee Retirement Administration 401(a) and 457(b) Plans
Investment Policy Review

As of December 31, 2021

Investment Options	RVK Research Rating	No Adverse Change in Team / Organization	No Adverse Change in Strategy	Fees Below Peer Group Median	3 Year		5 Year		Previous 5 Year Stats			Plan Inception Date
					Excess Return	Rank	Excess Return	Rank	Q3 2021	Q2 2021	Q1 2021	
Passive Funds												
BlackRock Eq Idx F L (CF) - 401(a)	Positive	✓	✓	✓	0.04	26	0.04	24				4/2005
Vanguard Instl Indx;Inst (VINIX) - 457(b)	Positive	✓	✓	✓	-0.02	28	-0.03	25				5/2005
Vanguard Md-Cp I;Adm (VIMAX)	Positive	✓	✓	✓	-0.03	12	-0.03	7				8/2016
Vanguard S-C Id;Inst (VSCIX)	Positive	✓	✓	✓	0.03	24	0.03	11				7/2002
Vanguard SC G Id;Ins (VSGIX)	Positive	✓	✓	✓	0.00	54	0.00	51				9/2010
Vanguard Tot I S;Adm (VTIAX)	Positive	✓	✓	✓	-0.15	66	-0.02	56				9/2010
Vanguard Tot Bd;Adm (VBTLX)	Positive	✓	✓	✓	-0.09	70	-0.06	59				11/2001
Vanguard Bal Idx;Inst (VBAIX)	Positive	✓	✓	✓	-0.37	5	-0.24	5				5/2005
Active US Equity Funds												
American Funds NPer;R6 (RNP GX)	Neutral	✓	✓	✓	6.90	18	5.88	15				6/2002
Vanguard Equity Inc;Adm (VEIRX)	Positive	✓	✓	✓	-0.10	57	1.51	22				7/2002
JPMorgan:US Eq;R6 (JUEMX) - 401(a)	Neutral	✓	✓	✓	3.18	4	1.39	7				11/2010
Parnassus:Core Eqty;Inst (PRILX) - 457(b)	Positive	✓	✓	✓	0.62	19	0.43	18				4/2015
Alger:Capital Apprec;Z (ACA ZX) - 401(a)	Neutral	✓	✓	✗	-3.26	49	-1.34	41				4/2012
Fidelity Contrafund K6 (FLCNX) - 457(b)	Neutral	✓	✓	✓	-5.46	74	-2.82	67				4/1997
MFS Mid Cap Value;R6 (MVCKX)	Positive	✓	✓	✓	1.86	10	1.38	7				6/2013
Jns Hdsn:Enterprise;N (JDMNX)	Positive	✓	✓	✓	-3.25	79	-0.62	65				10/2016
Neuberger Genesis;R6 (NRGSX) - 457(b)	Neutral	✓	✓	✓	2.47	7	2.09	6				4/1998
BlackRockAdv SC Cr;K (BDSKX) - 401(a)	Positive	✓	✓	✓	1.95	18	0.88	18				10/2020
Active Non-US Equity Funds												
Dodge & Cox Intl Stock (DODFX) - 457(b)	Positive	✓	✓	✓	3.41	32	1.19	41				9/2006
Oakmark Internat;Inv (OAKIX) - 401(a)	Neutral	✓	✓	✗	-1.65	77	-2.49	93				9/2003
Artisan:Internat;Inv (ARTIX) - 457(b)	Positive	✓	✓	✗	-2.97	94	-0.97	81				6/2002
Invesco Dev Mkt;Y (ODVYX)	Negative	✓	✓	✓	-0.29	66	0.15	43				11/2012
Active Fixed Income / Capital Preservation												
PGIM Tot Rtn Bond;R6 (PTRQX)	Positive	✓	✓	✓	1.11	43	1.15	20				7/2014
Neuberger Hi Inc B;Inst (NHILX)	Neutral	✓	✓	✓	-0.32	35	-0.60	42				10/2015
State of Montana Stable Value (SA) (BV)	Positive	✓	✓	✗	1.36	N/A	0.96	N/A				3/2010

Positive - Demonstrates substantial stability and strength in firm, team, process/philosophy, performance and assets.

Neutral - Institutional quality and investable product, yet not considered best idea within the peer group.

On Watch - Currently being closely monitored based on concerns surrounding team, organizational, performance and/or other items.

Negative - Lacking strength and/or stability across our basic tenants of research.

Performance shown is net of fees and product specific. Passive funds meet expectations when performing within 20 basis points and ranking above median. Active funds meet expectations when outperforming the benchmark and ranking above median.



Montana Public Employee Retirement Administration 401(a) and 457(b) Plans
Investment Policy Review

As of December 31, 2021

Investment Options	RVK Research Rating	No Adverse Change in Team / Organization	No Adverse Change in Strategy	Fees Below Peer Group Median	3 Year		5 Year		Previous 5 Year Stats			
					Excess Return	Rank	Excess Return	Rank	Q3 2021	Q2 2021	Q1 2021	Plan Inception Date
Target Date Funds												
T Rowe Price Ret Bal Trust F (CF)	Positive	✓	✓	✓	-0.06	8	-0.09	10				10/2011
T Rowe Price Ret 2005 Trust F (CF)	Positive	✓	✓	✗	-0.10	9	-0.07	9				10/2011
T Rowe Price Ret 2010 Trust F (CF)	Positive	✓	✓	✗	-0.16	2	-0.11	1				10/2011
T Rowe Price Ret 2015 Trust F (CF)	Positive	✓	✓	✓	-0.07	2	-0.03	1				10/2011
T Rowe Price Ret 2020 Trust F (CF)	Positive	✓	✓	✓	-0.05	1	0.04	1				10/2011
T Rowe Price Ret 2025 Trust F (CF)	Positive	✓	✓	✓	-0.12	1	0.02	1				10/2011
T Rowe Price Ret 2030 Trust F (CF)	Positive	✓	✓	✓	-0.22	2	0.02	1				10/2011
T Rowe Price Ret 2035 Trust F (CF)	Positive	✓	✓	✓	-0.23	6	0.04	3				10/2011
T Rowe Price Ret 2040 Trust F (CF)	Positive	✓	✓	✓	-0.28	10	0.05	3				10/2011
T Rowe Price Ret 2045 Trust F (CF)	Positive	✓	✓	✓	-0.32	1	0.05	3				10/2011
T Rowe Price Ret 2050 Trust F (CF)	Positive	✓	✓	✓	-0.31	1	0.04	4				10/2011
T Rowe Price Ret 2055 Trust F (CF)	Positive	✓	✓	✓	-0.36	3	0.03	3				10/2011
T Rowe Price Ret 2060 Trust F (CF)	Positive	✓	✓	✓	-0.32	6	0.02	4				10/2011

Legend	
	Active funds meet or exceed benchmark AND rank at or above peer group median.
	Active funds meet or exceed benchmark OR rank at or above peer group median.
	Active funds do not meet or exceed benchmark AND do not rank at or above peer group median.
	Passive funds perform within 20 basis points of benchmark return AND rank at or above peer group median.
	Passive funds perform within 20 basis points of benchmark return OR rank at or above peer group median.
	Passive funds do not perform within 20 basis points of benchmark return AND do not rank at or above peer group median.

Performance shown is net of fees and product specific.



Investment Options	Current Status	RVK Recommendation	Date of Review Status	Review Status Rationale
Review List				
Oakmark Internatl;Inv (OAKIX) - 401(a)	Review	Review	April 2020	Historical Performance Challenges Higher investment management fees vs. peers
Invesco Dev Mkt;Y (ODVYX)	Probation	Probation	April 2020	Size of Fund and Concerns over Liquidity Primarily Retail Assets Negative Research Rating
Neuberger Hi Inc B;Inst (NHILX)	Review	Review	April 2020	Historical Performance Challenges Team Turnover

Investment Policy Evaluation Statuses

Review

“Review” generally means that factors, including but not limited to performance, bear ongoing assessment and analysis for future action. Investment alternatives in a review status typically will be elevated to a “probation” status prior to termination.

Probation

“Probation” generally means that factors, including but not limited to performance, bear a higher level of assessment and analysis using the quantitative and qualitative measures established in Section III.B of the Investment Policy. Investment alternatives typically will be in a probation status prior to termination.

Termination

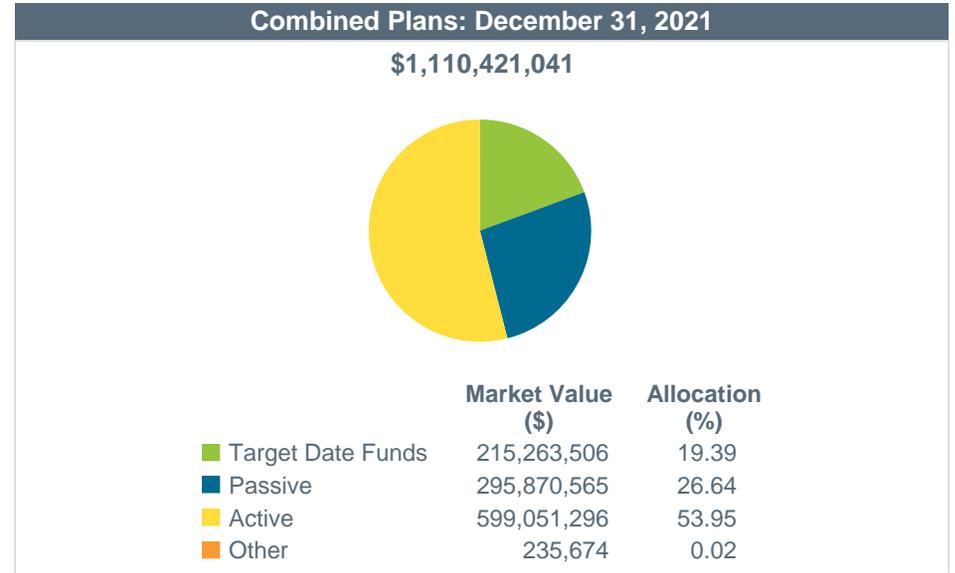
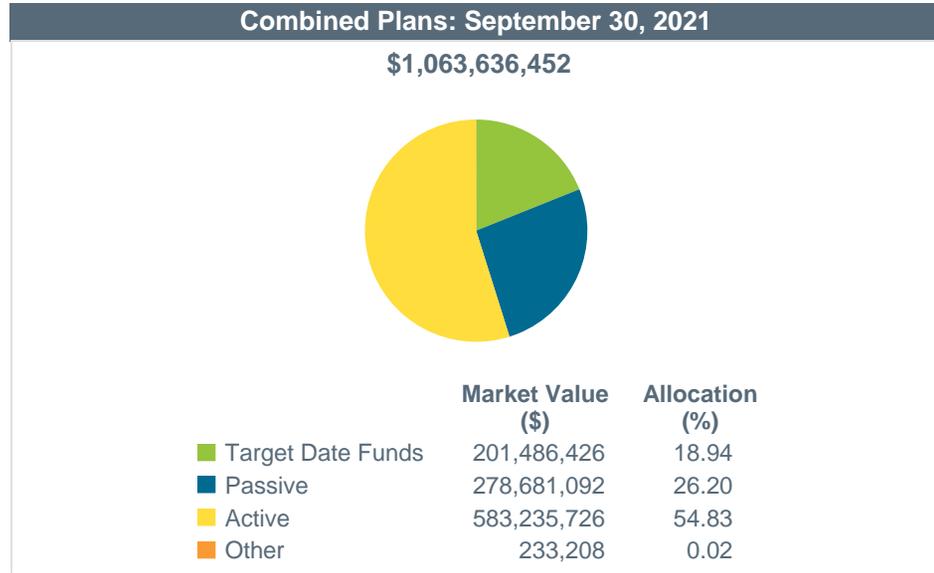
Investment alternatives will generally be terminated only when ongoing assessment and analysis over a reasonable period of time warrant termination. The reasonable period of time may vary depending upon the investment alternative’s class and category, factors being assessed, and extent of the lapse from the established measures or potential harm to participants.

	Tier I Target Date Funds Hassle-Free TDFs	Tier II Passively Managed Options Hands-On Investing (Core Menu)	Tier III Actively Managed Options
	T Rowe Price		
Global Equity			
Large Cap Equity			American Funds Nper;R6 (RNPGX)
US Equity			
US Large Cap Equity	✓	BlackRock Eq Idx F L (CF)	Vanguard Equity Inc;Adm (VEIRX) JPMorgan:US Eq;R6 (JUEMX) Alger:Capital Apprec;Z (ACAZX)
US Mid Cap Equity	✓	Vanguard Md-Cp I;Adm (VIMAX)	MFS Mid Cap Value;R6 (MVCKX) Jns Hndsn:Enterprise;N (JDMNX)
US Small Cap Equity	✓	Vanguard S-C Id;Inst (VSCIX) Vanguard SC G Id;Ins (VSGIX)	BlackRock:Adv SC Cr;K (BDSKX)
International Equity			
Broad International Equity	✓	Vanguard Tot I S;Adm (VTIAX)	Oakmark Internat;Inv (OAKIX)
Emerging Markets Equity	✓		Invesco Dev Mkt;Y (ODVYX)
Fixed Income			
Core Plus Fixed Income			PGIM Tot Rtn Bond;R6 (PTRQX)
Core Fixed Income	✓	Vanguard Tot Bd;Adm (VBTLX)	
High Yield			Neuberger Hi Inc B;Inst (NHILX)
Diversifiers			
Real Return / TIPS	✓		
Balanced			
Balanced		Vanguard Bal Idx;Inst (VBAIX)	
Capital Preservation			
Stable Value			State of Montana Stable Value (SA)

	Tier I Target Date Funds Hassle-Free TDFs	Tier II Passively Managed Options Hands-On Investing (Core Menu)	Tier III Actively Managed Options
	T Rowe Price		
Global Equity			
Large Cap Equity			American Funds Nper;R6 (RNPGX)
US Equity			
US Large Cap Equity	✓	Vanguard Instl Indx;Inst (VINIX)	Vanguard Equity Inc;Adm (VEIRX) Parnassus:Core Eqty;Inst (PRILX) Fidelity Contrafund K6 (FLCNX)
US Mid Cap Equity	✓	Vanguard Md-Cp I;Adm (VIMAX)	MFS Mid Cap Value;R6 (MVCKX) Jns Hndsn:Enterprise;N (JDMNX)
US SMID Cap Equity			Neuberger Genesis;R6 (NRGSX)
US Small Cap Equity	✓	Vanguard S-C Id;Inst (VSCIX) Vanguard SC G Id;Ins (VSGIX)	
International Equity			
Broad International Equity	✓	Vanguard Tot I S;Adm (VTIAX)	Dodge & Cox Intl Stock (DODFX) Artisan:Internatl;Inv (ARTIX)
Emerging Markets Equity	✓		Invesco Dev Mkt;Y (ODVYX)
Fixed Income			
Core Plus Fixed Income			PGIM Tot Rtn Bond;R6 (PTRQX)
Core Fixed Income	✓	Vanguard Tot Bd;Adm (VBTIX)	
High Yield			Neuberger Hi Inc B;Inst (NHILX)
Diversifiers			
Real Return / TIPS	✓		
Balanced			
Balanced		Vanguard Bal Idx;Inst (VBAIX)	
Capital Preservation			
Stable Value			State of Montana Stable Value (SA)

Montana Public Employee Retirement Administration 401(a) & 457(b) Plans
 Combined Plans
 Asset Allocation by Management

As of December 31, 2021



401(a) Plan: \$410,919,463

	Market Value (\$)	Allocation (%)
Target Date Funds	123,135,665	29.97
Passive	154,497,980	37.60
Active	133,078,981	32.39
Other	206,837	0.05

401(a) Plan: \$435,981,407

	Market Value (\$)	Allocation (%)
Target Date Funds	133,631,259	30.65
Passive	161,855,669	37.12
Active	140,285,299	32.18
Other	209,180	0.05

457(b) Plan: \$652,716,988

	Market Value (\$)	Allocation (%)
Target Date Funds	78,350,761	12.00
Passive	124,183,112	19.03
Active	450,156,745	68.97
Other	26,371	0.00

457(b) Plan: \$674,439,634

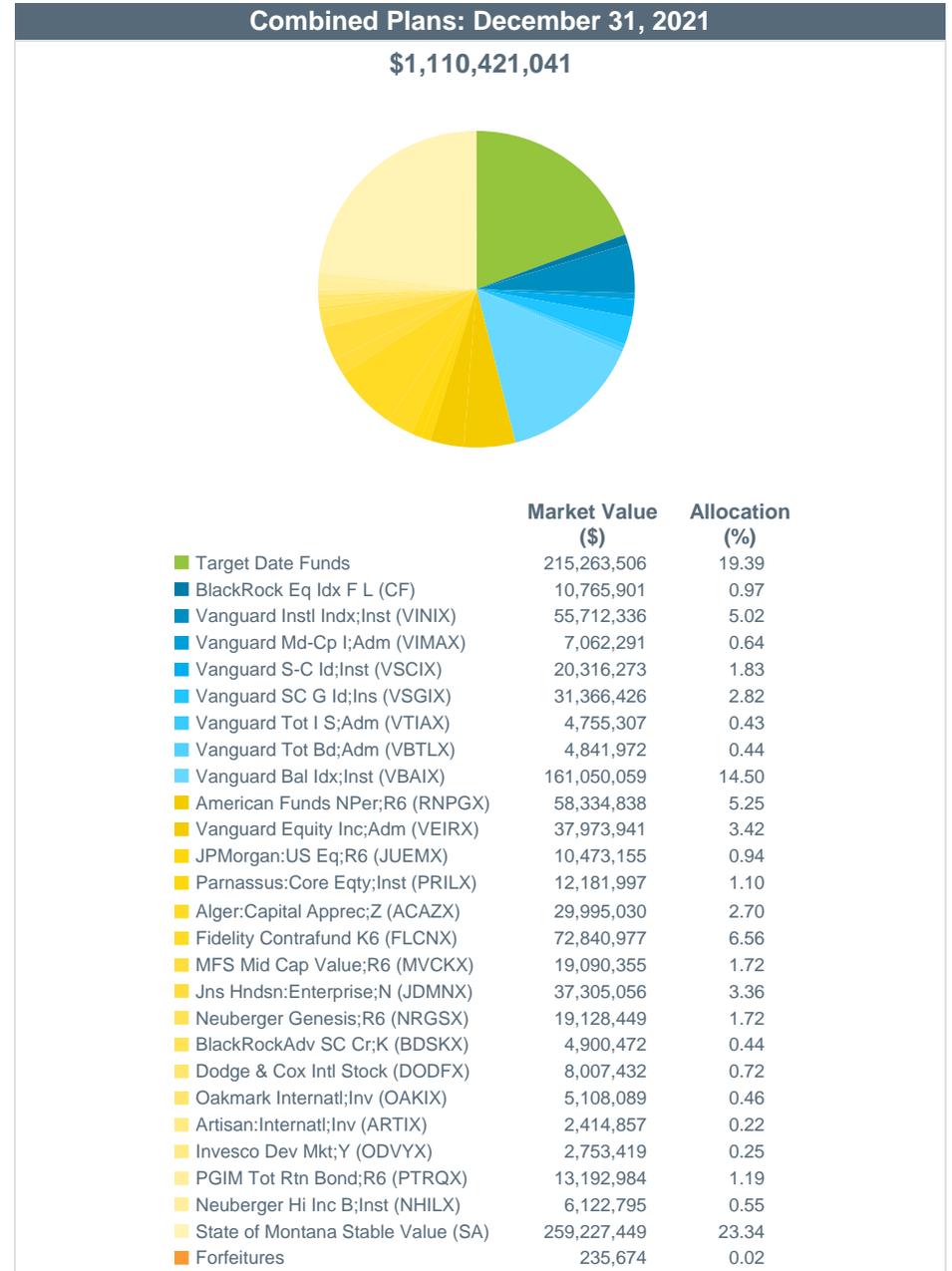
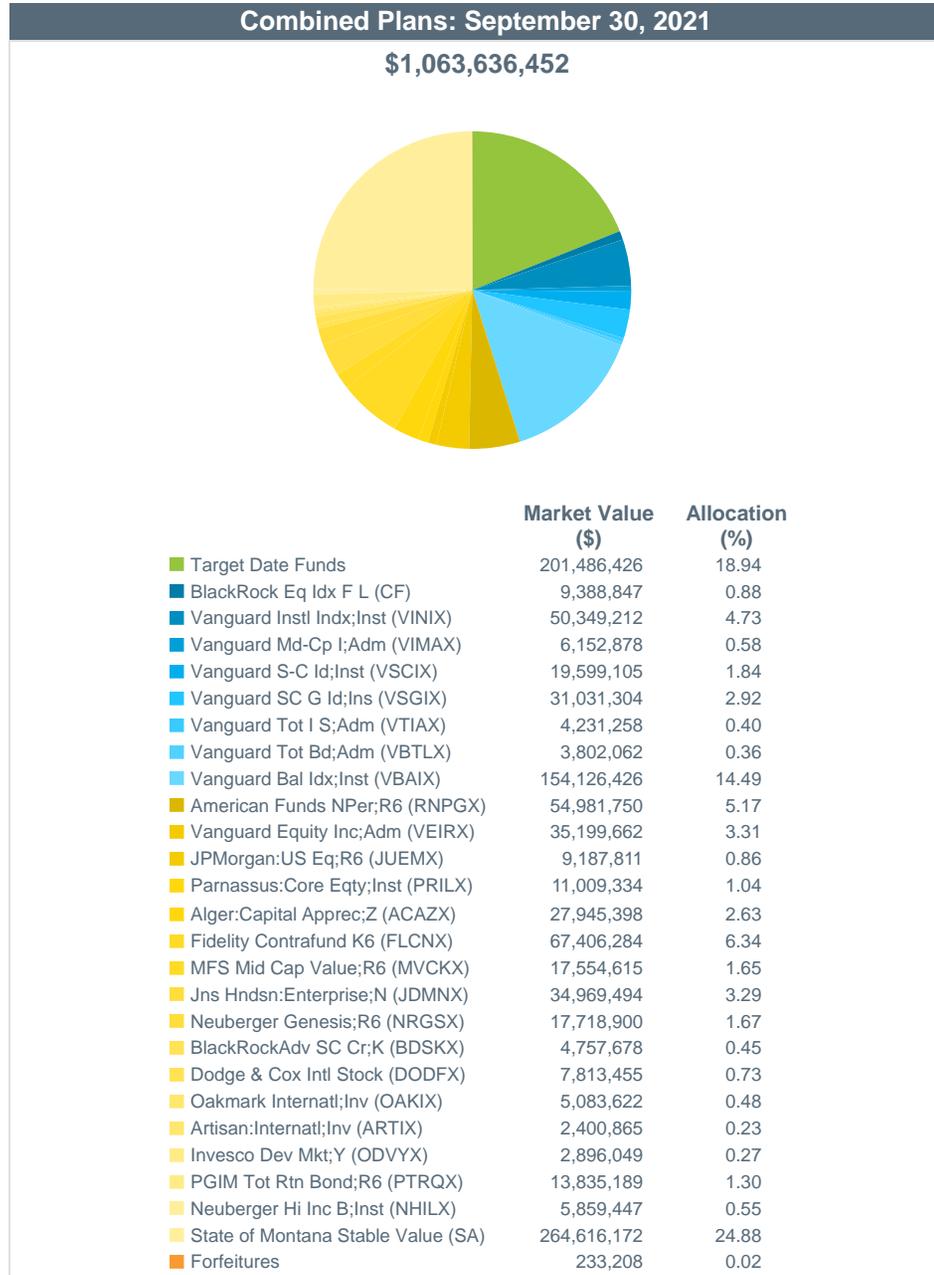
	Market Value (\$)	Allocation (%)
Target Date Funds	81,632,247	12.10
Passive	134,014,896	19.87
Active	458,765,997	68.02
Other	26,494	0.00

Allocations shown may not sum up to 100% exactly due to rounding. Allocation to "Other" consists of forfeitures.



Montana Public Employee Retirement Administration 401(a) & 457(b) Plans
 Combined Plans
 Asset Allocation by Manager

As of December 31, 2021



Allocations shown may not sum up to 100% exactly due to rounding.

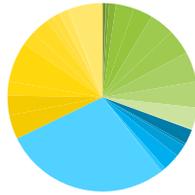


Montana Public Employee Retirement Administration 401(a) & 457(b) Plans
Individual Plans
Asset Allocation by Manager

As of December 31, 2021

401(a) Plan: December 31, 2021

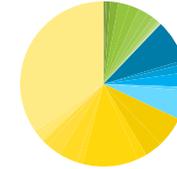
\$435,981,407



	Market Value (\$)	Allocation (%)	Participants (#)
T Rowe Price Ret Bal Trust F (CF)	353,046	0.08	33
T Rowe Price Ret 2005 Trust F (CF)	1,956,785	0.45	65
T Rowe Price Ret 2010 Trust F (CF)	435,862	0.10	30
T Rowe Price Ret 2015 Trust F (CF)	2,003,552	0.46	86
T Rowe Price Ret 2020 Trust F (CF)	5,046,105	1.16	182
T Rowe Price Ret 2025 Trust F (CF)	13,575,249	3.11	309
T Rowe Price Ret 2030 Trust F (CF)	14,285,276	3.28	352
T Rowe Price Ret 2035 Trust F (CF)	18,424,451	4.23	370
T Rowe Price Ret 2040 Trust F (CF)	18,700,469	4.29	401
T Rowe Price Ret 2045 Trust F (CF)	22,557,478	5.17	497
T Rowe Price Ret 2050 Trust F (CF)	19,330,249	4.43	500
T Rowe Price Ret 2055 Trust F (CF)	16,144,104	3.70	533
T Rowe Price Ret 2060 Trust F (CF)	818,633	0.19	65
BlackRock Eq Idx F L (CF)	10,765,901	2.47	332
Vanguard Md-Cp I;Adm (VIMAX)	2,141,656	0.49	149
Vanguard S-C Id;Inst (VSCIX)	8,965,467	2.06	388
Vanguard SC G Id;Ins (VSGIX)	12,853,250	2.95	546
Vanguard Tot I S;Adm (VTIAX)	2,931,288	0.67	207
Vanguard Tot Bd;Adm (VBTLX)	1,264,101	0.29	84
Vanguard Bal Idx;Inst (VBAIX)	122,934,007	28.20	1,347
American Funds NPer;R6 (RNP GX)	18,139,750	4.16	560
Vanguard Equity Inc;Adm (VEIRX)	14,592,992	3.35	438
JPMorgan:US Eq;R6 (JUEMX)	10,473,155	2.40	341
Alger:Capital Apprec;Z (ACA ZX)	29,995,030	6.88	630
MFS Mid Cap Value;R6 (MVCKX)	11,035,642	2.53	383
Jns Hndsn:Enterprise;N (JDMNX)	13,067,759	3.00	484
BlackRockAdv SC Cr;K (BDSKX)	4,900,472	1.12	287
Oakmark Internat;Inv (OAKIX)	5,108,089	1.17	286
Invesco Dev Mkt;Y (ODVYX)	1,274,622	0.29	118
PGIM Tot Rtn Bond;R6 (PTRQX)	5,571,088	1.28	389
Neuberger Hi Inc B;Inst (NHILX)	1,407,201	0.32	107
State of Montana Stable Value (SA)	24,719,498	5.67	431
Forfeitures	209,180	0.05	-

457(b) Plan: December 31, 2021

\$674,439,634



	Market Value (\$)	Allocation (%)	Participants (#)
T Rowe Price Ret Bal Trust F (CF)	1,271,191	0.19	180
T Rowe Price Ret 2005 Trust F (CF)	637,197	0.09	50
T Rowe Price Ret 2010 Trust F (CF)	2,032,167	0.30	72
T Rowe Price Ret 2015 Trust F (CF)	4,703,982	0.70	126
T Rowe Price Ret 2020 Trust F (CF)	11,032,519	1.64	364
T Rowe Price Ret 2025 Trust F (CF)	14,926,265	2.21	545
T Rowe Price Ret 2030 Trust F (CF)	12,796,306	1.90	565
T Rowe Price Ret 2035 Trust F (CF)	12,800,327	1.90	636
T Rowe Price Ret 2040 Trust F (CF)	8,227,232	1.22	608
T Rowe Price Ret 2045 Trust F (CF)	7,567,058	1.12	587
T Rowe Price Ret 2050 Trust F (CF)	2,909,737	0.43	373
T Rowe Price Ret 2055 Trust F (CF)	2,452,692	0.36	321
T Rowe Price Ret 2060 Trust F (CF)	275,573	0.04	58
Vanguard Instl Idx;Inst (VINIX)	55,712,336	8.26	2,262
Vanguard Md-Cp I;Adm (VIMAX)	4,920,635	0.73	412
Vanguard S-C Id;Inst (VSCIX)	11,350,806	1.68	739
Vanguard SC G Id;Ins (VSGIX)	18,513,176	2.74	1,493
Vanguard Tot I S;Adm (VTIAX)	1,824,019	0.27	157
Vanguard Tot Bd;Adm (VBTLX)	3,577,871	0.53	176
Vanguard Bal Idx;Inst (VBAIX)	38,116,052	5.65	1,931
American Funds NPer;R6 (RNP GX)	40,195,088	5.96	2,068
Vanguard Equity Inc;Adm (VEIRX)	23,380,949	3.47	1,286
Parnassus:Core Eqty;Inst (PRILX)	12,181,997	1.81	882
Fidelity Contrafund K6 (FLCNX)	72,840,977	10.80	2,608
MFS Mid Cap Value;R6 (MVCKX)	8,054,713	1.19	644
Jns Hndsn:Enterprise;N (JDMNX)	24,237,297	3.59	2,254
Neuberger Genesis;R6 (NRGSX)	19,128,449	2.84	1,517
Dodge & Cox Intl Stock (DODFX)	8,007,432	1.19	1,158
Artisan:Internat;Inv (ARTIX)	2,414,857	0.36	381
Invesco Dev Mkt;Y (ODVYX)	1,478,797	0.22	230
PGIM Tot Rtn Bond;R6 (PTRQX)	7,621,895	1.13	1,515
Neuberger Hi Inc B;Inst (NHILX)	4,715,595	0.70	667
State of Montana Stable Value (SA)	234,507,951	34.77	5,069
Forfeitures	26,494	0.00	-

Allocations shown may not sum up to 100% exactly due to rounding.



Montana Public Employee Retirement Administration 401(a) & 457(b) Plans
Comparative Performance

As of December 31, 2021

	QTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Tier I: Target Date Funds												
T Rowe Price Ret Bal Trust F (CF)	2.14	8.34	8.34	11.72	8.28	6.73	N/A	11.53	15.39	-3.24	10.32	6.62
TRP Ret Bal Index	3.05	8.47	8.47	11.78	8.37	6.77	6.99	11.69	15.27	-2.84	10.13	6.03
Difference	-0.91	-0.13	-0.13	-0.06	-0.09	-0.04	N/A	-0.16	0.12	-0.40	0.19	0.59
IM Mixed-Asset Target Today (MF) Median	2.20	6.06	6.06	9.61	6.92	5.44	5.63	9.49	13.31	-3.57	8.85	5.07
Rank	56	14	14	8	10	6	N/A	11	17	36	27	11
T Rowe Price Ret 2005 Trust F (CF)	2.26	8.07	8.07	11.53	8.27	6.76	N/A	11.44	15.21	-3.08	10.65	6.84
TRP Ret 2005 Index	3.18	8.12	8.12	11.63	8.34	6.74	7.19	12.00	14.88	-2.58	10.12	5.84
Difference	-0.92	-0.05	-0.05	-0.10	-0.07	0.02	N/A	-0.56	0.33	-0.50	0.53	1.00
IM Mixed-Asset Target 2010 (MF) Median	2.10	5.80	5.80	10.35	7.54	6.09	6.79	10.43	14.19	-3.58	10.24	6.06
Rank	42	22	22	9	9	5	N/A	11	18	25	35	18
T Rowe Price Ret 2010 Trust F (CF)	2.52	8.76	8.76	12.33	8.84	7.22	N/A	12.12	16.23	-3.48	11.67	7.27
TRP Ret 2010 Index	3.45	8.96	8.96	12.49	8.95	7.22	7.87	12.58	16.05	-3.02	11.20	6.27
Difference	-0.93	-0.20	-0.20	-0.16	-0.11	0.00	N/A	-0.46	0.18	-0.46	0.47	1.00
IM Mixed-Asset Target 2010 (MF) Median	2.10	5.80	5.80	10.35	7.54	6.09	6.79	10.43	14.19	-3.58	10.24	6.06
Rank	25	10	10	2	1	1	N/A	1	2	45	8	10
T Rowe Price Ret 2015 Trust F (CF)	2.63	9.54	9.54	13.29	9.62	7.82	N/A	12.85	17.63	-4.10	13.49	7.43
TRP Ret 2015 Index	3.66	9.73	9.73	13.36	9.65	7.79	8.74	13.05	17.43	-3.58	12.87	6.91
Difference	-1.03	-0.19	-0.19	-0.07	-0.03	0.03	N/A	-0.20	0.20	-0.52	0.62	0.52
IM Mixed-Asset Target 2015 (MF) Median	2.68	8.05	8.05	11.59	8.25	6.68	7.64	11.40	15.31	-3.90	11.40	6.40
Rank	57	18	18	2	1	1	N/A	2	1	57	8	10
T Rowe Price Ret 2020 Trust F (CF)	2.83	10.36	10.36	14.40	10.53	8.53	N/A	13.46	19.55	-4.86	15.83	7.67
TRP Ret 2020 Index	3.94	10.64	10.64	14.45	10.49	8.43	9.55	13.49	19.39	-4.38	14.87	7.51
Difference	-1.11	-0.28	-0.28	-0.05	0.04	0.10	N/A	-0.03	0.16	-0.48	0.96	0.16
IM Mixed-Asset Target 2020 (MF) Median	2.88	8.70	8.70	12.15	8.58	6.78	8.16	10.90	15.97	-4.52	12.69	6.36
Rank	56	12	12	1	1	1	N/A	8	1	60	1	12
T Rowe Price Ret 2025 Trust F (CF)	3.29	11.80	11.80	15.90	11.62	9.35	N/A	14.84	21.26	-5.55	17.82	7.82
TRP Ret 2025 Index	4.47	12.27	12.27	16.02	11.60	9.29	10.56	14.62	21.36	-5.00	16.68	8.21
Difference	-1.18	-0.47	-0.47	-0.12	0.02	0.06	N/A	0.22	-0.10	-0.55	1.14	-0.39
IM Mixed-Asset Target 2025 (MF) Median	3.37	9.70	9.70	13.32	9.54	7.46	8.88	12.13	18.18	-5.23	14.95	6.87
Rank	56	9	9	1	1	1	N/A	6	1	58	1	17

Performance shown is net of fees and is product specific.



Montana Public Employee Retirement Administration 401(a) & 457(b) Plans
Comparative Performance

As of December 31, 2021

	QTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Tier I: Target Date Funds Continued												
T Rowe Price Ret 2030 Trust F (CF)	3.80	13.49	13.49	17.37	12.67	10.13	N/A	16.06	22.76	-6.09	19.57	7.91
TRP Ret 2030 Index	5.19	14.23	14.23	17.59	12.65	10.09	11.42	15.65	23.06	-5.67	18.28	8.80
Difference	-1.39	-0.74	-0.74	-0.22	0.02	0.04	N/A	0.41	-0.30	-0.42	1.29	-0.89
IM Mixed-Asset Target 2030 (MF) Median	3.99	11.44	11.44	15.03	10.78	8.42	9.82	12.86	20.08	-6.32	16.92	7.30
Rank	63	9	9	2	1	1	N/A	5	3	44	1	30
T Rowe Price Ret 2035 Trust F (CF)	4.19	15.03	15.03	18.71	13.59	10.79	N/A	17.26	24.01	-6.63	21.09	7.89
TRP Ret 2035 Index	5.82	16.07	16.07	18.94	13.55	10.75	12.10	16.50	24.46	-6.20	19.58	9.21
Difference	-1.63	-1.04	-1.04	-0.23	0.04	0.04	N/A	0.76	-0.45	-0.43	1.51	-1.32
IM Mixed-Asset Target 2035 (MF) Median	4.72	13.84	13.84	16.70	11.81	9.21	10.46	14.15	22.26	-7.26	18.72	7.75
Rank	76	19	19	6	3	3	N/A	9	13	35	2	45
T Rowe Price Ret 2040 Trust F (CF)	4.51	16.36	16.36	19.84	14.37	11.33	N/A	18.32	25.02	-7.03	22.29	7.92
TRP Ret 2040 Index	6.43	17.75	17.75	20.12	14.32	11.31	12.62	17.24	25.55	-6.61	20.62	9.58
Difference	-1.92	-1.39	-1.39	-0.28	0.05	0.02	N/A	1.08	-0.53	-0.42	1.67	-1.66
IM Mixed-Asset Target 2040 (MF) Median	5.21	15.67	15.67	17.97	12.61	9.76	11.13	14.74	23.63	-7.97	19.74	7.95
Rank	81	28	28	10	3	3	N/A	10	15	25	2	51
T Rowe Price Ret 2045 Trust F (CF)	4.74	17.25	17.25	20.51	14.76	11.63	N/A	18.79	25.66	-7.25	22.63	7.99
TRP Ret 2045 Index	6.74	18.76	18.76	20.83	14.71	11.61	12.83	17.60	26.33	-6.96	21.02	9.70
Difference	-2.00	-1.51	-1.51	-0.32	0.05	0.02	N/A	1.19	-0.67	-0.29	1.61	-1.71
IM Mixed-Asset Target 2045 (MF) Median	5.74	16.67	16.67	18.90	13.08	10.10	11.39	15.38	24.61	-8.19	20.65	8.15
Rank	82	34	34	1	3	3	N/A	8	21	21	4	56
T Rowe Price Ret 2050 Trust F (CF)	4.80	17.37	17.37	20.58	14.79	11.65	N/A	18.84	25.68	-7.35	22.70	7.94
TRP Ret 2050 Index	6.80	18.91	18.91	20.89	14.75	11.64	12.85	17.62	26.33	-6.96	21.02	9.70
Difference	-2.00	-1.54	-1.54	-0.31	0.04	0.01	N/A	1.22	-0.65	-0.39	1.68	-1.76
IM Mixed-Asset Target 2050 (MF) Median	5.88	16.99	16.99	19.23	13.36	10.21	11.65	15.54	24.67	-8.54	20.80	8.10
Rank	83	39	39	1	4	3	N/A	9	25	19	5	58
T Rowe Price Ret 2055 Trust F (CF)	4.78	17.38	17.38	20.53	14.78	11.64	N/A	18.77	25.62	-7.30	22.70	7.98
TRP Ret 2055 Index	6.80	18.91	18.91	20.89	14.75	11.64	12.85	17.62	26.33	-6.96	21.02	9.70
Difference	-2.02	-1.53	-1.53	-0.36	0.03	0.00	N/A	1.15	-0.71	-0.34	1.68	-1.72
IM Mixed-Asset Target 2055 (MF) Median	5.90	17.18	17.18	19.34	13.35	10.34	11.78	15.65	24.85	-8.48	21.12	8.25
Rank	83	42	42	3	3	3	N/A	10	30	18	5	58

Performance shown is net of fees and is product specific.



Montana Public Employee Retirement Administration 401(a) & 457(b) Plans
Comparative Performance

As of December 31, 2021

	QTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Tier I: Target Date Funds Continued												
T Rowe Price Ret 2060 Trust F (CF)	4.86	17.43	17.43	20.57	14.77	11.65	N/A	18.76	25.67	-7.31	22.57	7.97
TRP Ret 2060 Index	6.80	18.90	18.90	20.89	14.75	11.64	N/A	17.62	26.33	-6.96	21.02	9.70
Difference	-1.94	-1.47	-1.47	-0.32	0.02	0.01	N/A	1.14	-0.66	-0.35	1.55	-1.73
IM Mixed-Asset Target 2060+ (MF) Median	5.91	17.16	17.16	19.53	13.59	10.77	N/A	15.99	25.08	-8.66	21.30	7.86
Rank	80	43	43	6	4	1	N/A	8	36	18	10	48
Tier II: Passively Managed Investment Options												
US Equity												
BlackRock Eq Idx F L (CF) - 401(a)	11.03	28.72	28.72	26.11	18.51	14.96	16.58	18.46	31.53	-4.36	21.85	11.97
S&P 500 Index (Cap Wtd)	11.03	28.71	28.71	26.07	18.47	14.93	16.55	18.40	31.49	-4.38	21.83	11.96
Difference	0.00	0.01	0.01	0.04	0.04	0.03	0.03	0.06	0.04	0.02	0.02	0.01
IM U.S. Large Cap Core Equity (MF) Median	9.98	26.73	26.73	24.17	16.98	13.36	15.19	16.00	29.68	-5.61	21.17	10.06
Rank	26	24	24	26	24	13	13	39	29	30	38	26
IM S&P 500 Index (MF) Median	10.94	28.25	28.25	25.64	18.06	14.50	16.04	18.05	31.06	-4.66	21.35	11.54
Rank	3	1	1	2	2	2	1	3	1	6	1	2
Vanguard Instl Indx;Inst (VINIX) - 457(b)	11.02	28.67	28.67	26.05	18.44	14.91	16.52	18.39	31.46	-4.42	21.79	11.93
S&P 500 Index (Cap Wtd)	11.03	28.71	28.71	26.07	18.47	14.93	16.55	18.40	31.49	-4.38	21.83	11.96
Difference	-0.01	-0.04	-0.04	-0.02	-0.03	-0.02	-0.03	-0.01	-0.03	-0.04	-0.04	-0.03
IM U.S. Large Cap Core Equity (MF) Median	9.98	26.73	26.73	24.17	16.98	13.36	15.19	16.00	29.68	-5.61	21.17	10.06
Rank	27	24	24	28	25	14	15	40	30	31	39	27
IM S&P 500 Index (MF) Median	10.94	28.25	28.25	25.64	18.06	14.50	16.04	18.05	31.06	-4.66	21.35	11.54
Rank	13	7	7	6	6	5	4	12	5	15	7	6
Vanguard Md-Cp I;Adm (VIMAX)	7.97	24.51	24.51	24.48	15.86	12.57	15.12	18.24	31.03	-9.23	19.25	11.22
Vanguard Spl Mid Cap Index	7.98	24.52	24.52	24.51	15.89	12.60	15.15	18.24	31.09	-9.22	19.30	11.25
Difference	-0.01	-0.01	-0.01	-0.03	-0.03	-0.03	-0.03	0.00	-0.06	-0.01	-0.05	-0.03
IM U.S. Mid Cap Core Equity (MF) Median	7.99	24.87	24.87	20.79	12.35	10.18	12.85	9.97	28.07	-11.52	15.44	14.23
Rank	52	54	54	12	7	12	5	19	20	23	19	75
Vanguard S-C Id;Inst (VSCIX)	3.86	17.73	17.73	21.34	13.50	11.54	14.17	19.12	27.40	-9.32	16.25	18.32
Vanguard Spl Sm Cap Index	3.87	17.71	17.71	21.31	13.47	11.50	14.14	19.07	27.35	-9.33	16.24	18.26
Difference	-0.01	0.02	0.02	0.03	0.03	0.04	0.03	0.05	0.05	0.01	0.01	0.06
IM U.S. Small Cap Core Equity (MF) Median	5.89	24.55	24.55	19.55	10.97	10.12	12.54	10.36	23.89	-12.66	12.38	21.34
Rank	82	83	83	24	11	18	10	18	16	18	12	78

Performance shown is net of fees and is product specific.



Montana Public Employee Retirement Administration 401(a) & 457(b) Plans
Comparative Performance

As of December 31, 2021

	QTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Tier II: Passively Managed Investment Options Continued												
Vanguard SC G Id;Ins (VSGIX)	0.58	5.70	5.70	23.84	16.91	13.03	14.84	35.31	32.77	-5.69	21.94	10.74
Vanguard Spl Sm Cap Grth Index	0.61	5.71	5.71	23.84	16.91	13.00	14.77	35.35	32.75	-5.68	21.90	10.62
Difference	-0.03	-0.01	-0.01	0.00	0.00	0.03	0.07	-0.04	0.02	-0.01	0.04	0.12
IM U.S. Small Cap Growth Equity (MF) Median	1.81	8.88	8.88	24.36	16.94	13.19	14.99	37.19	27.71	-5.12	20.69	9.82
Rank	60	62	62	54	51	54	55	57	33	57	43	45
International Equity												
Vanguard Tot I S;Adm (VTIAX)	2.11	8.62	8.62	13.67	9.90	7.01	7.68	11.28	21.51	-14.43	27.55	4.67
Vanguard Spl Tot Int'l Stock Index	1.76	8.83	8.83	13.82	9.92	7.02	7.73	11.24	21.80	-14.61	27.41	4.72
Difference	0.35	-0.21	-0.21	-0.15	-0.02	-0.01	-0.05	0.04	-0.29	0.18	0.14	-0.05
IM ACWI Ex US Core (MF) Median	2.36	8.98	8.98	14.54	10.11	6.81	7.73	13.60	22.84	-15.76	27.26	1.62
Rank	61	56	56	66	56	43	55	59	70	29	43	23
Fixed Income												
Vanguard Tot Bd;Adm (VBTLX)	-0.09	-1.67	-1.67	4.82	3.58	2.98	2.86	7.72	8.71	-0.03	3.56	2.60
Vanguard Spl B US Agg Flt Adj Index	0.05	-1.58	-1.58	4.91	3.64	3.05	2.94	7.75	8.87	-0.08	3.63	2.75
Difference	-0.14	-0.09	-0.09	-0.09	-0.06	-0.07	-0.08	-0.03	-0.16	0.05	-0.07	-0.15
IM U.S. Broad Market Core Fixed Income (MF) Median	-0.14	-1.32	-1.32	5.17	3.71	3.07	3.10	8.19	8.76	-0.63	3.59	2.86
Rank	42	66	66	70	59	57	66	65	53	20	53	63
Balanced												
Vanguard Bal Idx;Inst (VBAIX)	5.48	14.18	14.18	17.42	12.36	10.08	10.99	16.41	21.79	-2.82	13.86	8.81
Vanguard Balanced Composite Index	5.50	14.28	14.28	17.79	12.60	10.30	11.19	17.35	21.87	-2.80	13.93	8.89
Difference	-0.02	-0.10	-0.10	-0.37	-0.24	-0.22	-0.20	-0.94	-0.08	-0.02	-0.07	-0.08
IM Mixed-Asset Target Alloc Moderate (MF) Median	3.72	11.27	11.27	12.99	9.02	7.11	8.19	10.74	17.84	-5.60	12.84	6.46
Rank	17	20	20	5	5	4	5	7	5	6	37	20

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Montana Public Employee Retirement Administration 401(a) & 457(b) Plans
Comparative Performance

As of December 31, 2021

	QTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Tier III: Actively Managed Investment Options												
Global Equity												
American Funds NPer;R6 (RNP GX)	6.72	18.10	18.10	27.28	20.28	15.35	15.81	33.81	30.48	-5.56	29.30	2.19
MSCI ACW Index (USD) (Net)	6.68	18.54	18.54	20.38	14.40	10.90	11.85	16.25	26.60	-9.42	23.97	7.86
Difference	0.04	-0.44	-0.44	6.90	5.88	4.45	3.96	17.56	3.88	3.86	5.33	-5.67
IM Global Large Cap Growth Equity (MF) Median	6.15	16.55	16.55	23.56	17.42	13.04	13.82	26.23	30.03	-6.22	28.45	1.82
Rank	35	27	27	18	15	10	3	13	42	39	34	41
US Equity												
Vanguard Equity Inc;Adm (VEIRX)	8.70	25.65	25.65	17.54	12.67	11.20	13.23	3.12	25.35	-5.65	18.49	14.82
Russell 1000 Val Index	7.77	25.16	25.16	17.64	11.16	9.73	12.97	2.80	26.54	-8.27	13.66	17.34
Difference	0.93	0.49	0.49	-0.10	1.51	1.47	0.26	0.32	-1.19	2.62	4.83	-2.52
FTSE Hi Div Yld Index	9.41	26.19	26.19	16.62	11.71	10.74	13.05	1.16	24.24	-5.85	16.51	16.96
Difference	-0.71	-0.54	-0.54	0.92	0.96	0.46	0.18	1.96	1.11	0.20	1.98	-2.14
IM U.S. Large Cap Value Equity (MF) Median	8.23	26.24	26.24	17.86	11.60	9.66	12.54	2.62	26.07	-9.06	16.29	13.82
Rank	30	58	58	57	22	11	23	44	62	15	23	38
IM Equity Income (MF) Median	9.23	25.37	25.37	17.83	11.88	10.07	12.02	4.62	25.29	-7.24	16.16	14.04
Rank	62	46	46	55	43	28	20	61	50	34	26	41
JPMorgan:US Eq;R6 (JUEMX) - 401(a)	12.17	28.80	28.80	29.25	19.86	15.66	17.57	26.74	32.28	-5.86	21.71	10.91
S&P 500 Index (Cap Wtd)	11.03	28.71	28.71	26.07	18.47	14.93	16.55	18.40	31.49	-4.38	21.83	11.96
Difference	1.14	0.09	0.09	3.18	1.39	0.73	1.02	8.34	0.79	-1.48	-0.12	-1.05
IM U.S. Large Cap Core Equity (MF) Median	9.98	26.73	26.73	24.17	16.98	13.36	15.19	16.00	29.68	-5.61	21.17	10.06
Rank	7	23	23	4	7	6	3	5	19	55	41	40
Parnassus:Core Eqty;Inst (PRILX) - 457(b)	10.79	27.82	27.82	26.69	18.90	14.75	16.64	21.47	30.96	0.05	16.81	10.61
S&P 500 Index (Cap Wtd)	11.03	28.71	28.71	26.07	18.47	14.93	16.55	18.40	31.49	-4.38	21.83	11.96
Difference	-0.24	-0.89	-0.89	0.62	0.43	-0.18	0.09	3.07	-0.53	4.43	-5.02	-1.35
IM U.S. Large Cap Core Equity (MF) Median	9.98	26.73	26.73	24.17	16.98	13.36	15.19	16.00	29.68	-5.61	21.17	10.06
Rank	31	34	34	19	18	18	12	20	39	3	91	44
Alger:Capital Apprec;Z (ACAZX) - 401(a)	5.50	17.93	17.93	30.82	23.98	17.77	19.02	42.08	33.62	-0.66	31.69	0.66
Russell 1000 Grth Index	11.64	27.60	27.60	34.08	25.32	19.58	19.79	38.49	36.39	-1.51	30.21	7.08
Difference	-6.14	-9.67	-9.67	-3.26	-1.34	-1.81	-0.77	3.59	-2.77	0.85	1.48	-6.42
IM U.S. Large Cap Growth Equity (MF) Median	7.69	22.03	22.03	30.72	23.41	17.52	18.19	36.17	33.38	-0.85	29.46	2.19
Rank	73	75	75	49	41	45	28	25	48	48	28	69

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Montana Public Employee Retirement Administration 401(a) & 457(b) Plans
Comparative Performance

As of December 31, 2021

	QTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Tier III: Actively Managed Investment Options Continued												
Fidelity Contrafund K6 (FLCNX) - 457(b)	8.36	24.14	24.14	28.62	22.50	17.19	17.89	30.83	31.00	-2.15	32.48	3.36
Russell 1000 Grth Index	11.64	27.60	27.60	34.08	25.32	19.58	19.79	38.49	36.39	-1.51	30.21	7.08
Difference	-3.28	-3.46	-3.46	-5.46	-2.82	-2.39	-1.90	-7.66	-5.39	-0.64	2.27	-3.72
S&P 500 Index (Cap Wtd)	11.03	28.71	28.71	26.07	18.47	14.93	16.55	18.40	31.49	-4.38	21.83	11.96
Difference	-2.67	-4.57	-4.57	2.55	4.03	2.26	1.34	12.43	-0.49	2.23	10.65	-8.60
IM U.S. Large Cap Growth Equity (MF) Median	7.69	22.03	22.03	30.72	23.41	17.52	18.19	36.17	33.38	-0.85	29.46	2.19
Rank	40	34	34	74	67	58	61	78	75	66	22	38
MFS Mid Cap Value;R6 (MVCKX)	10.22	31.00	31.00	21.48	12.60	10.82	13.87	4.40	31.08	-11.31	13.84	15.86
Russell Mid Cap Val Index	8.54	28.34	28.34	19.62	11.22	9.96	13.44	4.96	27.06	-12.29	13.34	20.00
Difference	1.68	2.66	2.66	1.86	1.38	0.86	0.43	-0.56	4.02	0.98	0.50	-4.14
IM U.S. Mid Cap Value Equity (MF) Median	8.49	29.45	29.45	18.22	9.95	8.71	12.09	2.73	24.92	-13.98	13.21	17.03
Rank	12	36	36	10	7	6	5	25	8	17	44	64
Jns Hndsn:Enterprise;N (JDMNX)	5.94	17.50	17.50	24.21	19.21	15.82	17.07	20.44	35.40	-0.81	26.65	12.18
Russell Mid Cap Grth Index	2.85	12.73	12.73	27.46	19.83	14.92	16.63	35.59	35.47	-4.75	25.27	7.33
Difference	3.09	4.77	4.77	-3.25	-0.62	0.90	0.44	-15.15	-0.07	3.94	1.38	4.85
IM U.S. Mid Cap Growth Equity (MF) Median	3.65	12.96	12.96	28.07	20.06	14.98	16.20	36.41	34.38	-5.00	24.83	4.78
Rank	17	23	23	79	65	29	24	89	39	17	34	6
Neuberger Genesis;R6 (NRGSX) - 457(b)	8.43	18.46	18.46	24.38	15.84	13.87	14.12	25.17	29.76	-6.42	15.88	18.44
Russell 2500 Index	3.82	18.18	18.18	21.91	13.75	11.74	14.15	19.99	27.77	-10.00	16.81	17.59
Difference	4.61	0.28	0.28	2.47	2.09	2.13	-0.03	5.18	1.99	3.58	-0.93	0.85
Russell 2500 Grth Index	0.20	5.04	5.04	25.09	17.65	13.78	15.75	40.47	32.65	-7.47	24.46	9.73
Difference	8.23	13.42	13.42	-0.71	-1.81	0.09	-1.63	-15.30	-2.89	1.05	-8.58	8.71
IM U.S. SMID Cap Core Equity (MF) Median	7.50	24.44	24.44	20.84	12.31	10.45	12.99	12.76	25.72	-12.20	15.40	17.92
Rank	19	83	83	7	6	3	21	9	9	4	41	44
BlackRockAdv SC Cr;K (BDSKX) - 401(a)	2.53	14.72	14.72	21.97	12.90	12.09	N/A	19.60	32.26	-8.80	10.82	24.01
Russell 2000 Index	2.14	14.82	14.82	20.02	12.02	10.76	13.23	19.96	25.53	-11.01	14.65	21.31
Difference	0.39	-0.10	-0.10	1.95	0.88	1.33	N/A	-0.36	6.73	2.21	-3.83	2.70
IM U.S. Small Cap Core Equity (MF) Median	5.89	24.55	24.55	19.55	10.97	10.12	12.54	10.36	23.89	-12.66	12.38	21.34
Rank	89	90	90	18	18	8	N/A	15	4	13	65	32

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Montana Public Employee Retirement Administration 401(a) & 457(b) Plans
Comparative Performance

As of December 31, 2021

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Tier III: Actively Managed Investment Options Continued												
International Equity												
Dodge & Cox Intl Stock (DODFX) - 457(b)	2.40	11.03	11.03	11.65	7.19	4.47	7.58	2.10	22.78	-17.98	23.94	8.26
MSCI ACW Ex US Val Index (USD) (Net)	1.24	10.46	10.46	8.24	6.00	3.94	5.29	-0.77	15.72	-13.97	22.66	8.92
Difference	1.16	0.57	0.57	3.41	1.19	0.53	2.29	2.87	7.06	-4.01	1.28	-0.66
MSCI EAFE Index (USD) (Net)	2.69	11.26	11.26	13.54	9.55	6.76	8.03	7.82	22.01	-13.79	25.03	1.00
Difference	-0.29	-0.23	-0.23	-1.89	-2.36	-2.29	-0.45	-5.72	0.77	-4.19	-1.09	7.26
IM ACWI Ex US Value (MF) Median	2.63	10.06	10.06	10.54	6.75	3.69	5.28	3.57	17.88	-15.98	22.89	2.79
Rank	58	42	42	32	41	35	10	54	4	78	31	24
Oakmark Internatl;Inv (OAKIX) - 401(a)	0.98	9.03	9.03	12.42	7.14	5.61	8.76	4.92	24.21	-23.43	29.75	7.91
MSCI Wrld Ex US Index (USD) (Net)	3.14	12.62	12.62	14.07	9.63	6.73	7.84	7.59	22.49	-14.09	24.21	2.75
Difference	-2.16	-3.59	-3.59	-1.65	-2.49	-1.12	0.92	-2.67	1.72	-9.34	5.54	5.16
IM EAFE Core (MF) Median	3.10	10.83	10.83	13.87	9.54	6.73	7.87	8.97	21.87	-14.94	25.24	-0.10
Rank	85	71	71	77	93	79	18	83	31	100	3	2
Artisan:Internatl;Inv (ARTIX) - 457(b)	2.92	9.02	9.02	14.85	12.09	6.33	9.10	7.56	29.20	-10.86	31.02	-9.66
MSCI ACW Ex US Grth Index (USD) (Net)	2.37	5.09	5.09	17.82	13.06	8.99	9.13	22.20	27.34	-14.43	32.01	0.12
Difference	0.55	3.93	3.93	-2.97	-0.97	-2.66	-0.03	-14.64	1.86	3.57	-0.99	-9.78
MSCI EAFE Index (USD) (Net)	2.69	11.26	11.26	13.54	9.55	6.76	8.03	7.82	22.01	-13.79	25.03	1.00
Difference	0.23	-2.24	-2.24	1.31	2.54	-0.43	1.07	-0.26	7.19	2.93	5.99	-10.66
IM ACWI Ex US Growth (MF) Median	1.96	7.93	7.93	19.21	14.24	9.19	9.62	22.75	27.84	-14.32	32.37	-0.80
Rank	32	37	37	94	81	95	66	100	35	14	66	100
Invesco Dev Mkt;Y (ODVYX)	-4.09	-7.25	-7.25	10.65	10.02	5.84	6.47	17.50	24.31	-11.95	35.10	7.17
MSCI Emg Mkts Index (USD) (Net)	-1.31	-2.54	-2.54	10.94	9.87	6.11	5.49	18.31	18.44	-14.58	37.28	11.19
Difference	-2.78	-4.71	-4.71	-0.29	0.15	-0.27	0.98	-0.81	5.87	2.63	-2.18	-4.02
IM Emerging Markets Equity (MF) Median	-1.26	-1.60	-1.60	11.81	9.59	5.87	5.62	17.46	20.09	-16.39	35.37	8.35
Rank	85	83	83	66	43	51	35	50	27	12	53	56
Fixed Income												
PGIM Tot Rtn Bond;R6 (PTRQX)	0.30	-1.15	-1.15	5.90	4.72	4.06	4.44	8.10	11.14	-0.63	6.71	4.83
Bloomberg US Agg Bond Index	0.01	-1.55	-1.55	4.79	3.57	3.00	2.90	7.51	8.72	0.01	3.54	2.65
Difference	0.29	0.40	0.40	1.11	1.15	1.06	1.54	0.59	2.42	-0.64	3.17	2.18
IM U.S. Broad Market Core+ Fixed Income (MF) Median	-0.16	-0.96	-0.96	5.74	4.13	3.36	3.58	8.55	9.32	-0.93	4.49	4.19
Rank	3	57	57	43	20	13	10	60	12	38	2	31

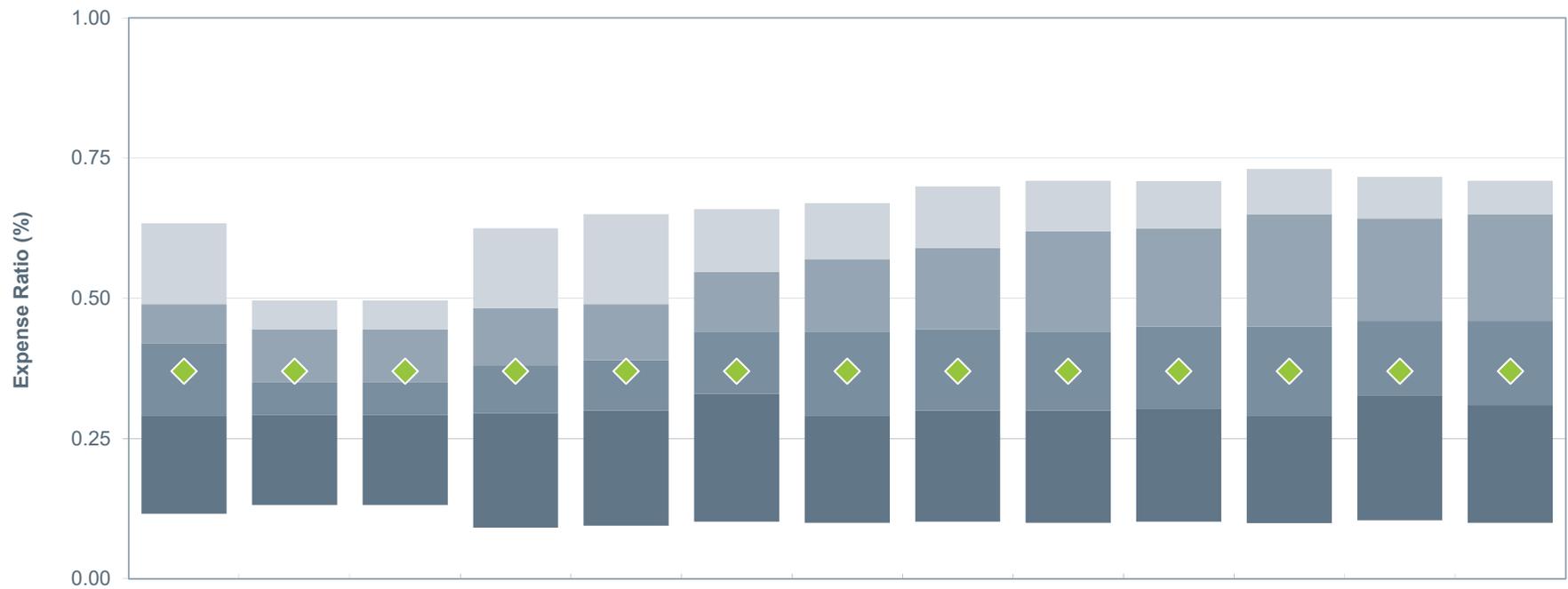
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Montana Public Employee Retirement Administration 401(a) & 457(b) Plans
Comparative Performance

As of December 31, 2021

	QTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Tier III: Actively Managed Investment Options Continued												
Neuberger Hi Inc B;Inst (NHILX)	0.58	4.56	4.56	8.21	5.47	5.13	5.91	6.41	13.90	-2.35	5.48	14.16
ICE BofAML US Hi Yld Master II Cnst Index	0.62	5.33	5.33	8.53	6.07	6.01	6.71	6.07	14.41	-2.27	7.48	17.49
Difference	-0.04	-0.77	-0.77	-0.32	-0.60	-0.88	-0.80	0.34	-0.51	-0.08	-2.00	-3.33
IM U.S. High Yield Bonds (MF) Median	0.55	4.71	4.71	7.78	5.28	4.97	5.82	5.28	13.51	-2.91	6.65	13.52
Rank	46	54	54	35	42	43	45	27	43	33	81	41
Stable Value												
State of Montana Stable Value (SA) (BV) (Net)	0.47	1.87	1.87	2.30	2.36	2.31	2.36	2.43	2.60	2.53	2.37	2.33
3 Year Constant Maturity Treasury Index	0.20	0.46	0.46	0.94	1.40	1.29	1.09	0.43	1.94	2.63	1.58	1.00
Difference	0.27	1.41	1.41	1.36	0.96	1.02	1.27	2.00	0.66	-0.10	0.79	1.33
Morningstar US CIT Stable Val Index	0.42	1.76	1.76	2.17	2.14	2.04	2.00	2.24	2.51	2.23	1.96	1.79
Difference	0.05	0.11	0.11	0.13	0.22	0.27	0.36	0.19	0.09	0.30	0.41	0.54
State of Montana Stable Value (SA) (MV) (Gross)	-0.70	-1.64	-1.64	4.09	3.07	2.68	2.45	7.17	6.98	0.59	2.55	2.34
Bloomberg US Gov't Crdt Int Trm Bond Index	-0.57	-1.44	-1.44	3.86	2.91	2.53	2.38	6.43	6.80	0.88	2.14	2.08
Difference	-0.13	-0.20	-0.20	0.23	0.16	0.15	0.07	0.74	0.18	-0.29	0.41	0.26

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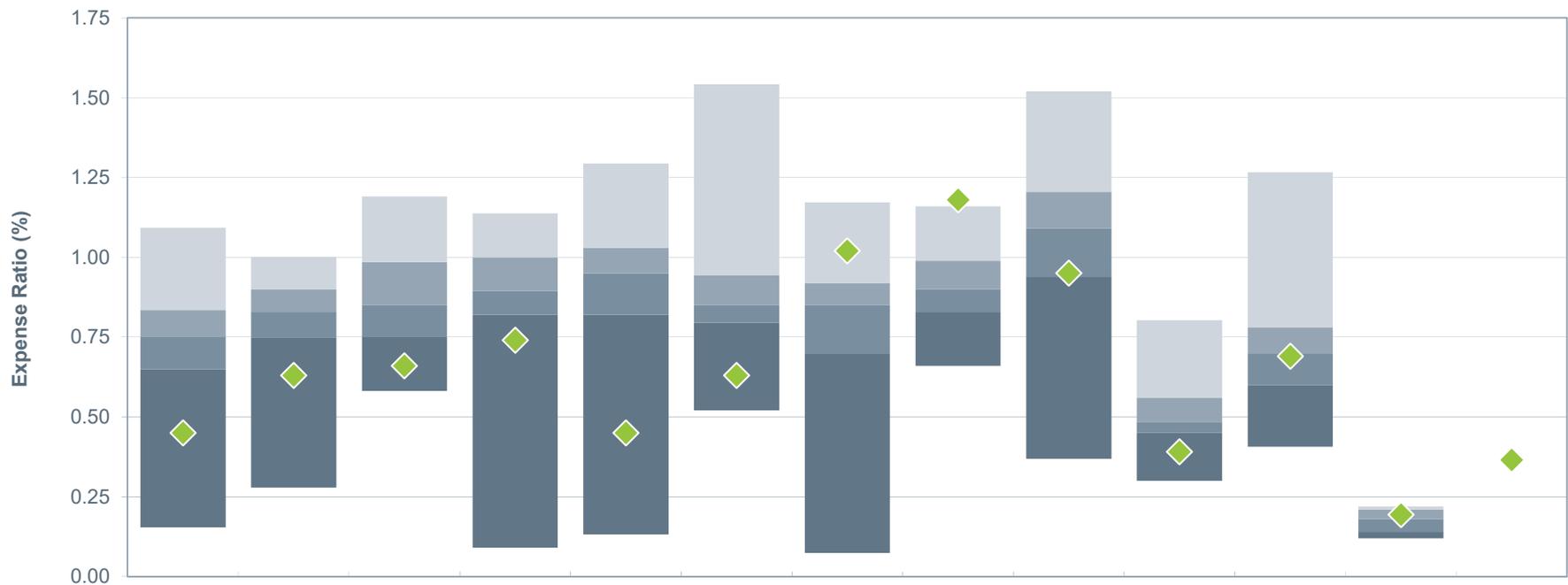


Fund	T Rowe Price Ret Bal Trust F (CF)	T Rowe Price Ret 2005 Trust F (CF)	T Rowe Price Ret 2010 Trust F (CF)	T Rowe Price Ret 2015 Trust F (CF)	T Rowe Price Ret 2020 Trust F (CF)	T Rowe Price Ret 2025 Trust F (CF)	T Rowe Price Ret 2030 Trust F (CF)	T Rowe Price Ret 2035 Trust F (CF)	T Rowe Price Ret 2040 Trust F (CF)	T Rowe Price Ret 2045 Trust F (CF)	T Rowe Price Ret 2050 Trust F (CF)	T Rowe Price Ret 2055 Trust F (CF)	T Rowe Price Ret 2060 Trust F (CF)
Peer Group	Mixed-Asset Target Today (MF)	Mixed-Asset Target 2010 (MF)	Mixed-Asset Target 2010 (MF)	Mixed-Asset Target 2015 (MF)	Mixed-Asset Target 2020 (MF)	Mixed-Asset Target 2025 (MF)	Mixed-Asset Target 2030 (MF)	Mixed-Asset Target 2035 (MF)	Mixed-Asset Target 2040 (MF)	Mixed-Asset Target 2045 (MF)	Mixed-Asset Target 2050 (MF)	Mixed-Asset Target 2055 (MF)	Mixed-Asset Target 2060+ (MF)
◆ Fund Expense Ratio	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Median Expense Ratio	0.42	0.35	0.35	0.38	0.39	0.44	0.44	0.45	0.44	0.45	0.45	0.46	0.46
Percentile Rank	40	56	56	44	34	32	32	30	30	29	31	28	30
Population	29	28	28	24	31	42	41	42	41	42	40	44	62

Fund Expense Ratios are intuitively ranked (i.e., a lower expense ratio yields a better percentile rank than a higher expense ratio). The fee peer groups consist of only institutional share classes.



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The fee peer groups consist of only institutional share classes.



Fund	Fidelity Contrafund K6 (FLCNX)	MFS Mid Cap Value;R6 (MVCKX)	Jns Hdsn: Enterprise;N (JDMNX)	Neuberger Genesis;R6 (NRGSX)	BlackRock: Adv SC Cr;K (BDSKX)	Dodge & Cox Intl Stock (DODFX)	Oakmark Internatl;Inv (OAKIX)	Artisan: Internatl;Inv (ARTIX)	Invesco Dev Mkt;Y (ODVYX)	PGIM Tot Rtn Bond;R6 (PTRQX)	Neuberger Hi Inc B;Inst (NHILX)	State of Montana Stable Value (SA)	State of Montana Stable Value (SA)*
Peer Group	U.S. Large Cap Growth Equity (MF)	U.S. Mid Cap Value Equity (MF)	U.S. Mid Cap Growth Equity (MF)	U.S. SMID Cap Growth Equity (MF)	U.S. Small Cap Core Equity (MF)	ACWI Ex US Value (MF)	EAFE Core (MF)	ACWI Ex US Growth (MF)	Emerging Markets Equity (MF)	U.S. Broad Market Core+ Fixed Income (MF)	U.S. High Yield Bonds (MF)	eA US Stable Value Fixed Income	
Fund Expense Ratio	0.45	0.63	0.66	0.74	0.45	0.63	1.02	1.18	0.95	0.39	0.69	0.19	0.37
Median Expense Ratio	0.75	0.83	0.85	0.90	0.95	0.85	0.85	0.90	1.09	0.49	0.70	0.18	N/A
Percentile Rank	10	18	15	14	13	13	90	96	26	14	44	67	N/A
Population	155	40	103	62	189	15	85	41	227	78	175	26	N/A

Fund Expense Ratios are intuitively ranked (i.e., a lower expense ratio yields a better percentile rank than a higher expense ratio).

The fee peer groups consist of only institutional share classes.

The State of Montana Stable Value (SA)* fee shown represents total fees and is comprised of 0.194% Investment Management Fees, 0.151% Wrap Fees, 0.007% Acquired Fund Fees, and 0.012% Custody Fees.

Montana Public Employee Retirement Administration 401(a) Plan
Actual Correlation Matrix

7 Years Ending December 31, 2021

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
A	1.00																			
B	0.95	1.00																		
C	0.99	0.95	1.00																	
D	0.93	0.87	0.95	1.00																
E	0.98	0.94	0.99	0.92	1.00															
F	0.93	0.94	0.92	0.78	0.94	1.00														
G	0.97	0.92	0.96	0.93	0.95	0.88	1.00													
H	0.92	0.86	0.92	0.95	0.91	0.77	0.97	1.00												
I	0.94	0.90	0.93	0.90	0.92	0.86	0.97	0.94	1.00											
J	0.92	0.87	0.91	0.89	0.90	0.81	0.97	0.96	0.95	1.00										
K	0.92	0.88	0.88	0.81	0.89	0.86	0.94	0.88	0.94	0.97	1.00									
L	0.88	0.83	0.86	0.84	0.86	0.77	0.93	0.92	0.91	0.98	0.95	1.00								
M	0.88	0.93	0.87	0.87	0.85	0.79	0.88	0.87	0.85	0.84	0.80	0.80	1.00							
N	0.82	0.87	0.82	0.84	0.81	0.72	0.85	0.86	0.82	0.84	0.76	0.82	0.94	1.00						
O	0.78	0.85	0.75	0.73	0.74	0.75	0.77	0.73	0.73	0.74	0.73	0.70	0.91	0.83	1.00					
P	0.45	0.41	0.32	0.28	0.29	0.34	0.39	0.33	0.41	0.34	0.39	0.29	0.42	0.34	0.41	1.00				
Q	0.12	0.07	-0.03	-0.08	-0.03	0.08	0.00	-0.09	0.04	-0.06	0.04	-0.11	0.04	-0.07	0.10	0.83	1.00			
R	0.78	0.76	0.74	0.74	0.72	0.65	0.81	0.80	0.80	0.79	0.76	0.74	0.81	0.77	0.71	0.61	0.18	1.00		
S	-0.11	-0.13	-0.14	-0.16	-0.14	-0.11	-0.15	-0.18	-0.10	-0.14	-0.08	-0.12	-0.13	-0.13	-0.06	0.11	0.16	0.00	1.00	

A	=	Vanguard Bal Idx;Inst (VBAIX)	P	=	PGIM Tot Rtn Bond;R6 (PTRQX)
B	=	American Funds NPer;R6 (RNPGX)	Q	=	Vanguard Tot Bd;Adm (VBTLX)
C	=	BlackRock Eq Idx F L (CF)	R	=	Neuberger Hi Inc B;Inst (NHILX)
D	=	Vanguard Equity Inc;Adm (VEIRX)	S	=	State of Montana Stable Value (SA) (BV)
E	=	JPMorgan:US Eq;R6 (JUEMX)			
F	=	Alger:Capital Apprec;Z (ACAZX)			
G	=	Vanguard Md-Cp I;Adm (VIMAX)			
H	=	MFS Mid Cap Value;R6 (MVCKX)			
I	=	Jns Hndsn:Enterprise;N (JDMNX)			
J	=	Vanguard S-C Id;Inst (VSCIX)			
K	=	Vanguard SC G Id;Ins (VSGIX)			
L	=	BlackRockAdv SC Cr;K (BDSKX)			
M	=	Vanguard Tot I S;Adm (VTIAX)			
N	=	Oakmark Internat;Inv (OAKIX)			
O	=	Invesco Dev Mkt;Y (ODVYX)			

Color Legend

	Correlation between 1.00 and 0.90
	Correlation between 0.90 and 0.80
	Correlation between 0.80 and 0.70
	Correlation between 0.70 and 0.00
	Correlation less than 0.00

Calculation is based on monthly periodicity. Performance shown is net of fees. Funds with less history than the specified period will not appear on the chart.



Montana Public Employee Retirement Administration 457(b) Plan
Actual Correlation Matrix

10 Years Ending December 31, 2021

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	
A	1.00																				
B	0.95	1.00																			
C	0.98	0.94	1.00																		
D	0.93	0.86	0.95	1.00																	
E	0.95	0.90	0.97	0.93	1.00																
F	0.93	0.94	0.94	0.81	0.89	1.00															
G	0.97	0.92	0.96	0.92	0.93	0.89	1.00														
H	0.92	0.86	0.93	0.94	0.91	0.81	0.97	1.00													
I	0.93	0.90	0.92	0.88	0.89	0.87	0.97	0.93	1.00												
J	0.90	0.82	0.89	0.85	0.89	0.82	0.93	0.92	0.91	1.00											
K	0.92	0.87	0.90	0.88	0.87	0.83	0.97	0.96	0.95	0.95	1.00										
L	0.91	0.87	0.88	0.80	0.84	0.86	0.94	0.88	0.93	0.94	0.97	1.00									
M	0.86	0.92	0.85	0.84	0.80	0.79	0.86	0.84	0.82	0.74	0.82	0.78	1.00								
N	0.82	0.88	0.83	0.84	0.78	0.74	0.85	0.85	0.80	0.73	0.81	0.75	0.96	1.00							
O	0.86	0.93	0.86	0.83	0.84	0.84	0.85	0.81	0.83	0.74	0.78	0.77	0.93	0.89	1.00						
P	0.77	0.85	0.75	0.72	0.70	0.73	0.76	0.73	0.72	0.66	0.73	0.72	0.92	0.86	0.84	1.00					
Q	0.46	0.41	0.32	0.28	0.33	0.34	0.39	0.32	0.39	0.26	0.33	0.36	0.44	0.35	0.44	0.43	1.00				
R	0.78	0.75	0.73	0.72	0.70	0.67	0.79	0.78	0.76	0.69	0.76	0.74	0.80	0.77	0.75	0.71	0.64	1.00			
S	0.13	0.07	-0.02	-0.07	0.01	0.06	0.01	-0.08	0.03	-0.07	-0.05	0.02	0.06	-0.06	0.10	0.11	0.84	0.24	1.00		
T	-0.03	-0.01	-0.04	-0.08	-0.05	-0.02	-0.05	-0.07	-0.01	-0.06	-0.03	0.02	-0.01	-0.02	0.07	0.05	0.10	0.07	0.07	1.00	

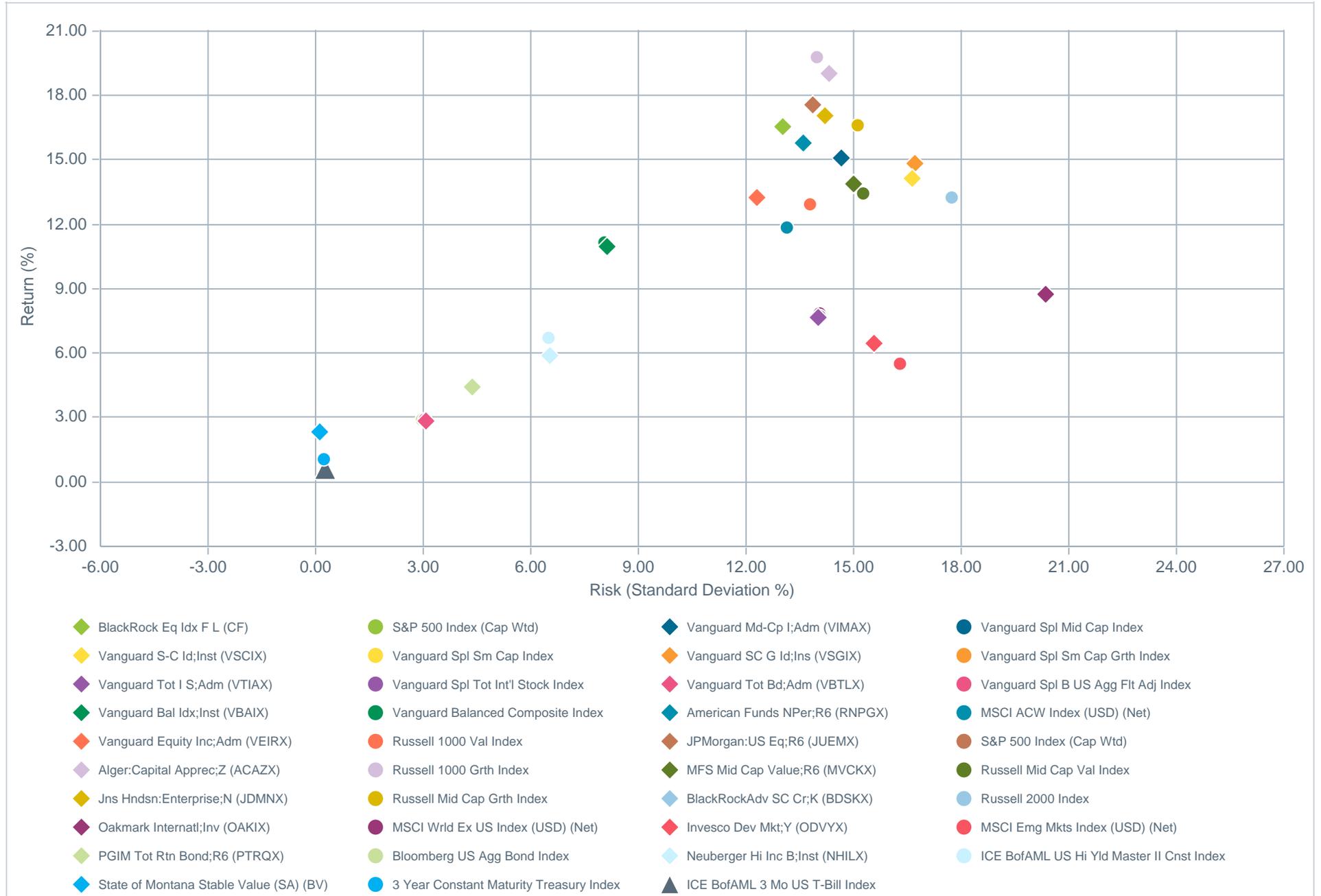
A	=	Vanguard Bal Idx;Inst (VBAIX)	P	=	Invesco Dev Mkt;Y (ODVYX)
B	=	American Funds NPer;R6 (RNPGX)	Q	=	PGIM Tot Rtn Bond;R6 (PTRQX)
C	=	Vanguard Instl Idx;Inst (VINIX)	R	=	Neuberger Hi Inc B;Inst (NHILX)
D	=	Vanguard Equity Inc;Adm (VEIRX)	S	=	Vanguard Tot Bd;Adm (VBTLX)
E	=	Parnassus:Core Eqty;Inst (PRILX)	T	=	State of Montana Stable Value (SA) (BV)
F	=	Fidelity Contrafund K6 (FLCNX)			
G	=	Vanguard Md-Cp I;Adm (VIMAX)			
H	=	MFS Mid Cap Value;R6 (MVCKX)			
I	=	Jns Hndsn:Enterprise;N (JDMNX)			
J	=	Neuberger Genesis;R6 (NRGSX)			
K	=	Vanguard S-C Id;Inst (VSCIX)			
L	=	Vanguard SC G Id;Ins (VSGIX)			
M	=	Vanguard Tot I S;Adm (VTIAX)			
N	=	Dodge & Cox Intl Stock (DODFX)			
O	=	Artisan:Internat;Inv (ARTIX)			

Color Legend

	Correlation between 1.00 and 0.90
	Correlation between 0.90 and 0.80
	Correlation between 0.80 and 0.70
	Correlation between 0.70 and 0.00
	Correlation less than 0.00

Calculation is based on monthly periodicity. Performance shown is net of fees. Funds with less history than the specified period will not appear on the chart.





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Performance shown is net of fees. Calculation is based on monthly periodicity. This is a return based calculation. BlackRock:Adv SC Cr;K (BDSKX) does not have 10 years of data.

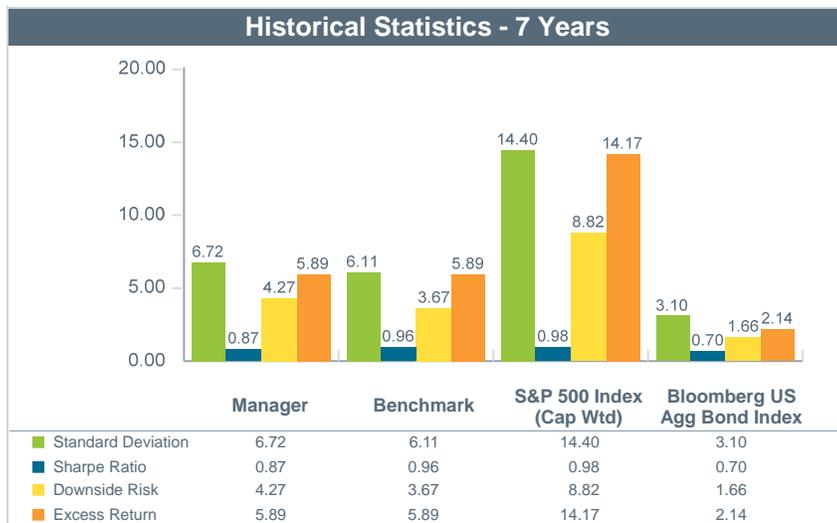
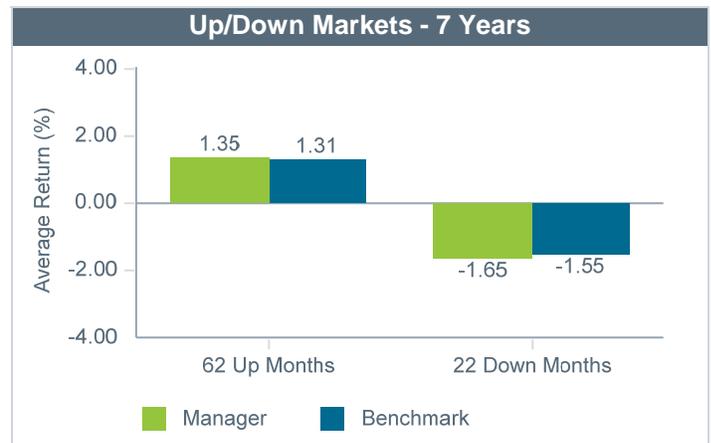
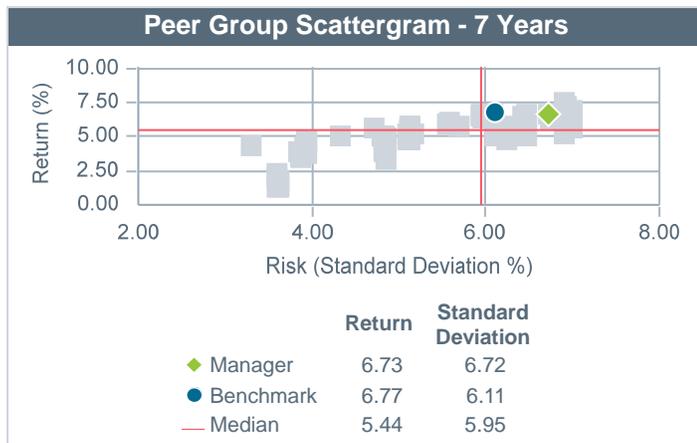


Performance shown is net of fees. Calculation is based on monthly periodicity. This is a return based calculation.

Investment Manager Profiles



Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	2.14	8.34	11.72	8.28	6.73	N/A	11.53	15.39	-3.24	10.32	6.62
Benchmark	3.05	8.47	11.78	8.37	6.77	6.99	11.69	15.27	-2.84	10.13	6.03
Difference	-0.91	-0.13	-0.06	-0.09	-0.04	N/A	-0.16	0.12	-0.40	0.19	0.59
Peer Group Median	2.20	6.06	9.61	6.92	5.44	5.63	9.49	13.31	-3.57	8.85	5.07
Rank	56	14	8	10	6	N/A	11	17	36	27	11
Population	157	153	140	115	87	66	154	173	164	160	152



Actual Correlation - 7 Years

Index	Actual Correlation
TRP Ret Bal Index	0.99
S&P 500 Index (Cap Wtd)	0.94
Russell 2000 Index	0.86
MSCI EAFE Index (USD) (Net)	0.91
MSCI Emg Mkts Index (USD) (Net)	0.82
Bloomberg US Agg Bond Index	0.18
Bloomberg US Trsy US TIPS Index	0.41
Wilshire US REIT Index	0.73
HFRI FOF Comp Index	0.89
Bloomberg Cmtdy Index (TR)	0.55
ICE BofAML 3 Mo US T-Bill Index	-0.24
Cons Price Index (Unadjusted)	0.09

Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Benchmark consists of 28% Russell 3000 Index, 12% MSCI ACW Ex US Index (USD) (Net), 30% Bloomberg US Agg Bond Index, and 30% Bloomberg US TIPS 1-5 Yr Index.



Product Profile

Management Style: Blend-Primarily Active
Average Passive Allocation: 8-14%
Inflation Focused Investments: Real Asset, TIPS, Equity
Tactical Asset Allocation: Discretionary
Underlying Funds Mgd By TDF Provider: 100%

To vs. Through Glide Path: Through
Equity Starting: 98%
Equity at Retirement: 55%
Equity Landing: 30%
Yrs Roll Down After Retirement: 30

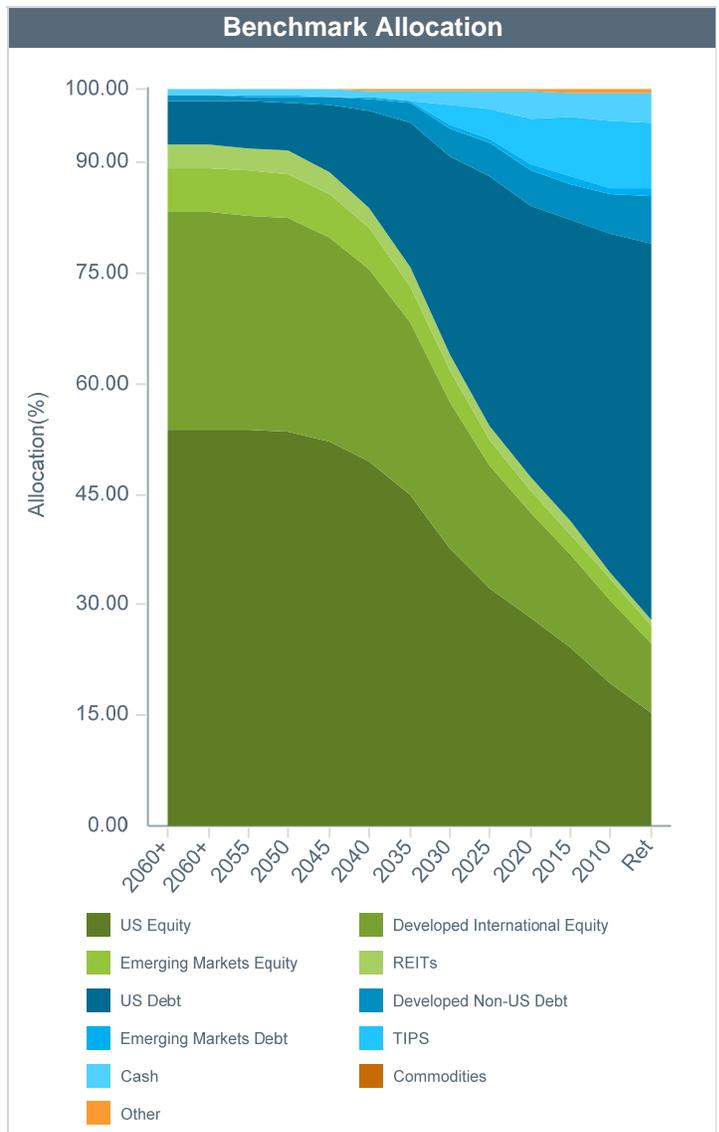
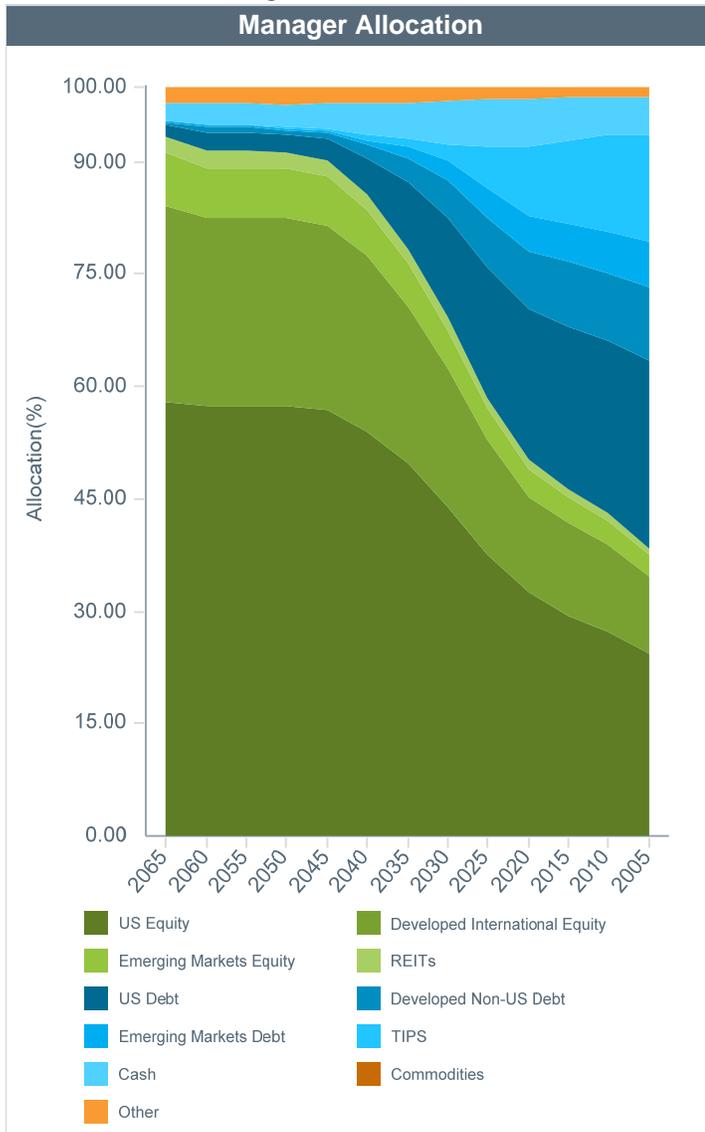
Risk & Return Scattergram - 5 Years



Up/Down Market Capture Ratio (%) vs. Relevant S&P Tgt Date Idx



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Funds with less history than the specified time period will not appear in the chart.

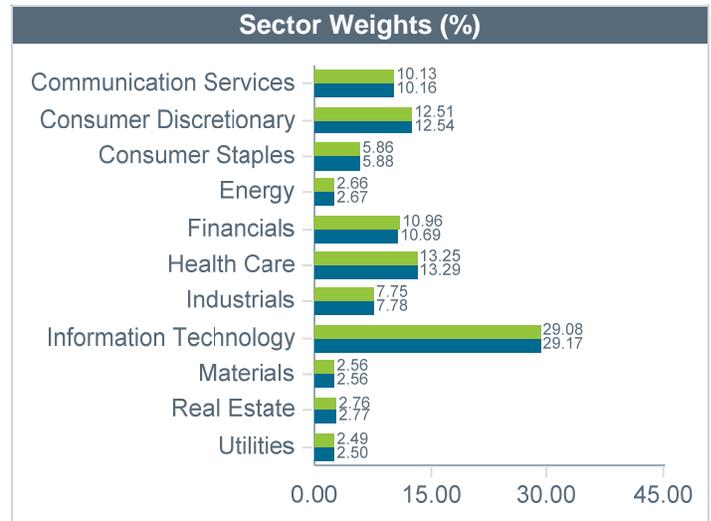
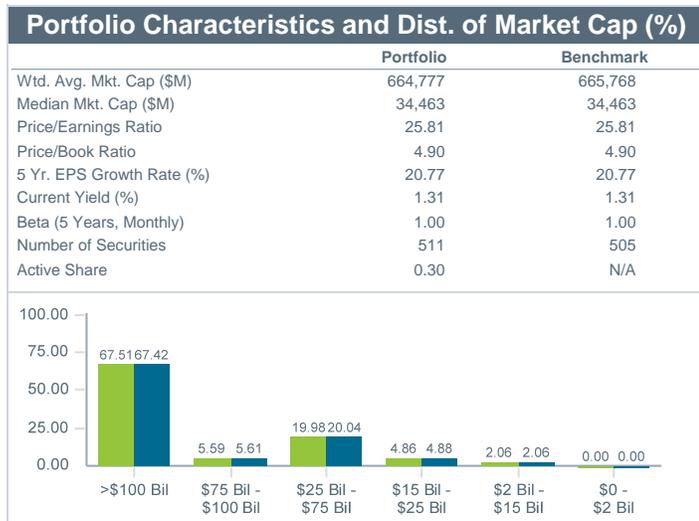
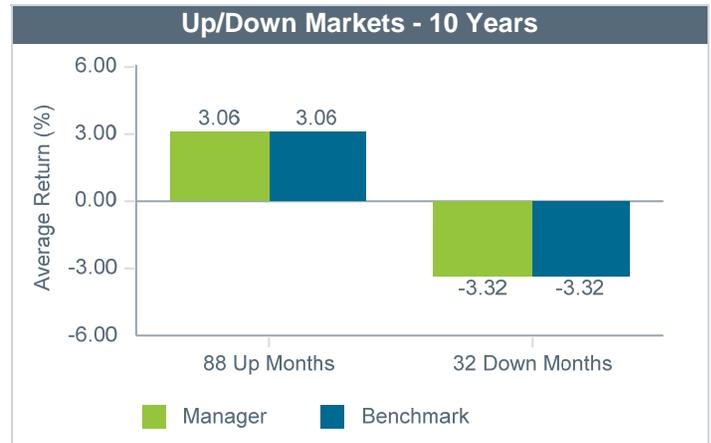
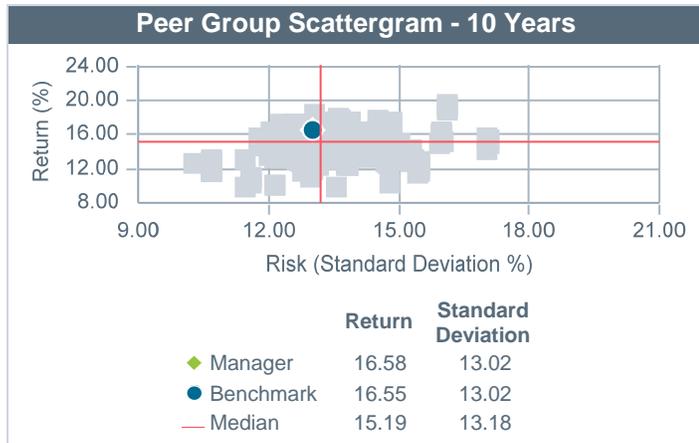


	2065	2060	2055	2050	2045	2040	2035	2030	2025	2020	2015	2010	2005
US Equity	58.01	57.38	57.40	57.43	56.84	54.10	49.74	44.03	37.58	32.57	29.32	27.20	24.32
Developed International Equity	26.16	25.23	25.25	25.04	24.69	23.32	21.01	18.46	15.27	12.77	12.56	11.67	10.43
Emerging Markets Equity	7.04	6.63	6.63	6.59	6.53	6.24	5.66	4.99	4.23	3.63	3.32	3.08	2.75
REITs	2.29	2.22	2.22	2.23	2.21	2.10	1.92	1.71	1.46	1.27	1.14	1.05	0.93
US Debt	1.35	2.37	2.37	2.25	2.81	4.76	8.96	13.30	17.26	20.00	21.68	23.12	24.98
Developed Non-US Debt	0.42	0.79	0.80	0.76	0.94	1.73	3.25	5.00	6.72	7.88	8.58	9.11	9.83
Emerging Markets Debt	0.12	0.25	0.25	0.23	0.29	0.71	1.59	2.67	3.89	4.72	5.16	5.55	6.06
TIPS	0.04	0.08	0.08	0.08	0.10	0.81	0.97	2.22	5.60	9.09	11.01	12.80	14.44
Cash	2.38	2.81	2.78	3.14	3.37	4.05	4.90	5.81	6.38	6.58	5.83	5.09	4.98
Commodities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	2.18	2.23	2.24	2.25	2.23	2.18	2.00	1.80	1.61	1.49	1.39	1.33	1.27
Total Equity	93.50	91.47	91.49	91.29	90.27	85.76	78.34	69.19	58.54	50.24	46.33	43.00	38.44
Difference From Benchmark	1.00	-1.03	-0.57	-0.33	1.57	1.82	2.54	5.24	4.26	2.80	5.02	8.52	10.48
Total Fixed Income	4.32	6.30	6.27	6.46	7.50	12.07	19.66	29.01	39.85	48.27	52.27	55.67	60.29
Difference From Benchmark	-3.09	-1.11	-1.57	-1.82	-3.68	-3.83	-4.30	-6.72	-5.49	-3.90	-6.00	-9.40	-11.24
Total Other	2.18	2.23	2.24	2.25	2.23	2.18	2.00	1.80	1.61	1.49	1.39	1.33	1.27
Difference From Benchmark	2.09	2.14	2.14	2.14	2.11	2.01	1.76	1.48	1.24	1.09	0.97	0.88	0.76

Allocations shown may not sum up to 100% exactly due to rounding. Allocation to "Other" contains unmapped securities or derivatives including swaps, options, forwards/futures, and T-Bills. Mutual fund allocations are used as a proxy for the commingled fund. The S&P Retirement Income Index is being used as a proxy benchmark for the 2005 fund.



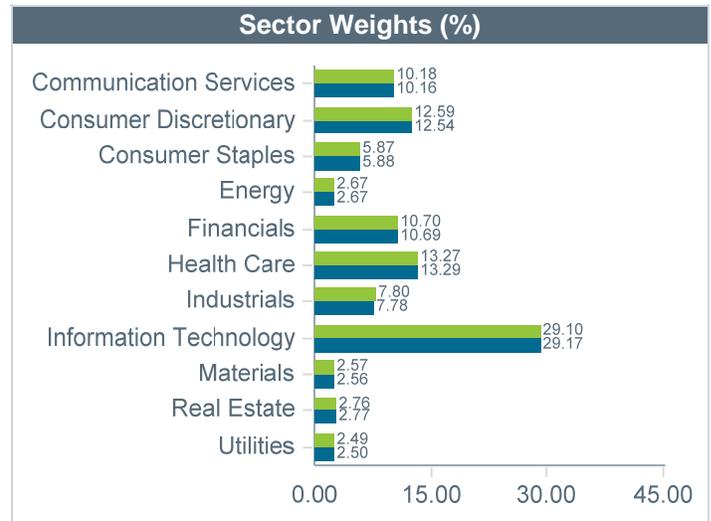
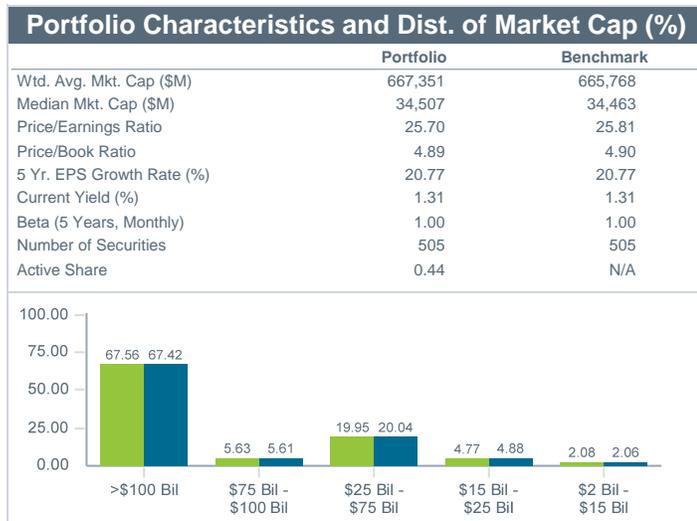
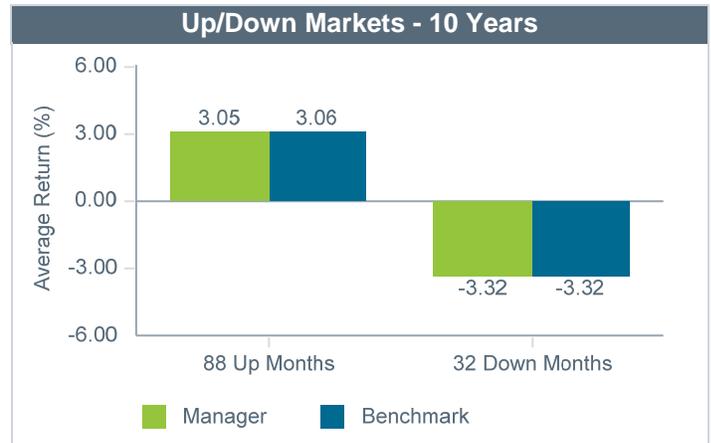
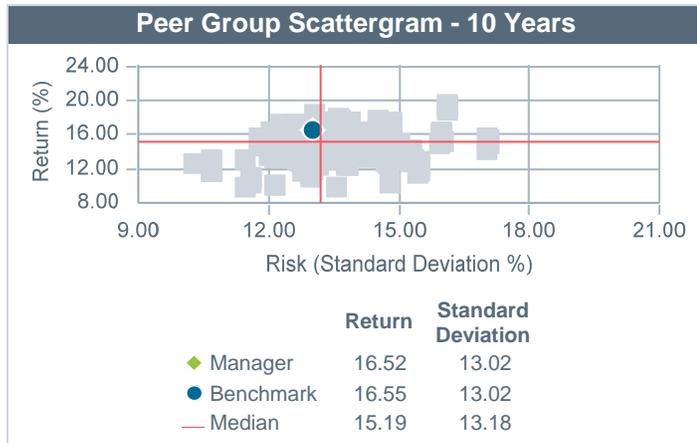
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	11.03	28.72	26.11	18.51	14.96	16.58	18.46	31.53	-4.36	21.85	11.97
Benchmark	11.03	28.71	26.07	18.47	14.93	16.55	18.40	31.49	-4.38	21.83	11.96
Difference	0.00	0.01	0.04	0.04	0.03	0.03	0.06	0.04	0.02	0.02	0.01
Peer Group Median	9.98	26.73	24.17	16.98	13.36	15.19	16.00	29.68	-5.61	21.17	10.06
Rank	26	24	26	24	13	13	39	29	30	38	26
Population	810	773	682	592	519	459	743	733	710	672	634



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.



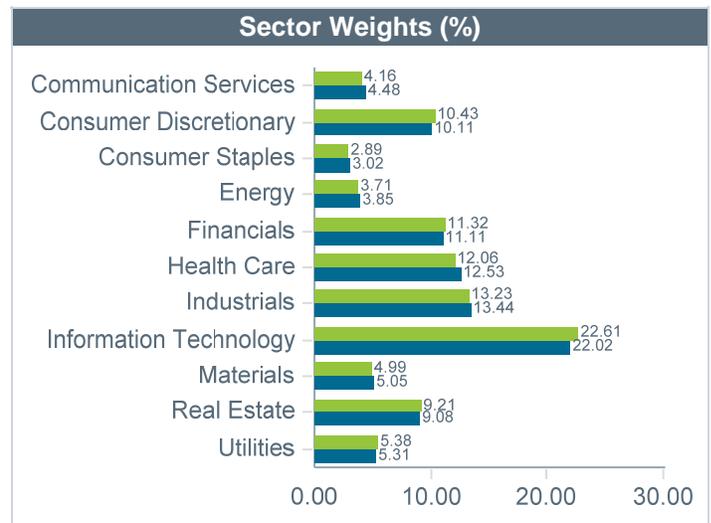
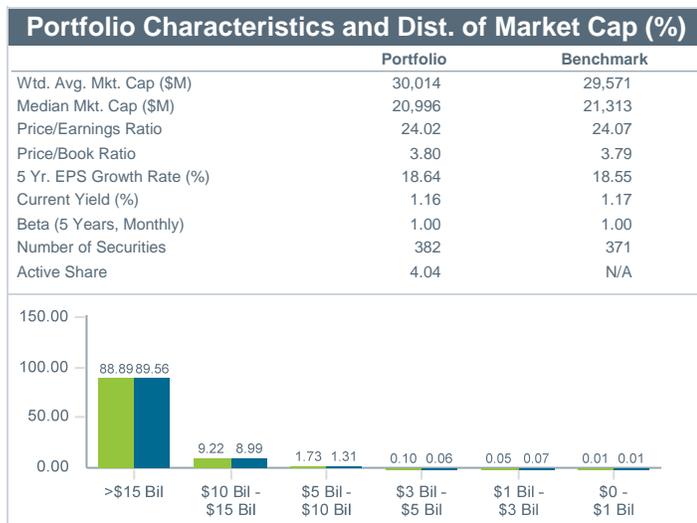
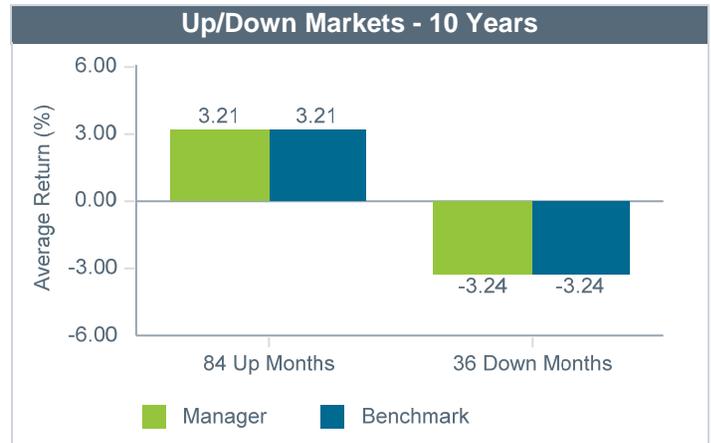
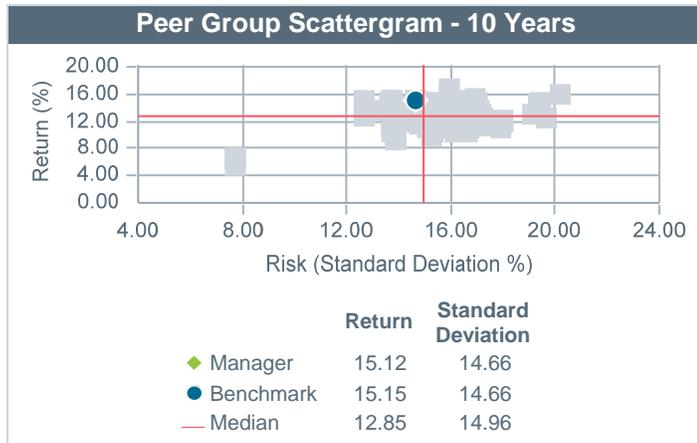
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	11.02	28.67	26.05	18.44	14.91	16.52	18.39	31.46	-4.42	21.79	11.93
Benchmark	11.03	28.71	26.07	18.47	14.93	16.55	18.40	31.49	-4.38	21.83	11.96
Difference	-0.01	-0.04	-0.02	-0.03	-0.02	-0.03	-0.01	-0.03	-0.04	-0.04	-0.03
Peer Group Median	9.98	26.73	24.17	16.98	13.36	15.19	16.00	29.68	-5.61	21.17	10.06
Rank	27	24	28	25	14	15	40	30	31	39	27
Population	810	773	682	592	519	459	743	733	710	672	634



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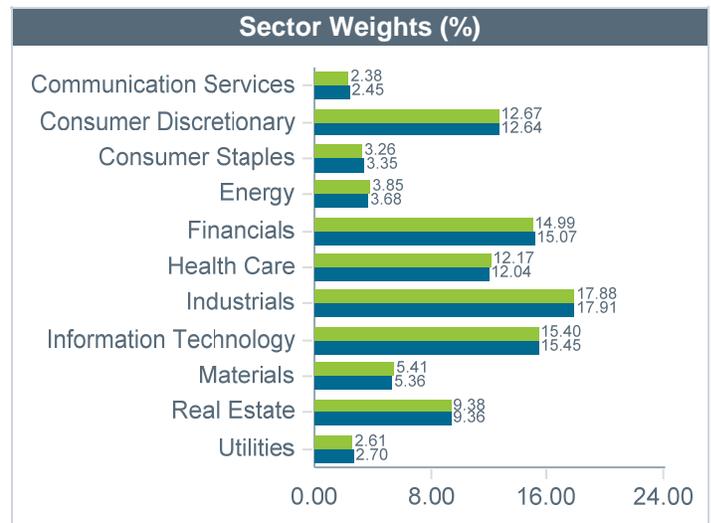
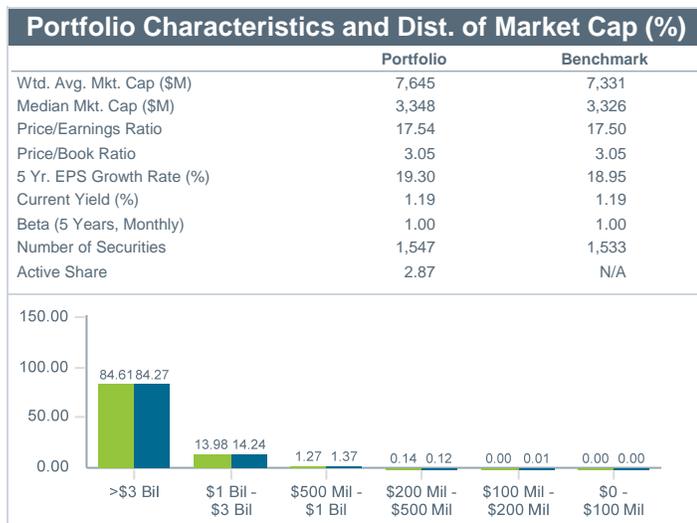
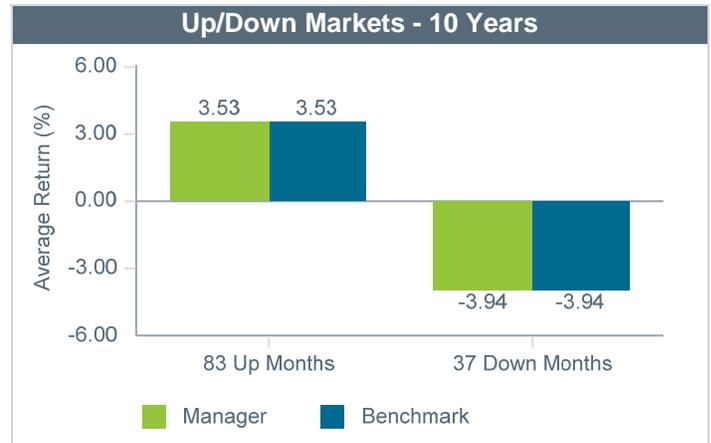
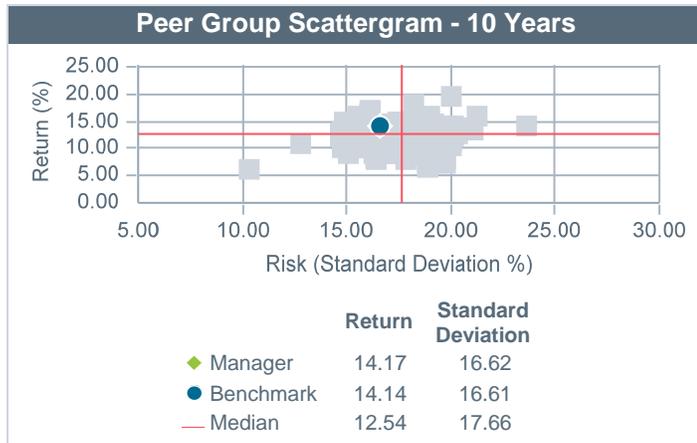
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	7.97	24.51	24.48	15.86	12.57	15.12	18.24	31.03	-9.23	19.25	11.22
Benchmark	7.98	24.52	24.51	15.89	12.60	15.15	18.24	31.09	-9.22	19.30	11.25
Difference	-0.01	-0.01	-0.03	-0.03	-0.03	-0.03	0.00	-0.06	-0.01	-0.05	-0.03
Peer Group Median	7.99	24.87	20.79	12.35	10.18	12.85	9.97	28.07	-11.52	15.44	14.23
Rank	52	54	12	7	12	5	19	20	23	19	75
Population	316	306	291	266	210	170	312	328	338	339	299



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Benchmark consists of S&P Mid Cap 400 Index (Cap Wtd) through 05/16/03; MSCI US Mid Cap 450 Index through 01/30/13; and CRSP US Mid Cap Index thereafter.



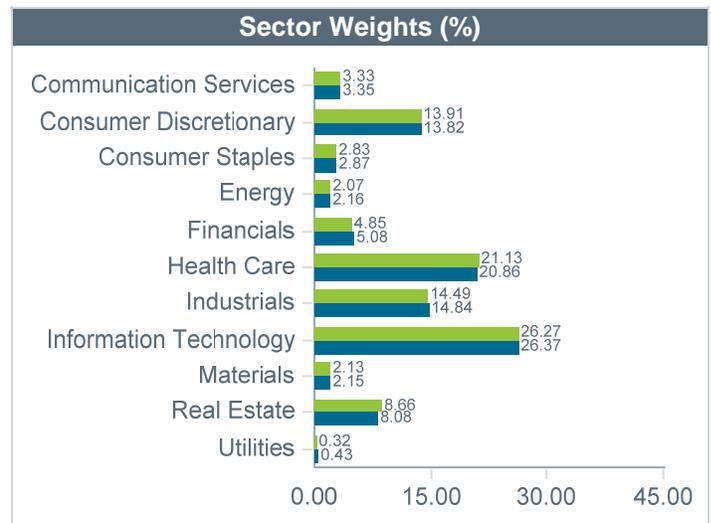
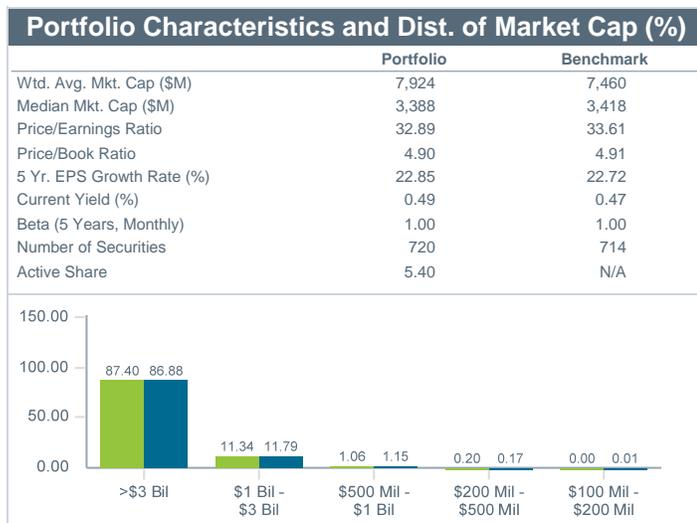
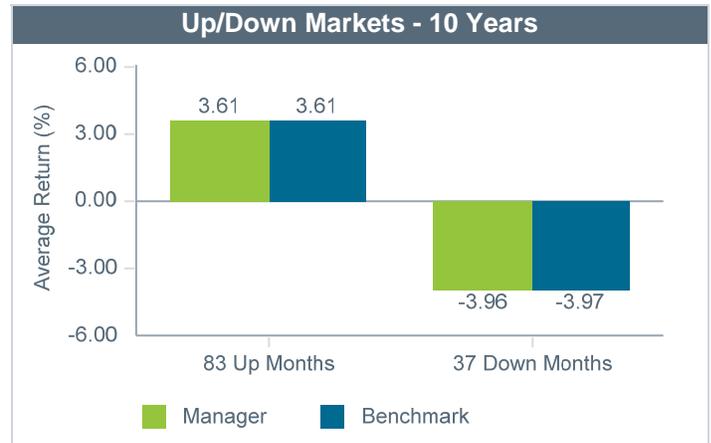
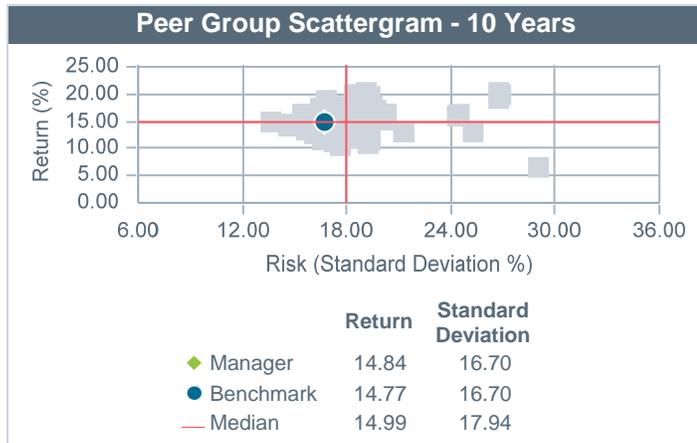
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	3.86	17.73	21.34	13.50	11.54	14.17	19.12	27.40	-9.32	16.25	18.32
Benchmark	3.87	17.71	21.31	13.47	11.50	14.14	19.07	27.35	-9.33	16.24	18.26
Difference	-0.01	0.02	0.03	0.03	0.04	0.03	0.05	0.05	0.01	0.01	0.06
Peer Group Median	5.89	24.55	19.55	10.97	10.12	12.54	10.36	23.89	-12.66	12.38	21.34
Rank	82	83	24	11	18	10	18	16	18	12	78
Population	754	739	704	636	533	430	759	778	816	812	743



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Benchmark consists of Russell 2000 Index through 05/16/03; MSCI US Sm Cap 1750 Index through 01/30/13; and CRSP US Sm Cap Index thereafter.



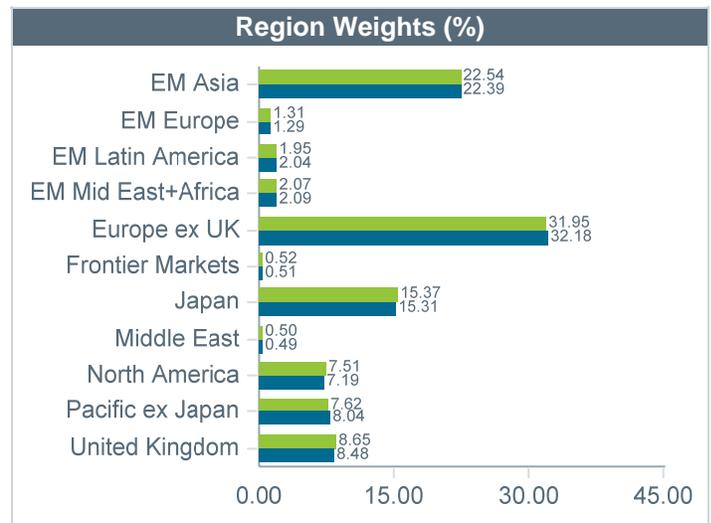
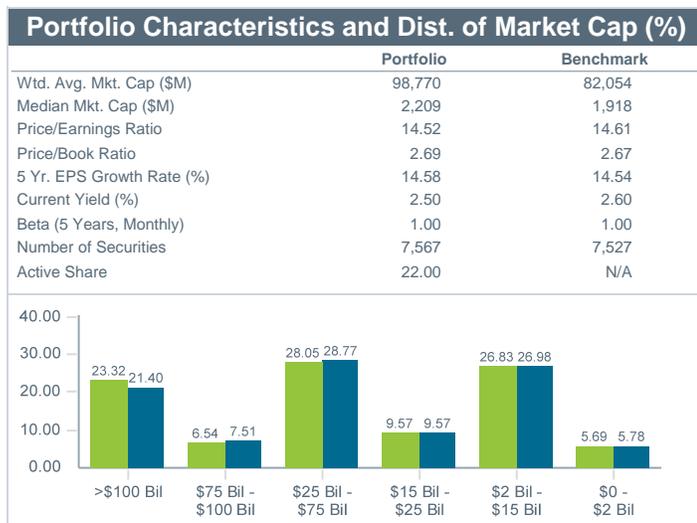
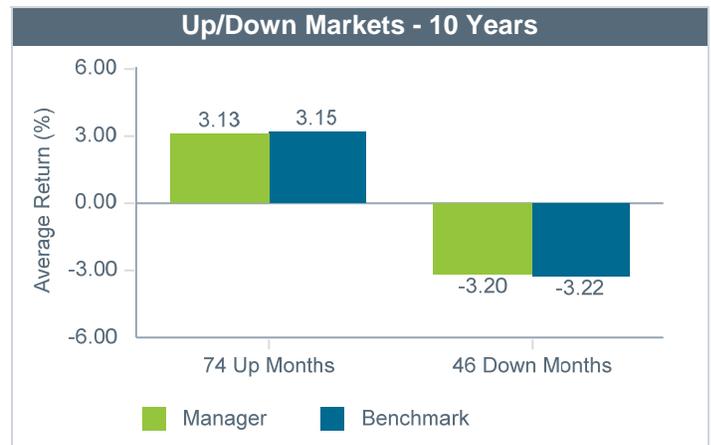
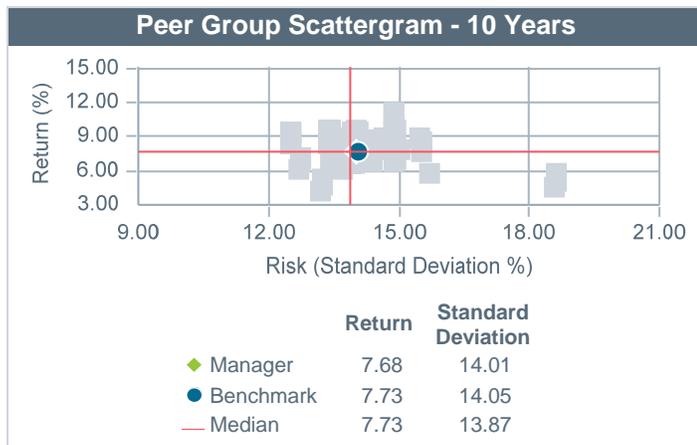
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	0.58	5.70	23.84	16.91	13.03	14.84	35.31	32.77	-5.69	21.94	10.74
Benchmark	0.61	5.71	23.84	16.91	13.00	14.77	35.35	32.75	-5.68	21.90	10.62
Difference	-0.03	-0.01	0.00	0.00	0.03	0.07	-0.04	0.02	-0.01	0.04	0.12
Peer Group Median	1.81	8.88	24.36	16.94	13.19	14.99	37.19	27.71	-5.12	20.69	9.82
Rank	60	62	54	51	54	55	57	33	57	43	45
Population	385	382	353	304	273	233	388	385	391	368	342



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Benchmark consists of S&P Sm Cap 600 Grth Index through 05/16/03; MSCI US Sm Cap Grth Index through 04/16/13; and CRSP US Sm Cap Grth Index thereafter.



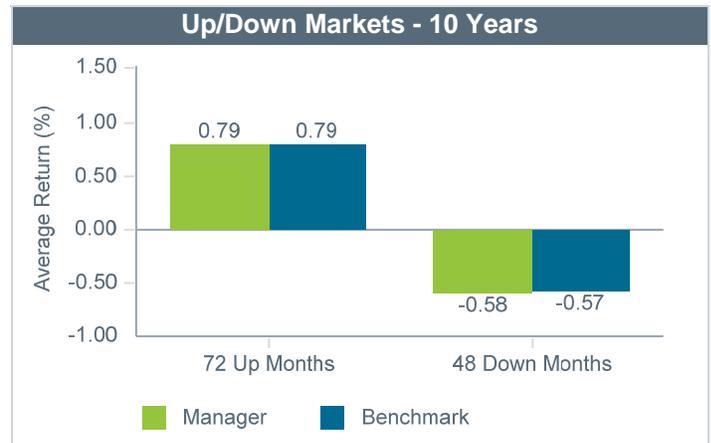
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	2.11	8.62	13.67	9.90	7.01	7.68	11.28	21.51	-14.43	27.55	4.67
Benchmark	1.76	8.83	13.82	9.92	7.02	7.73	11.24	21.80	-14.61	27.41	4.72
Difference	0.35	-0.21	-0.15	-0.02	-0.01	-0.05	0.04	-0.29	0.18	0.14	-0.05
Peer Group Median	2.36	8.98	14.54	10.11	6.81	7.73	13.60	22.84	-15.76	27.26	1.62
Rank	61	56	66	56	43	55	59	70	29	43	23
Population	174	169	169	169	135	126	180	190	193	204	202



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Benchmark consists of Tot Int'l Comp Idx (an asset-weighted blend of stocks in the MSCI Eur Idx (USD) (Net), MSCI Pac Idx (USD) (Net), and MSCI Emg Mkts Idx (USD) (Net)) through 08/31/06; MSCI EAFE + Emg Mkts Idx (USD) (Net) through 12/15/10; MSCI ACW Ex US IM Idx (USD) (Net) through 06/02/13; and FTSE Gbl All Cap Ex US Idx (USD) (Net) thereafter.

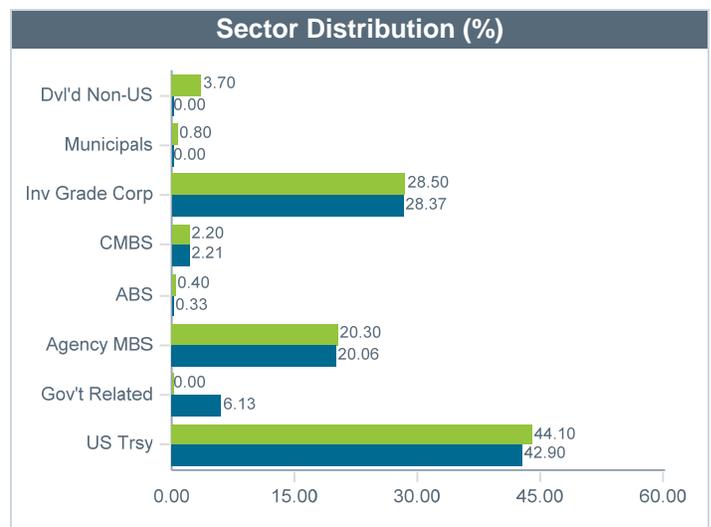


Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	-0.09	-1.67	4.82	3.58	2.98	2.86	7.72	8.71	-0.03	3.56	2.60
Benchmark	0.05	-1.58	4.91	3.64	3.05	2.94	7.75	8.87	-0.08	3.63	2.75
Difference	-0.14	-0.09	-0.09	-0.06	-0.07	-0.08	-0.03	-0.16	0.05	-0.07	-0.15
Peer Group Median	-0.14	-1.32	5.17	3.71	3.07	3.10	8.19	8.76	-0.63	3.59	2.86
Rank	42	66	70	59	57	66	65	53	20	53	63
Population	501	492	464	415	359	305	488	511	506	498	469



Portfolio Characteristics

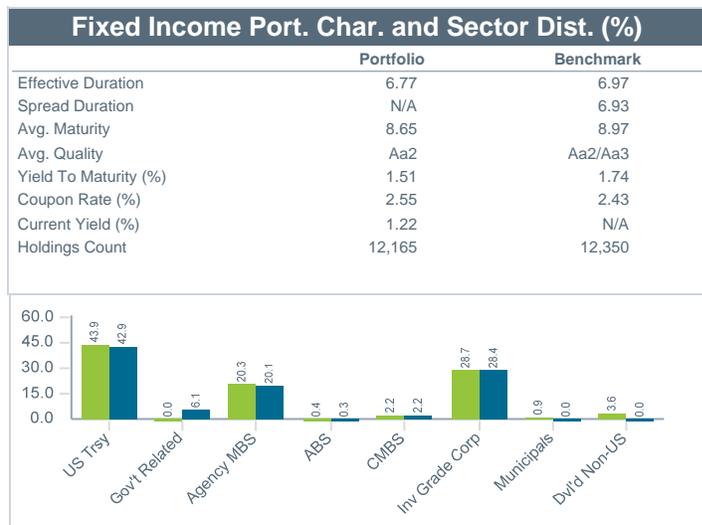
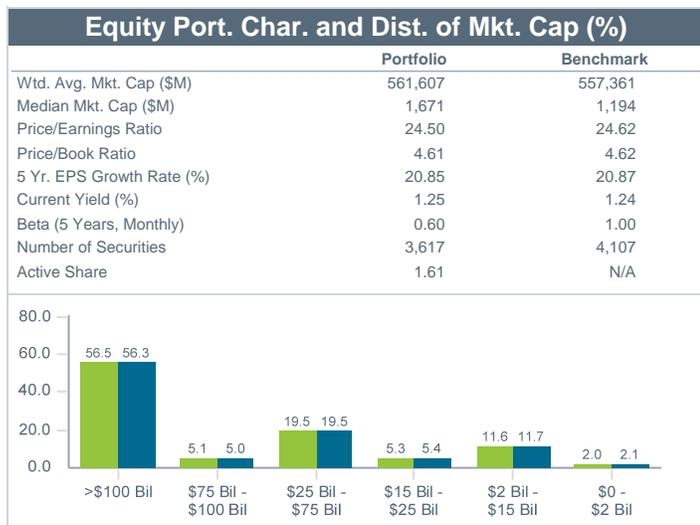
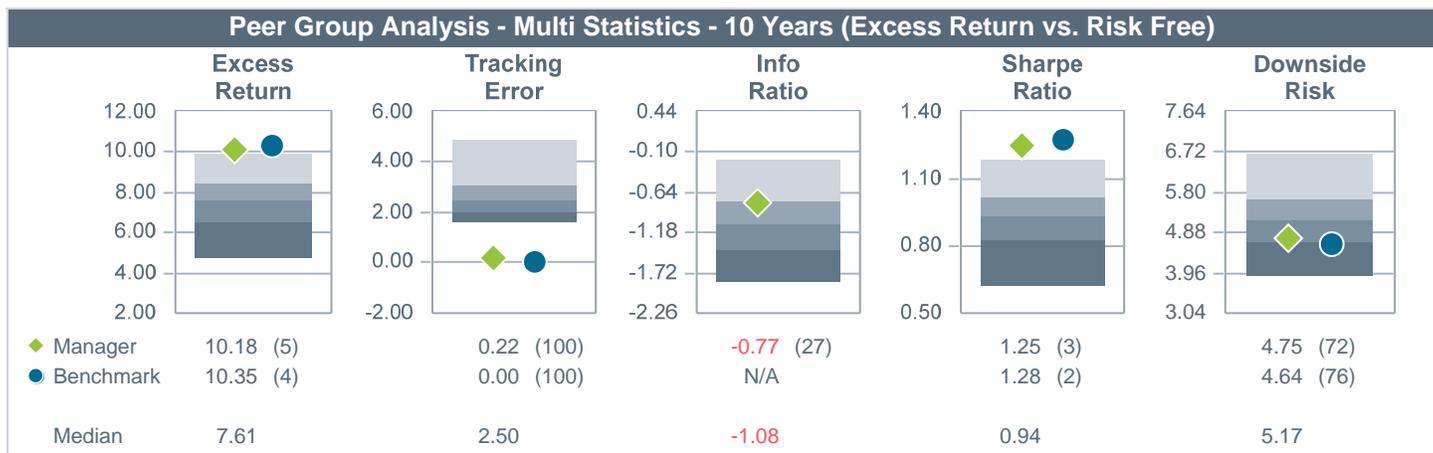
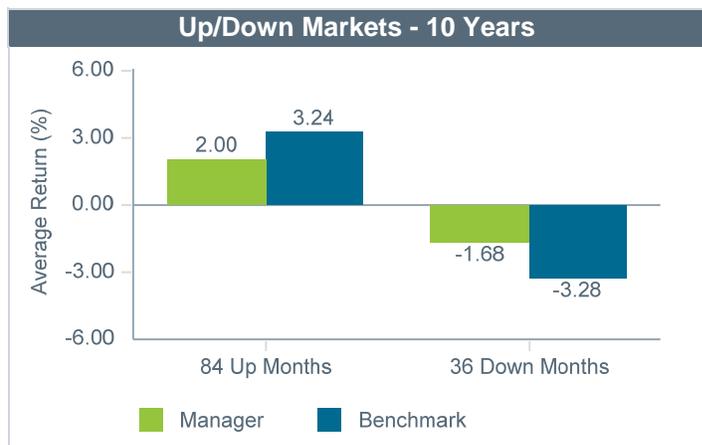
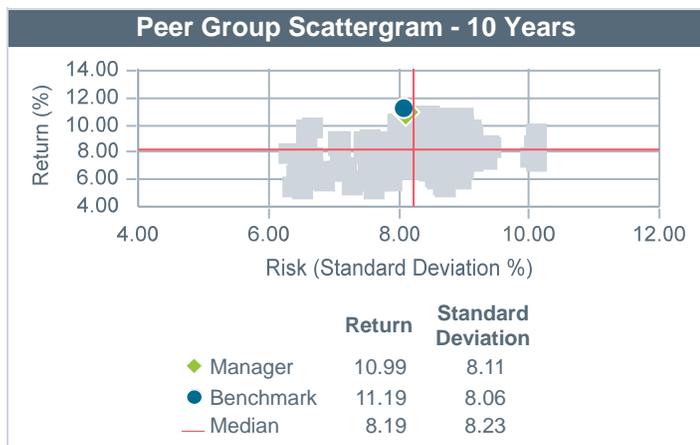
	Portfolio	Benchmark
Effective Duration	6.78	6.97
Spread Duration	N/A	6.93
Avg. Maturity	8.68	8.97
Avg. Quality	Aa2	Aa2/Aa3
Yield To Maturity (%)	1.52	1.74
Coupon Rate (%)	2.69	2.43
Current Yield (%)	1.32	N/A
Holdings Count	10,154	12,350



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Benchmark consists of Bloomberg US Agg Bond Index through 12/31/09; and Bloomberg US Agg Flt Adj Index thereafter.



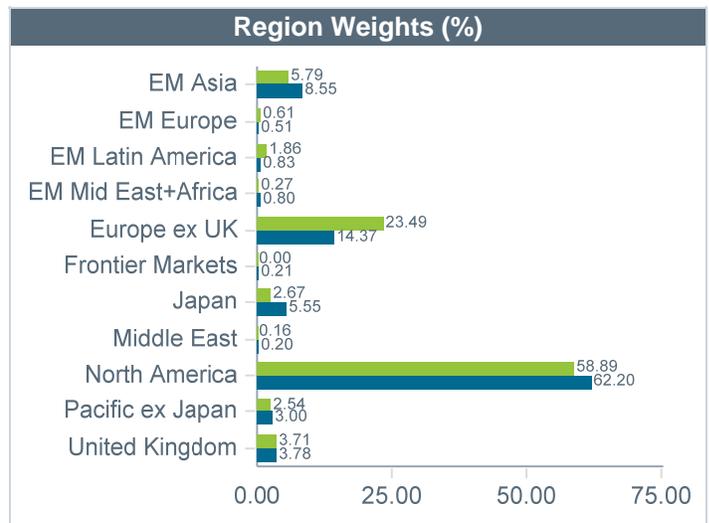
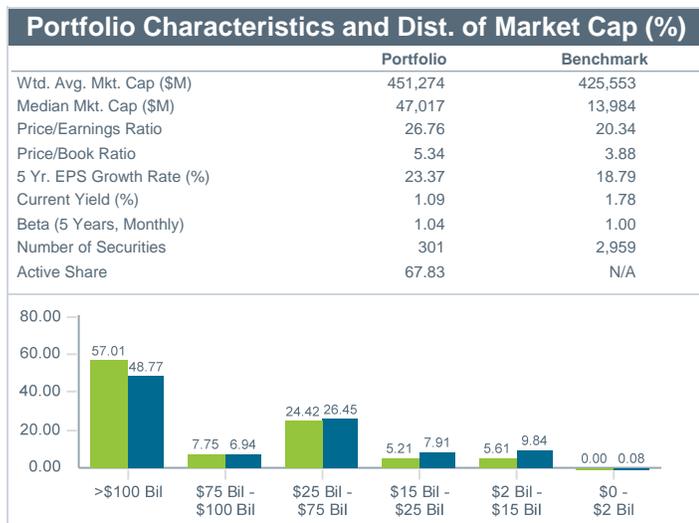
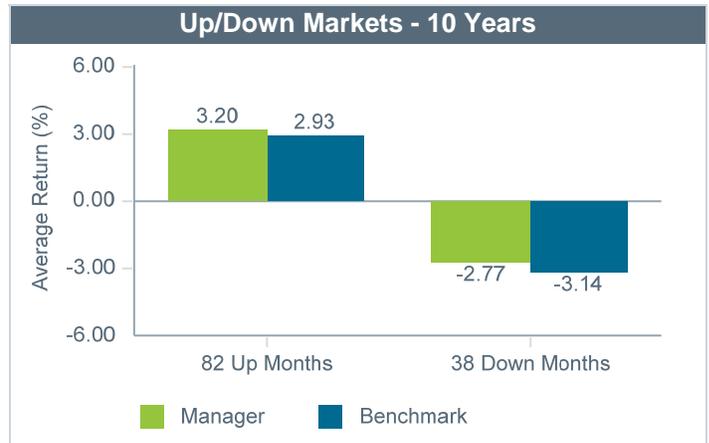
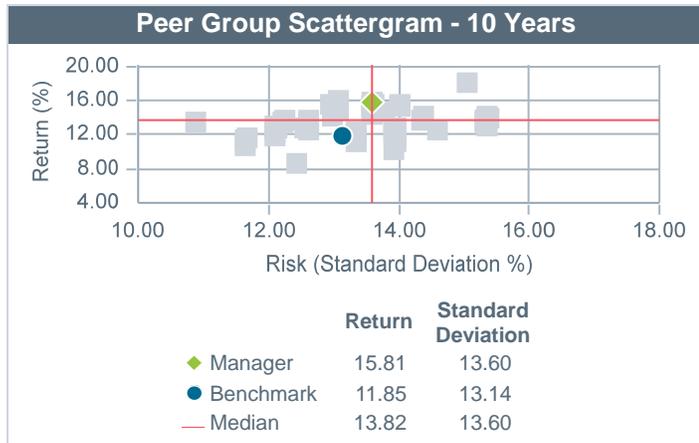
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	5.48	14.18	17.42	12.36	10.08	10.99	16.41	21.79	-2.82	13.86	8.81
Benchmark	5.50	14.28	17.79	12.60	10.30	11.19	17.35	21.87	-2.80	13.93	8.89
Difference	-0.02	-0.10	-0.37	-0.24	-0.22	-0.20	-0.94	-0.08	-0.02	-0.07	-0.08
Peer Group Median	3.72	11.27	12.99	9.02	7.11	8.19	10.74	17.84	-5.60	12.84	6.46
Rank	17	20	5	5	4	5	7	5	6	37	20
Population	608	592	552	494	446	370	581	589	590	552	535



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parenthesis contain percentile ranks. Benchmark consists of 60% DJ US TSM Index and 40% Bloomberg US Agg Bond Index through 05/31/05; 60% MSCI US Brd Mkt Index and 40% Bloomberg US Agg Bond Index through 12/31/09; 60% MSCI US Brd Mkt Index and 40% Bloomberg US Agg Fit Adj Index through 01/14/13; and 60% CRSP US Tot Mkt Index and 40% Bloomberg US Agg Fit Adj Index thereafter.

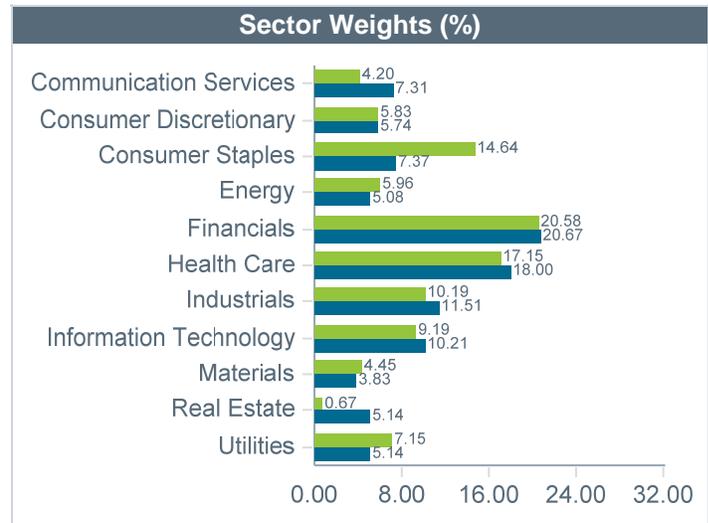
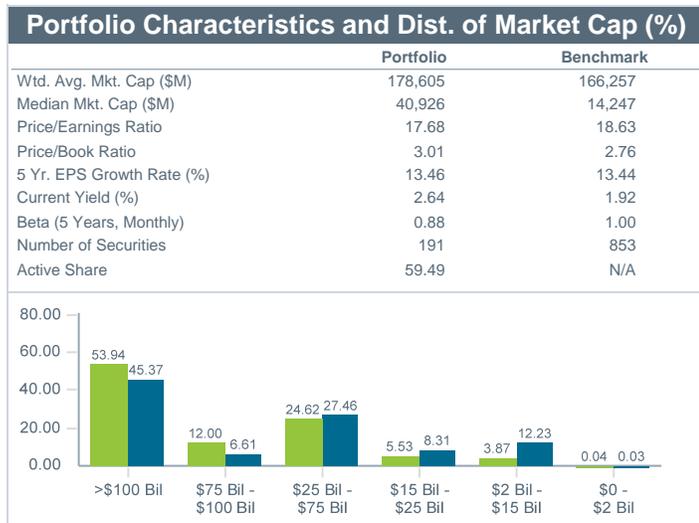
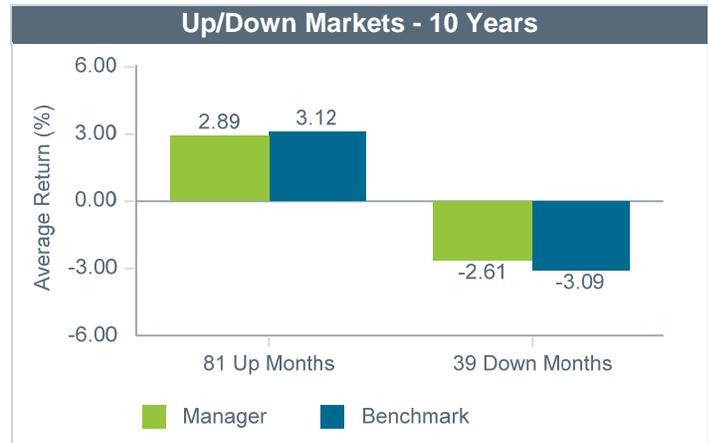
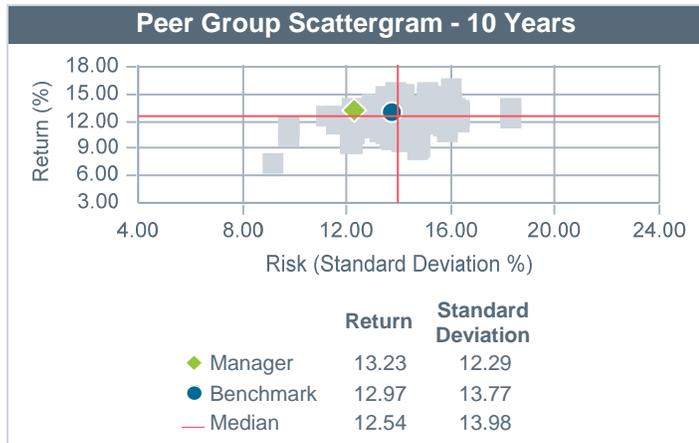


Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	6.72	18.10	27.28	20.28	15.35	15.81	33.81	30.48	-5.56	29.30	2.19
Benchmark	6.68	18.54	20.38	14.40	10.90	11.85	16.25	26.60	-9.42	23.97	7.86
Difference	0.04	-0.44	6.90	5.88	4.45	3.96	17.56	3.88	3.86	5.33	-5.67
Peer Group Median	6.15	16.55	23.56	17.42	13.04	13.82	26.23	30.03	-6.22	28.45	1.82
Rank	35	27	18	15	10	3	13	42	39	34	41
Population	190	187	147	128	112	69	167	149	145	133	128



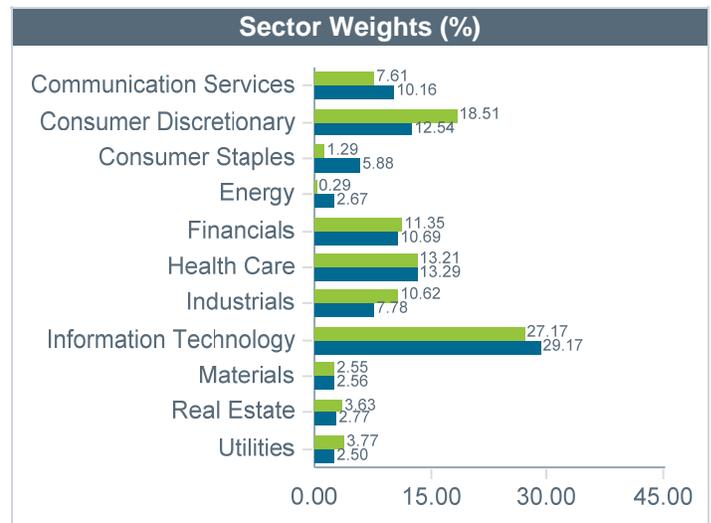
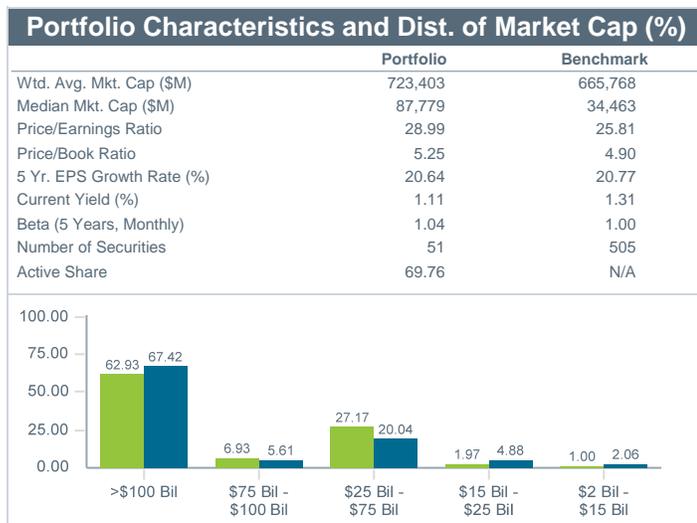
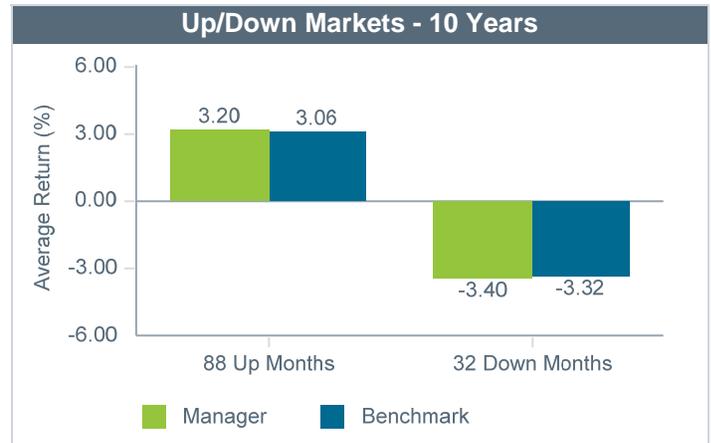
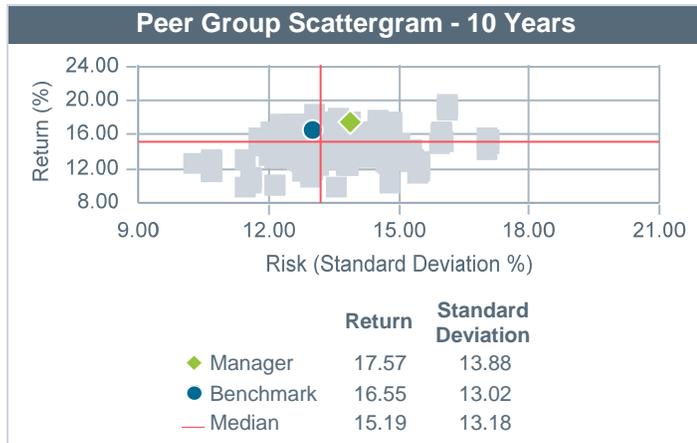
Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	8.70	25.65	17.54	12.67	11.20	13.23	3.12	25.35	-5.65	18.49	14.82
Benchmark	7.77	25.16	17.64	11.16	9.73	12.97	2.80	26.54	-8.27	13.66	17.34
Difference	0.93	0.49	-0.10	1.51	1.47	0.26	0.32	-1.19	2.62	4.83	-2.52
Peer Group Median	8.23	26.24	17.86	11.60	9.66	12.54	2.62	26.07	-9.06	16.29	13.82
Rank	30	58	57	22	11	23	44	62	15	23	38
Population	484	471	442	406	361	310	482	475	484	470	452



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

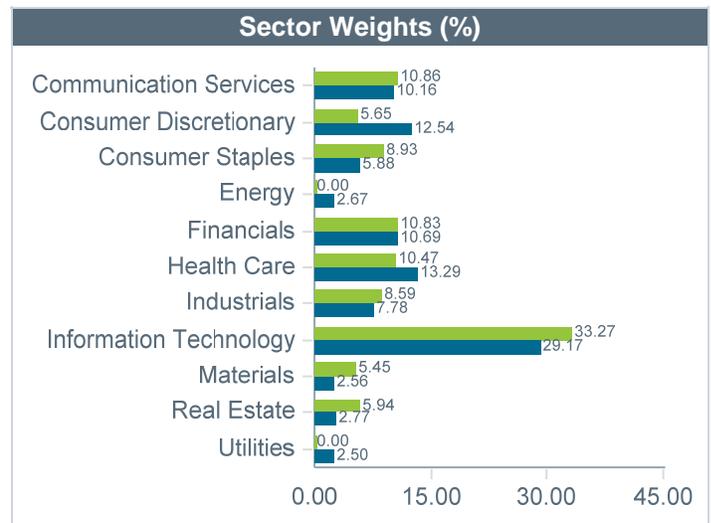
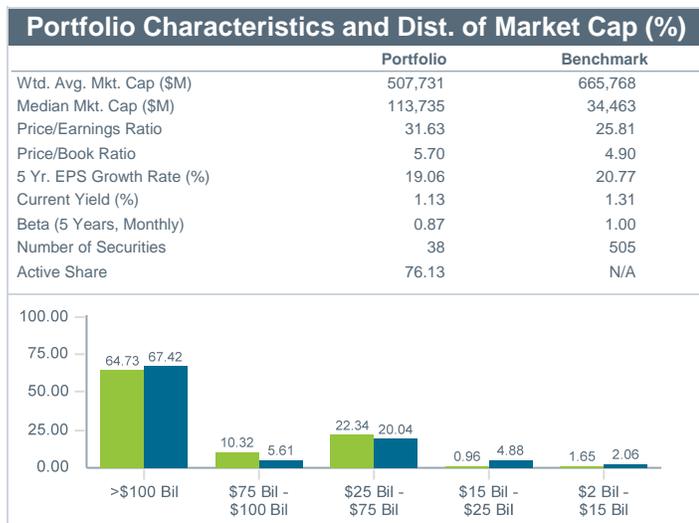
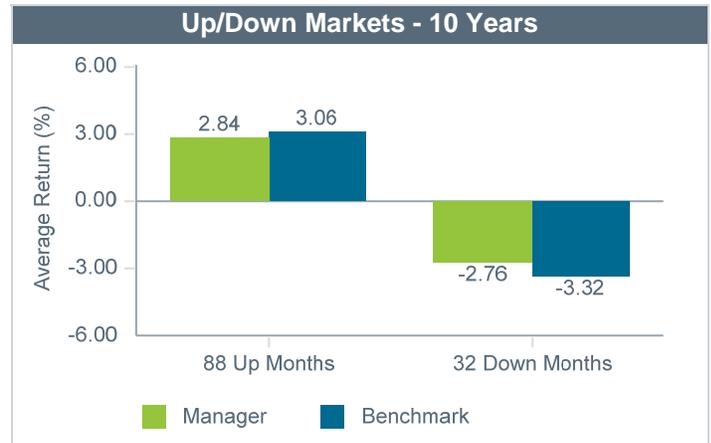
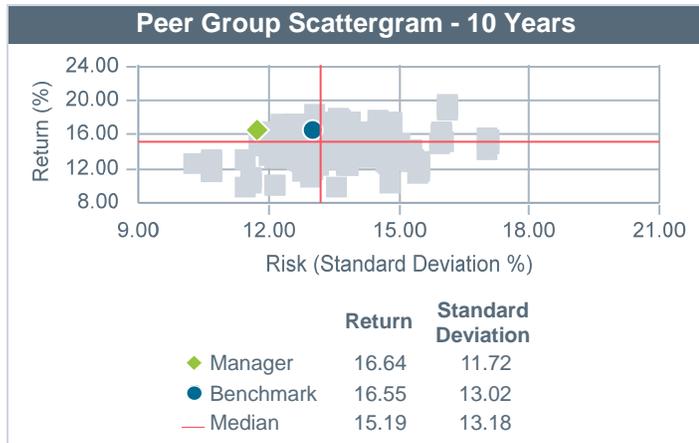
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	12.17	28.80	29.25	19.86	15.66	17.57	26.74	32.28	-5.86	21.71	10.91
Benchmark	11.03	28.71	26.07	18.47	14.93	16.55	18.40	31.49	-4.38	21.83	11.96
Difference	1.14	0.09	3.18	1.39	0.73	1.02	8.34	0.79	-1.48	-0.12	-1.05
Peer Group Median	9.98	26.73	24.17	16.98	13.36	15.19	16.00	29.68	-5.61	21.17	10.06
Rank	7	23	4	7	6	3	5	19	55	41	40
Population	810	773	682	592	519	459	743	733	710	672	634



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.



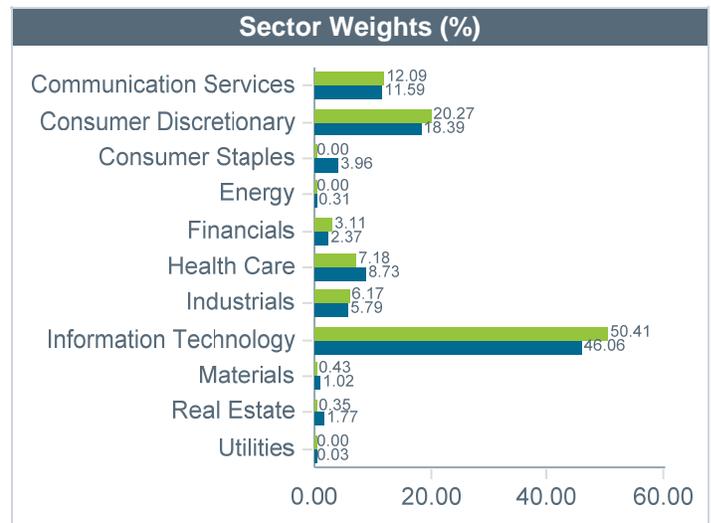
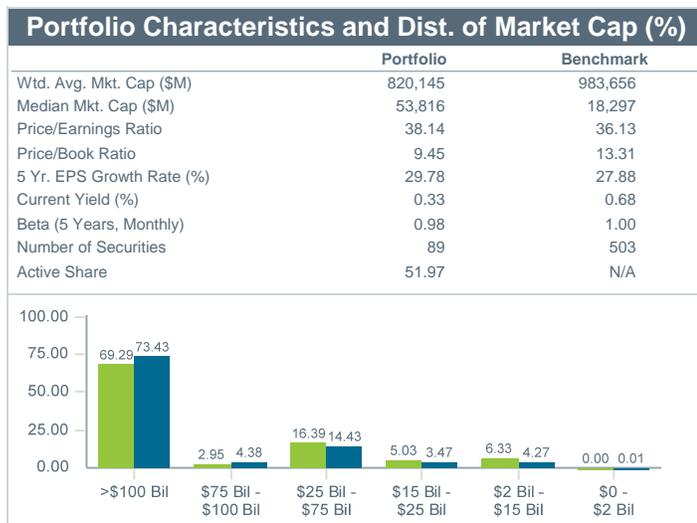
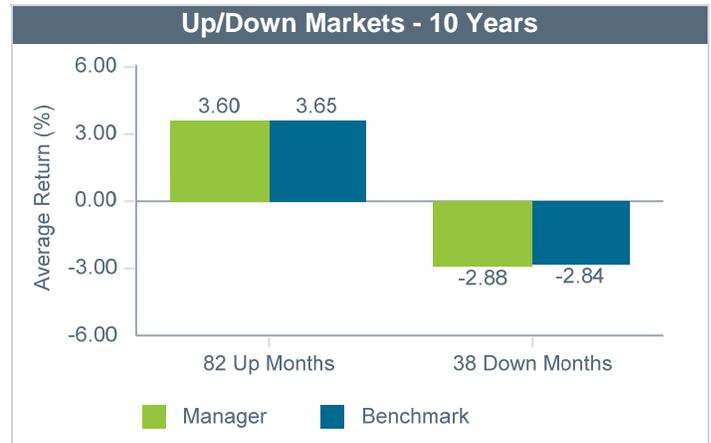
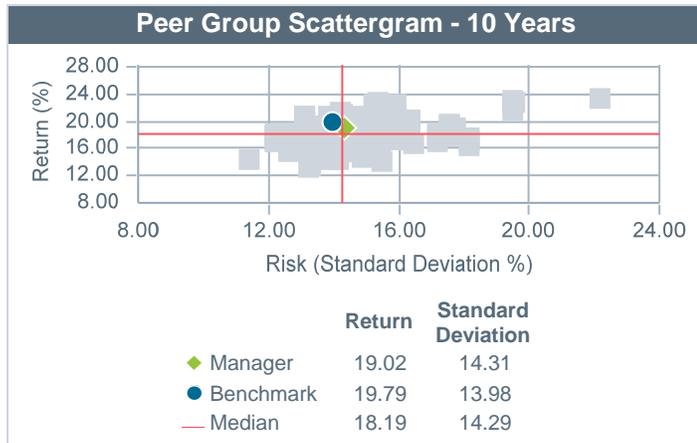
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	10.79	27.82	26.69	18.90	14.75	16.64	21.47	30.96	0.05	16.81	10.61
Benchmark	11.03	28.71	26.07	18.47	14.93	16.55	18.40	31.49	-4.38	21.83	11.96
Difference	-0.24	-0.89	0.62	0.43	-0.18	0.09	3.07	-0.53	4.43	-5.02	-1.35
Peer Group Median	9.98	26.73	24.17	16.98	13.36	15.19	16.00	29.68	-5.61	21.17	10.06
Rank	31	34	19	18	18	12	20	39	3	91	44
Population	810	773	682	592	519	459	743	733	710	672	634



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.



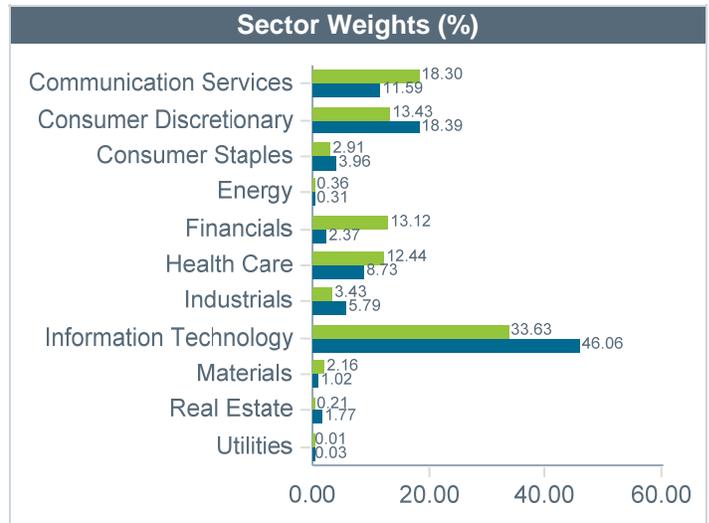
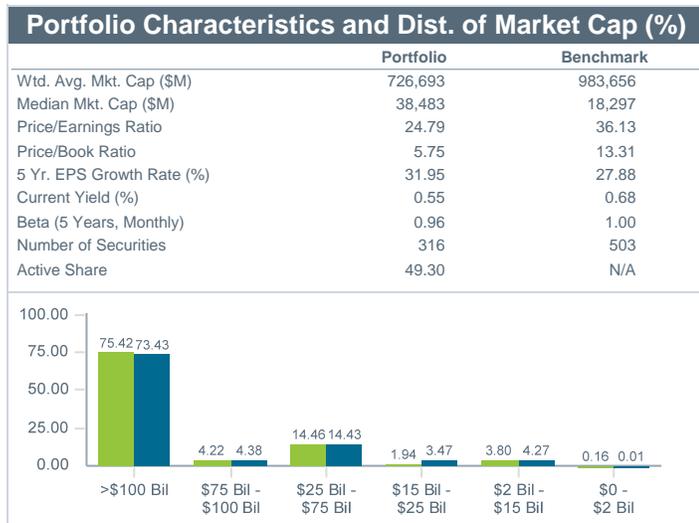
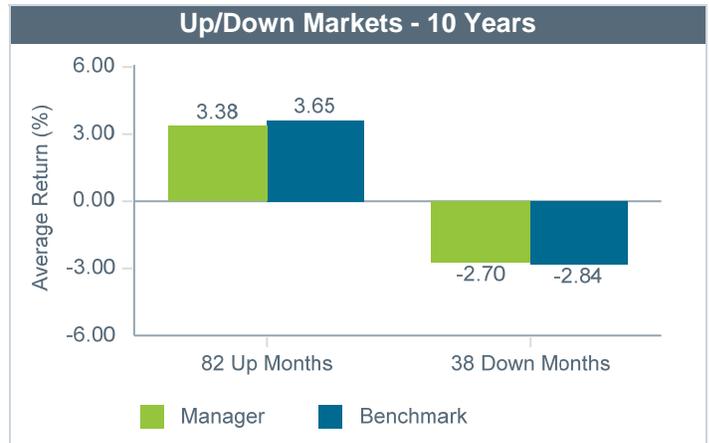
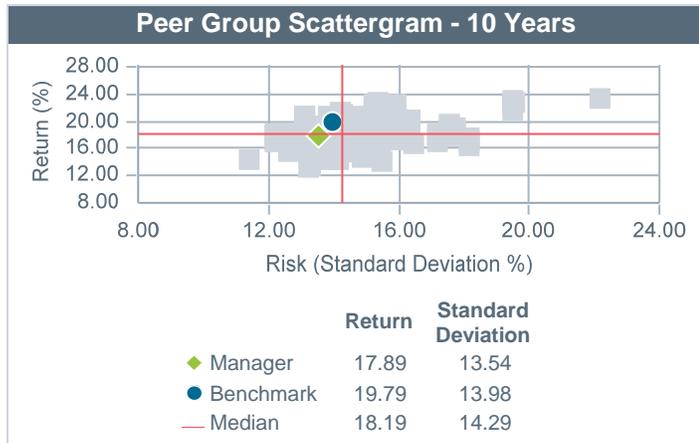
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	5.50	17.93	30.82	23.98	17.77	19.02	42.08	33.62	-0.66	31.69	0.66
Benchmark	11.64	27.60	34.08	25.32	19.58	19.79	38.49	36.39	-1.51	30.21	7.08
Difference	-6.14	-9.67	-3.26	-1.34	-1.81	-0.77	3.59	-2.77	0.85	1.48	-6.42
Peer Group Median	7.69	22.03	30.72	23.41	17.52	18.19	36.17	33.38	-0.85	29.46	2.19
Rank	73	75	49	41	45	28	25	48	48	28	69
Population	655	646	588	535	479	421	643	639	668	649	620



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.



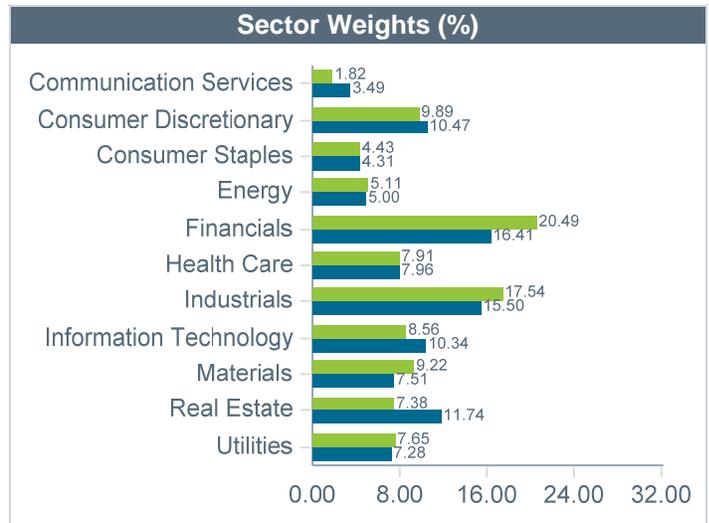
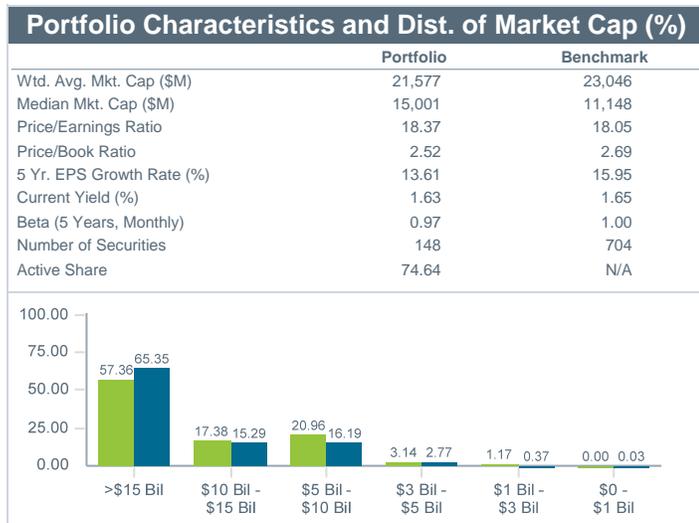
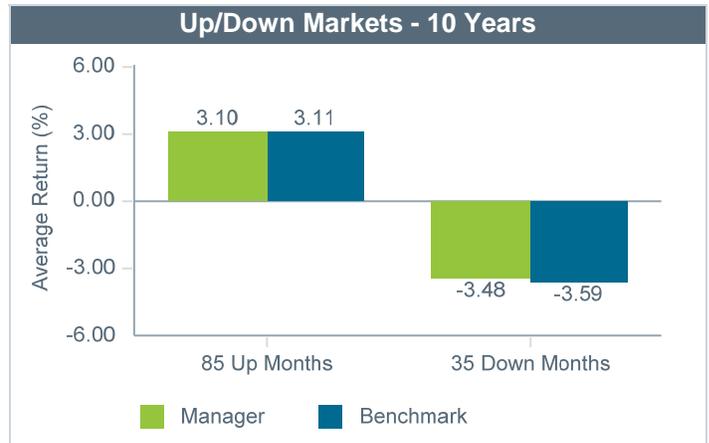
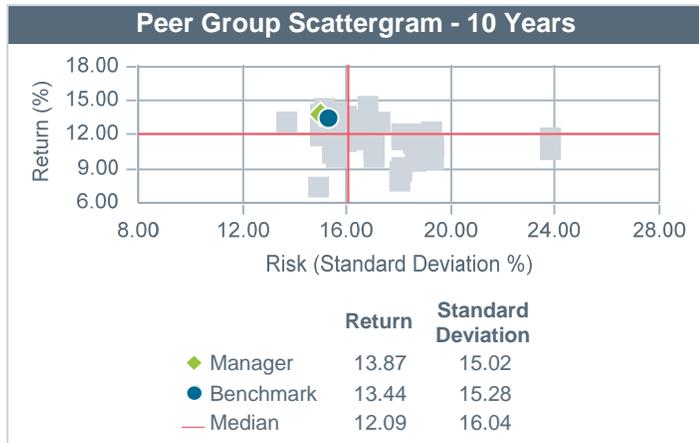
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	8.36	24.14	28.62	22.50	17.19	17.89	30.83	31.00	-2.15	32.48	3.36
Benchmark	11.64	27.60	34.08	25.32	19.58	19.79	38.49	36.39	-1.51	30.21	7.08
Difference	-3.28	-3.46	-5.46	-2.82	-2.39	-1.90	-7.66	-5.39	-0.64	2.27	-3.72
Peer Group Median	7.69	22.03	30.72	23.41	17.52	18.19	36.17	33.38	-0.85	29.46	2.19
Rank	40	34	74	67	58	61	78	75	66	22	38
Population	655	646	588	535	479	421	643	639	668	649	620



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.



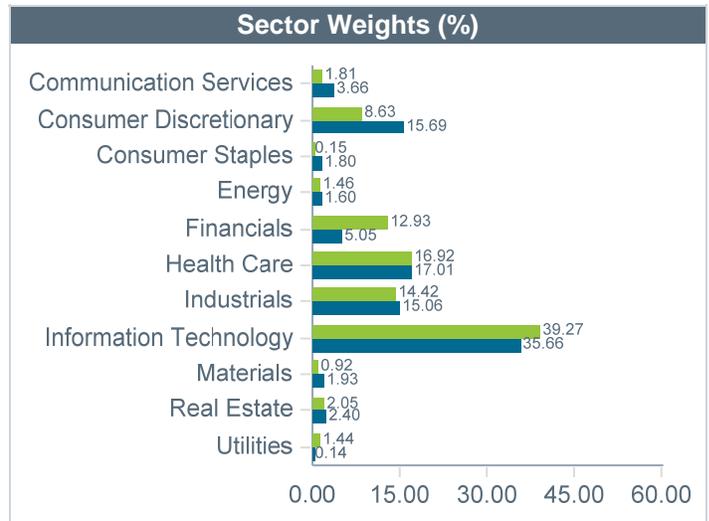
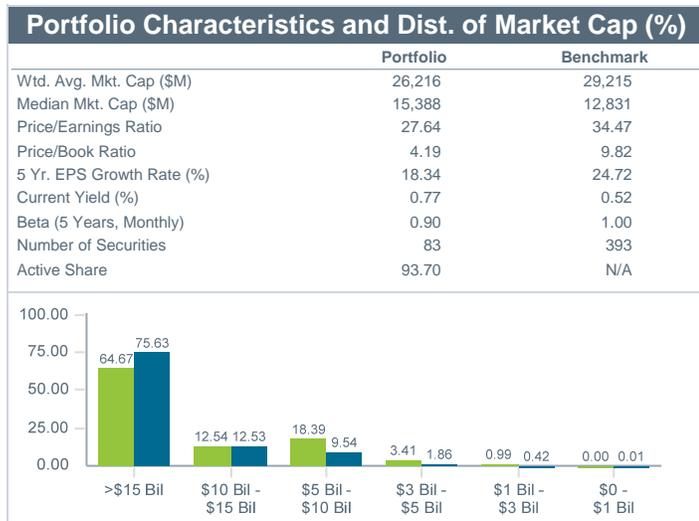
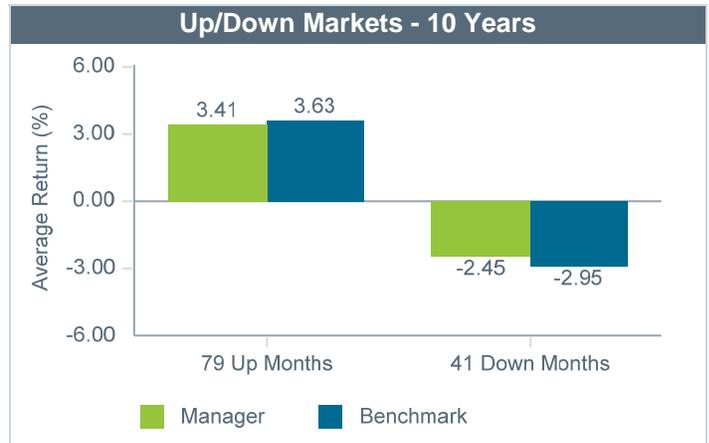
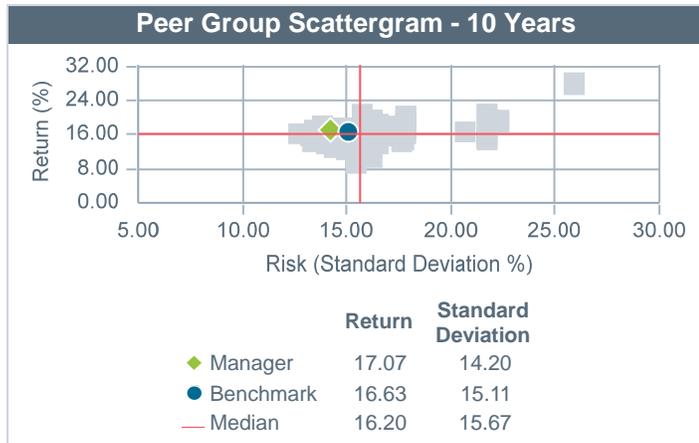
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	10.22	31.00	21.48	12.60	10.82	13.87	4.40	31.08	-11.31	13.84	15.86
Benchmark	8.54	28.34	19.62	11.22	9.96	13.44	4.96	27.06	-12.29	13.34	20.00
Difference	1.68	2.66	1.86	1.38	0.86	0.43	-0.56	4.02	0.98	0.50	-4.14
Peer Group Median	8.49	29.45	18.22	9.95	8.71	12.09	2.73	24.92	-13.98	13.21	17.03
Rank	12	36	10	7	6	5	25	8	17	44	64
Population	169	163	148	132	117	98	155	158	184	170	160



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.



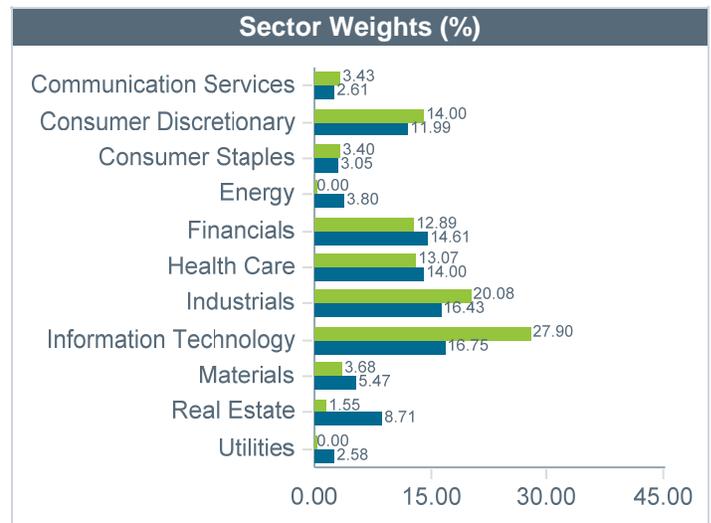
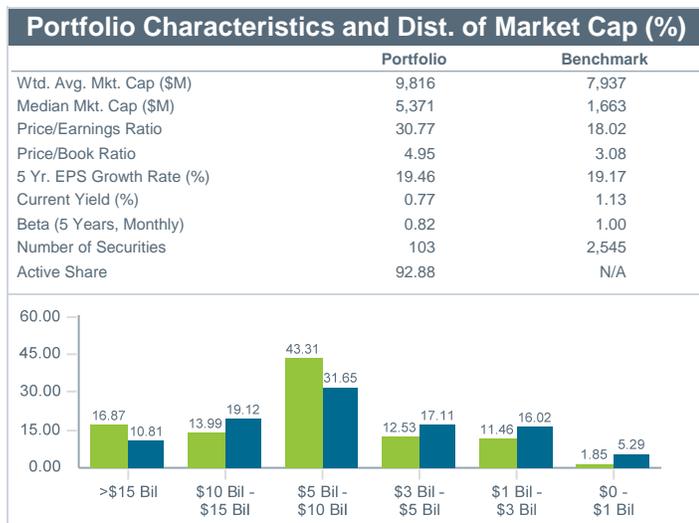
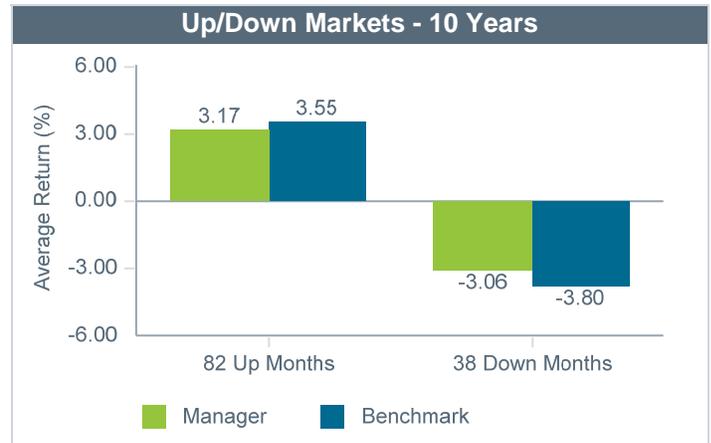
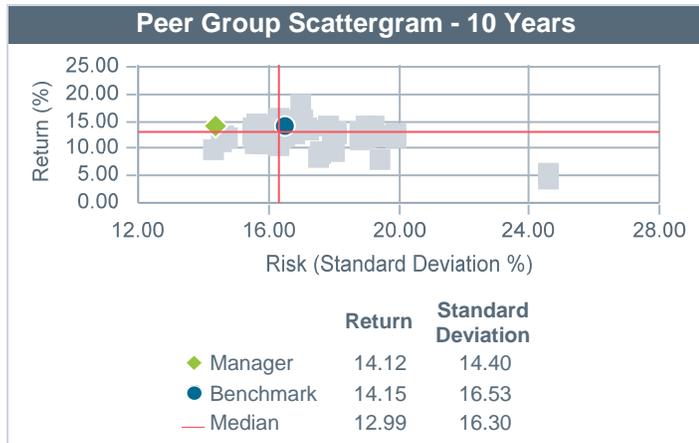
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	5.94	17.50	24.21	19.21	15.82	17.07	20.44	35.40	-0.81	26.65	12.18
Benchmark	2.85	12.73	27.46	19.83	14.92	16.63	35.59	35.47	-4.75	25.27	7.33
Difference	3.09	4.77	-3.25	-0.62	0.90	0.44	-15.15	-0.07	3.94	1.38	4.85
Peer Group Median	3.65	12.96	28.07	20.06	14.98	16.20	36.41	34.38	-5.00	24.83	4.78
Rank	17	23	79	65	29	24	89	39	17	34	6
Population	386	370	338	313	290	244	364	365	364	347	335



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.



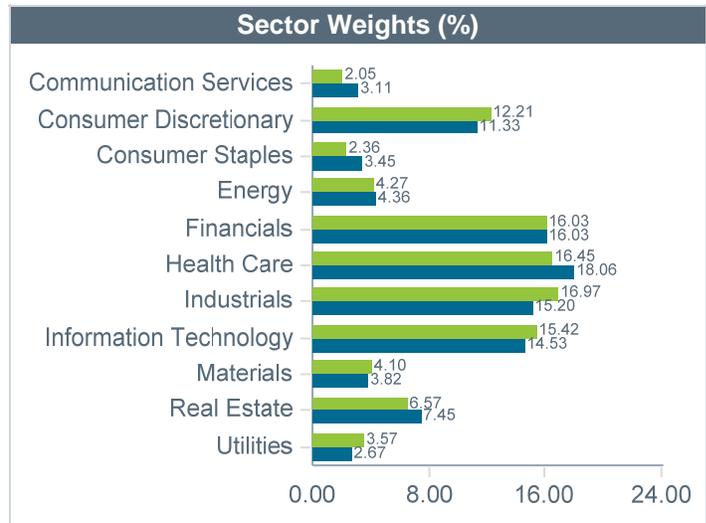
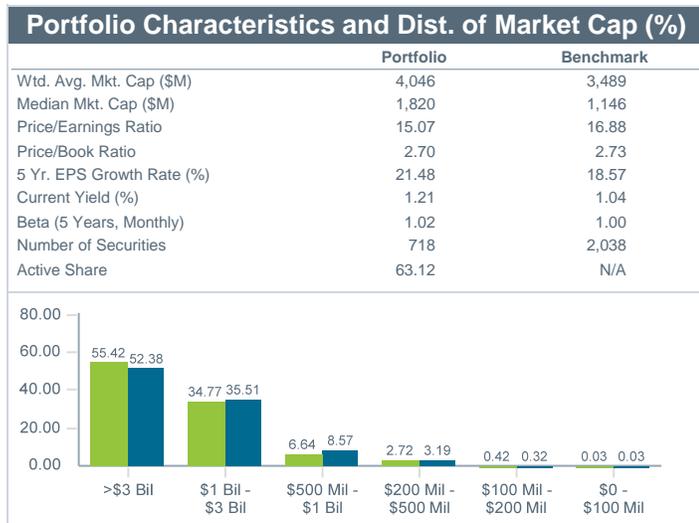
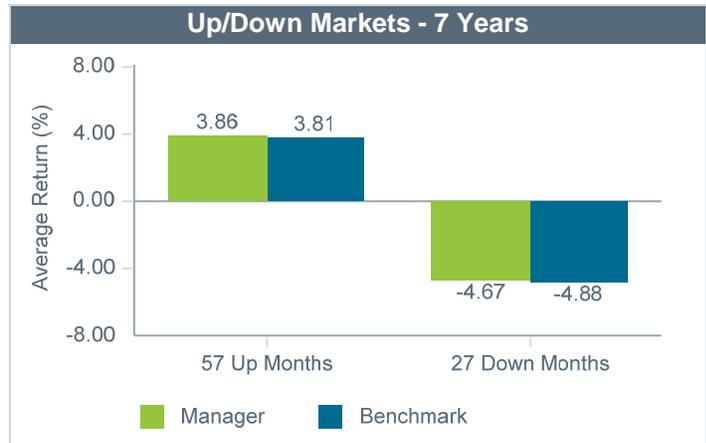
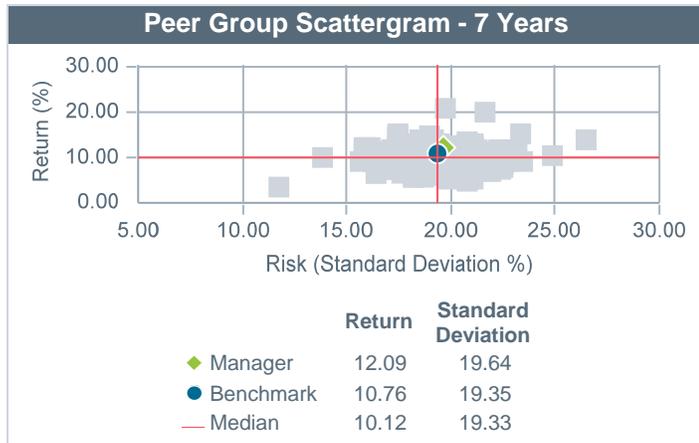
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	8.43	18.46	24.38	15.84	13.87	14.12	25.17	29.76	-6.42	15.88	18.44
Benchmark	3.82	18.18	21.91	13.75	11.74	14.15	19.99	27.77	-10.00	16.81	17.59
Difference	4.61	0.28	2.47	2.09	2.13	-0.03	5.18	1.99	3.58	-0.93	0.85
Peer Group Median	7.50	24.44	20.84	12.31	10.45	12.99	12.76	25.72	-12.20	15.40	17.92
Rank	19	83	7	6	3	21	9	9	4	41	44
Population	203	203	184	169	136	112	214	220	227	215	194



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Designation 'Other' under Sector Weights is an uncategorized security in the benchmark Russell 2500 Index as of 06-30-2020.



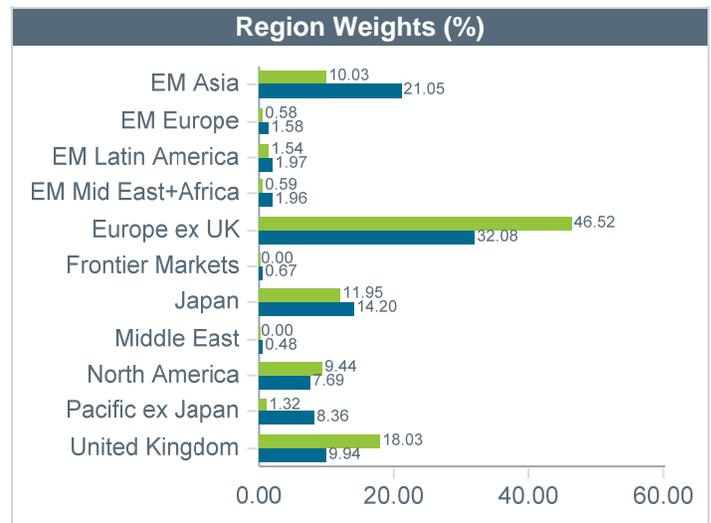
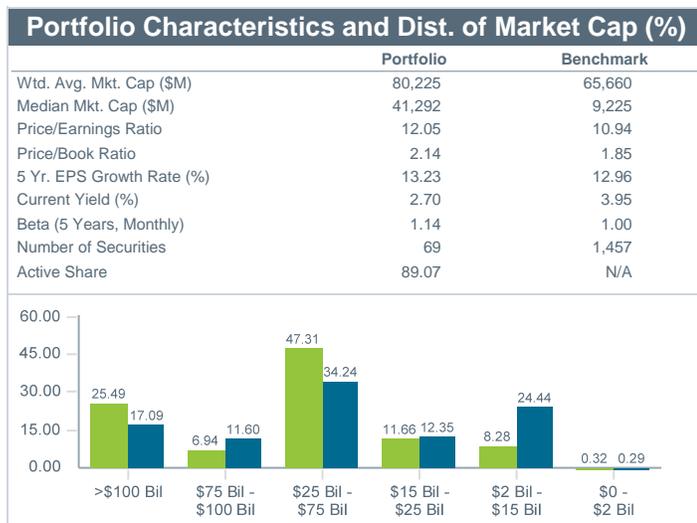
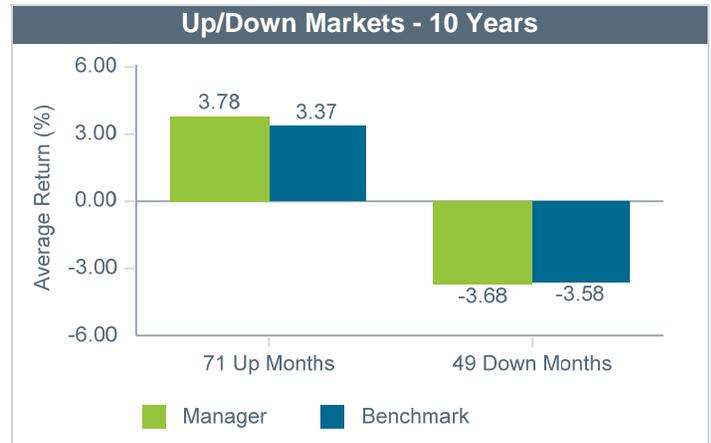
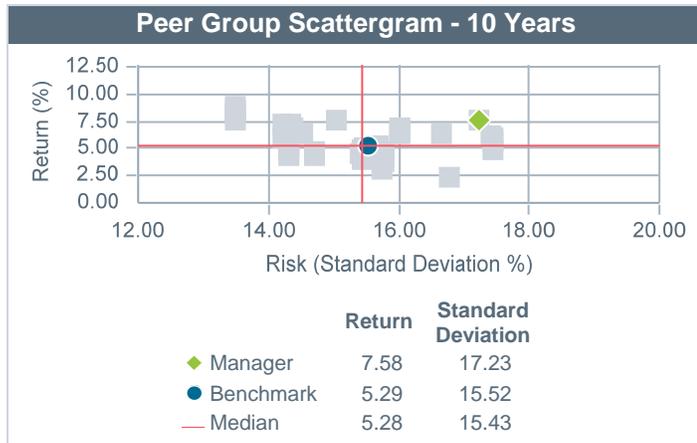
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	2.53	14.72	21.97	12.90	12.09	N/A	19.60	32.26	-8.80	10.82	24.01
Benchmark	2.14	14.82	20.02	12.02	10.76	13.23	19.96	25.53	-11.01	14.65	21.31
Difference	0.39	-0.10	1.95	0.88	1.33	N/A	-0.36	6.73	2.21	-3.83	2.70
Peer Group Median	5.89	24.55	19.55	10.97	10.12	12.54	10.36	23.89	-12.66	12.38	21.34
Rank	89	90	18	18	8	N/A	15	4	13	65	32
Population	754	739	704	636	533	430	759	778	816	812	743



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

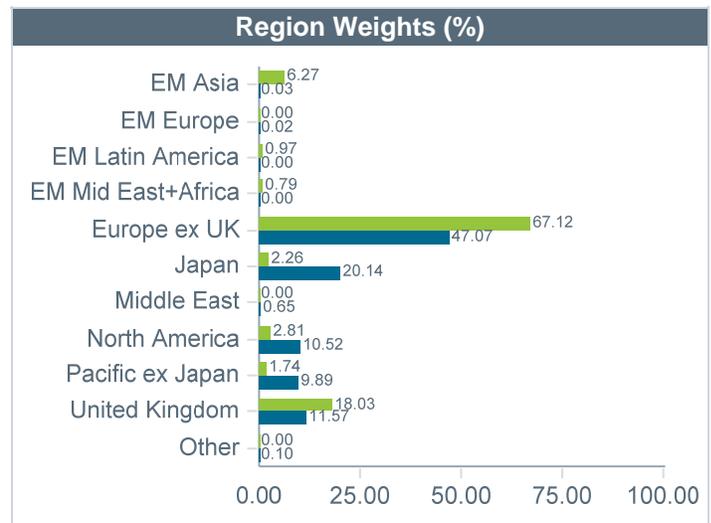
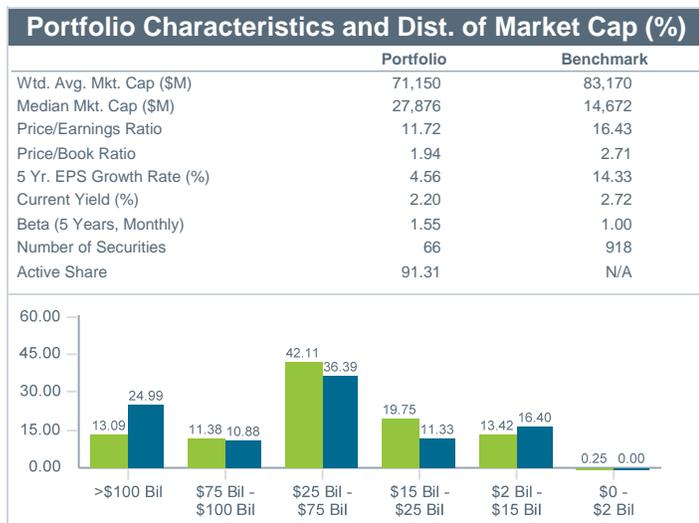
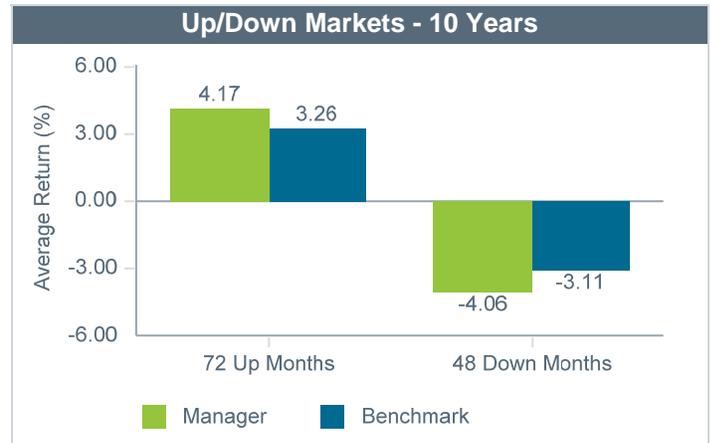
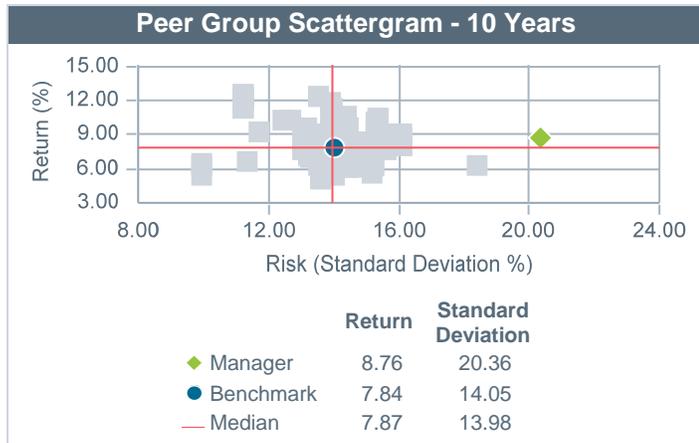


Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	2.40	11.03	11.65	7.19	4.47	7.58	2.10	22.78	-17.98	23.94	8.26
Benchmark	1.24	10.46	8.24	6.00	3.94	5.29	-0.77	15.72	-13.97	22.66	8.92
Difference	1.16	0.57	3.41	1.19	0.53	2.29	2.87	7.06	-4.01	1.28	-0.66
Peer Group Median	2.63	10.06	10.54	6.75	3.69	5.28	3.57	17.88	-15.98	22.89	2.79
Rank	58	42	32	41	35	10	54	4	78	31	24
Population	62	61	61	61	50	43	66	67	67	71	65



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

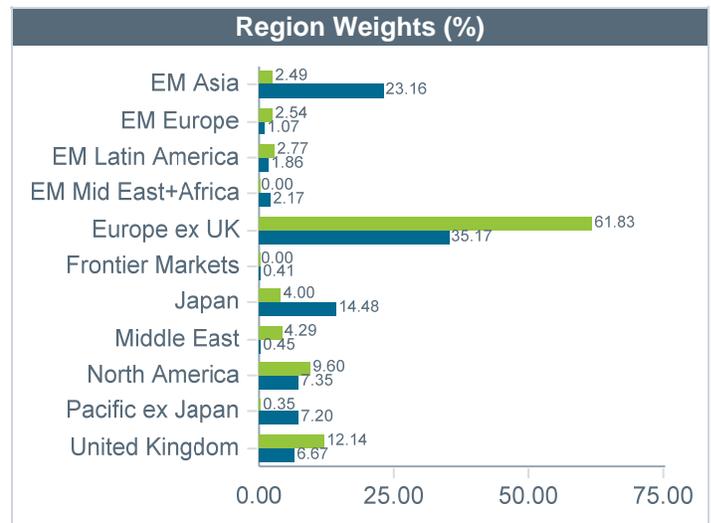
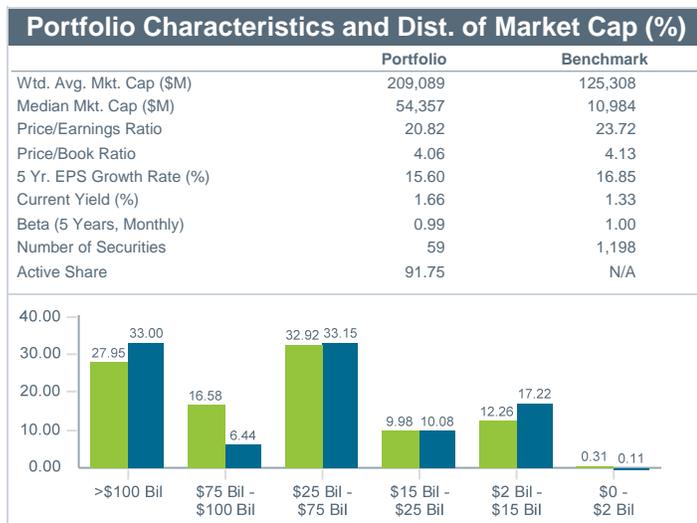
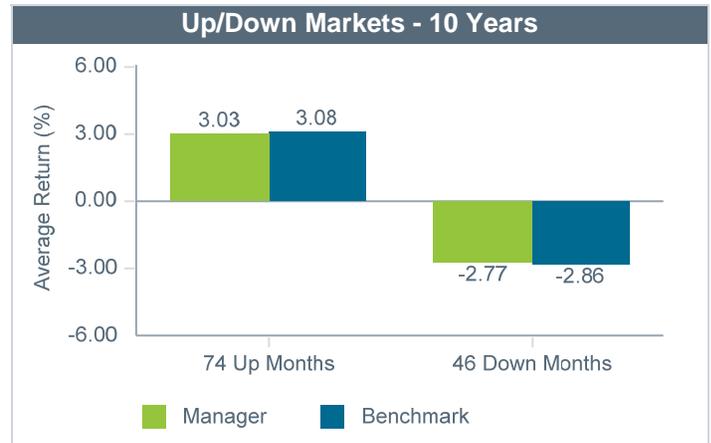
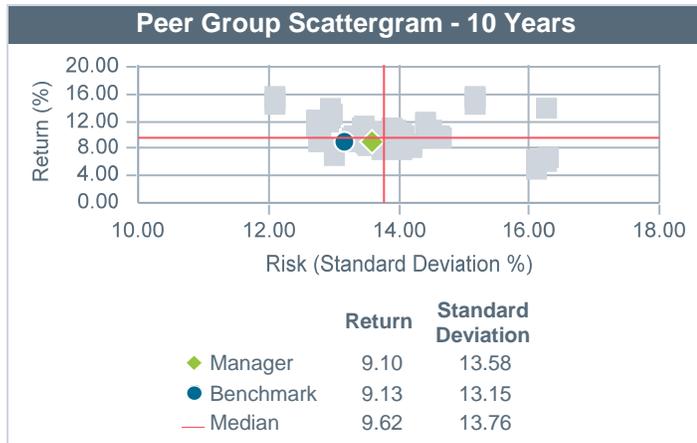
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	0.98	9.03	12.42	7.14	5.61	8.76	4.92	24.21	-23.43	29.75	7.91
Benchmark	3.14	12.62	14.07	9.63	6.73	7.84	7.59	22.49	-14.09	24.21	2.75
Difference	-2.16	-3.59	-1.65	-2.49	-1.12	0.92	-2.67	1.72	-9.34	5.54	5.16
Peer Group Median	3.10	10.83	13.87	9.54	6.73	7.87	8.97	21.87	-14.94	25.24	-0.10
Rank	85	71	77	93	79	18	83	31	100	3	2
Population	316	316	316	316	271	223	335	361	381	403	381



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.



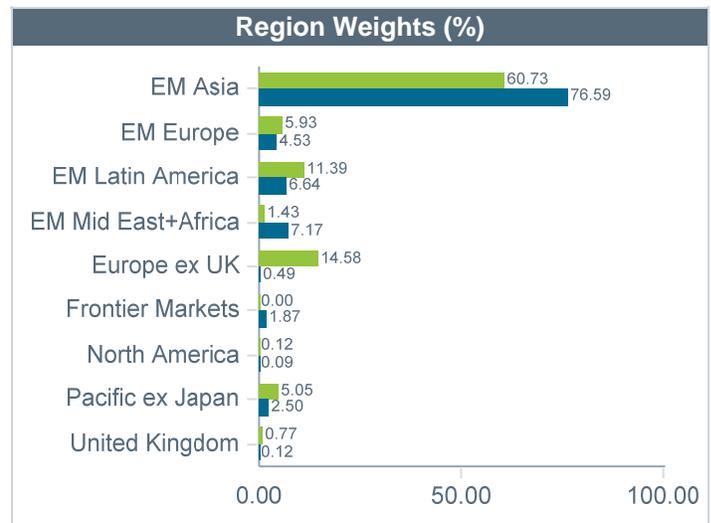
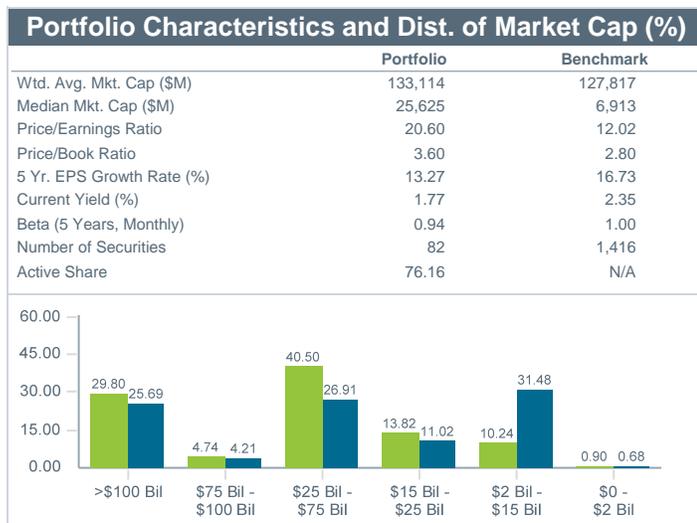
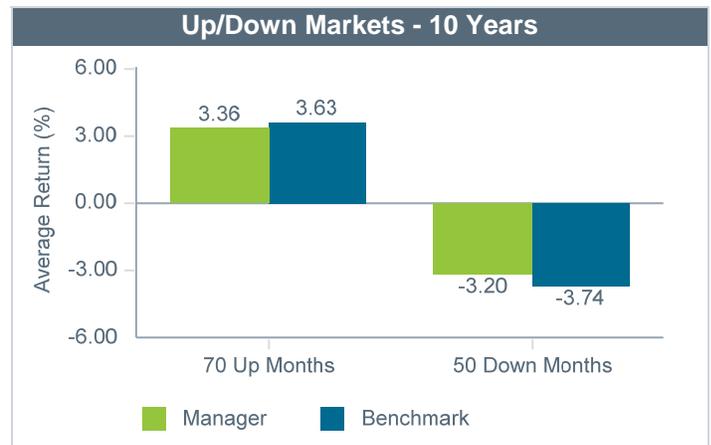
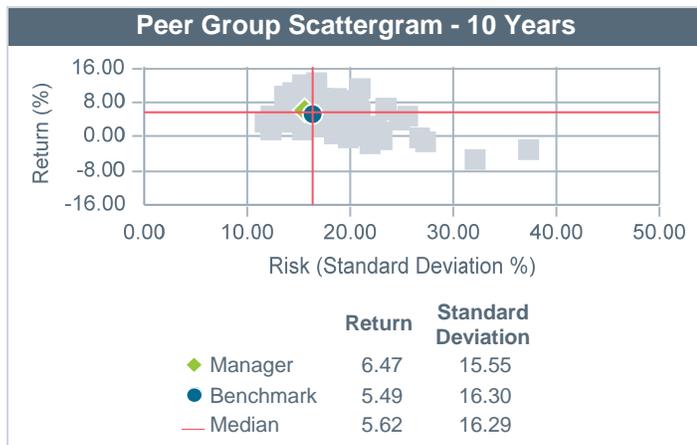
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	2.92	9.02	14.85	12.09	6.33	9.10	7.56	29.20	-10.86	31.02	-9.66
Benchmark	2.37	5.09	17.82	13.06	8.99	9.13	22.20	27.34	-14.43	32.01	0.12
Difference	0.55	3.93	-2.97	-0.97	-2.66	-0.03	-14.64	1.86	3.57	-0.99	-9.78
Peer Group Median	1.96	7.93	19.21	14.24	9.19	9.62	22.75	27.84	-14.32	32.37	-0.80
Rank	32	37	94	81	95	66	100	35	14	66	100
Population	170	170	170	170	132	109	170	172	176	188	165



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.



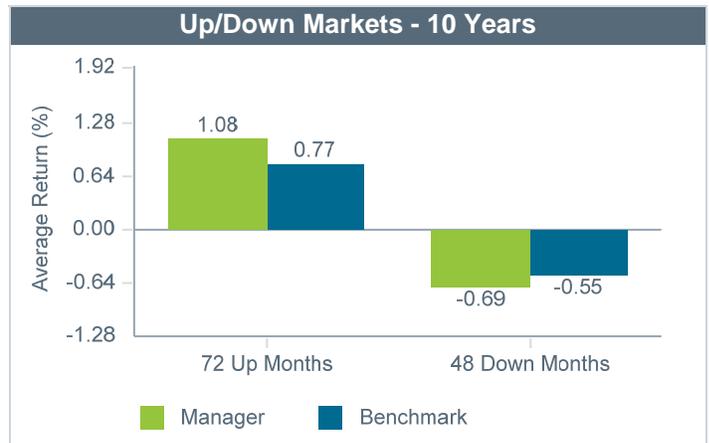
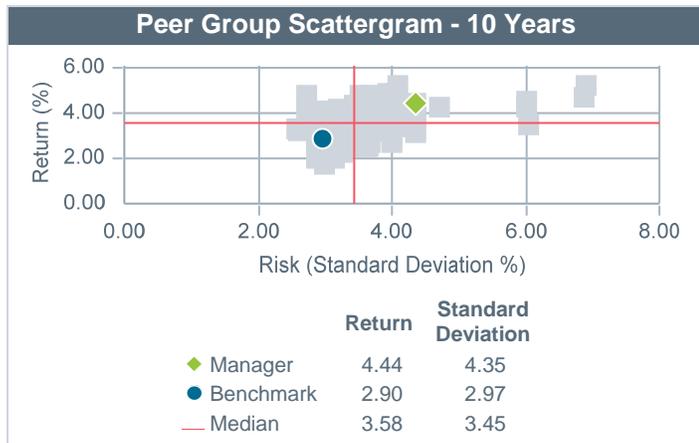
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	-4.09	-7.25	10.65	10.02	5.84	6.47	17.50	24.31	-11.95	35.10	7.17
Benchmark	-1.31	-2.54	10.94	9.87	6.11	5.49	18.31	18.44	-14.58	37.28	11.19
Difference	-2.78	-4.71	-0.29	0.15	-0.27	0.98	-0.81	5.87	2.63	-2.18	-4.02
Peer Group Median	-1.26	-1.60	11.81	9.59	5.87	5.62	17.46	20.09	-16.39	35.37	8.35
Rank	85	83	66	43	51	35	50	27	12	53	56
Population	826	785	716	609	496	341	800	843	840	810	746



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

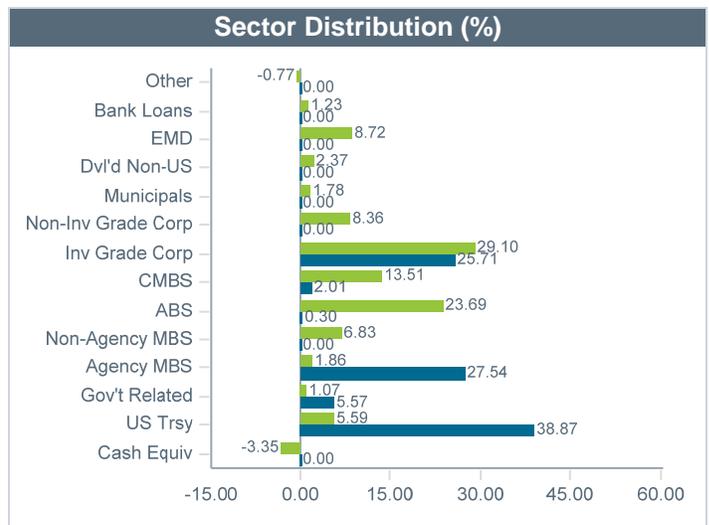


Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	0.30	-1.15	5.90	4.72	4.06	4.44	8.10	11.14	-0.63	6.71	4.83
Benchmark	0.01	-1.55	4.79	3.57	3.00	2.90	7.51	8.72	0.01	3.54	2.65
Difference	0.29	0.40	1.11	1.15	1.06	1.54	0.59	2.42	-0.64	3.17	2.18
Peer Group Median	-0.16	-0.96	5.74	4.13	3.36	3.58	8.55	9.32	-0.93	4.49	4.19
Rank	3	57	43	20	13	10	60	12	38	2	31
Population	317	314	292	240	186	153	309	307	283	265	228



Portfolio Characteristics

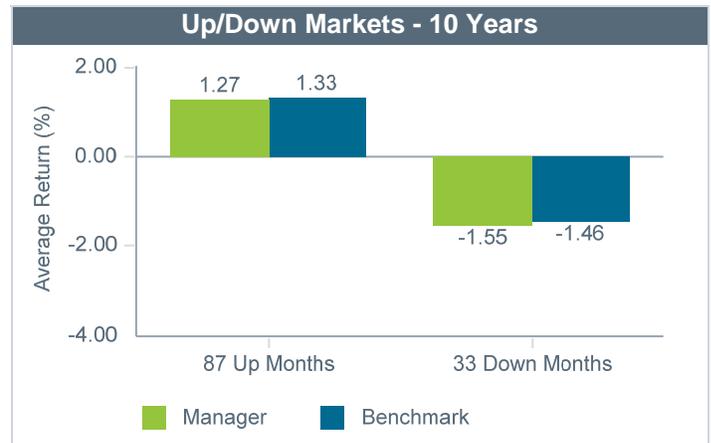
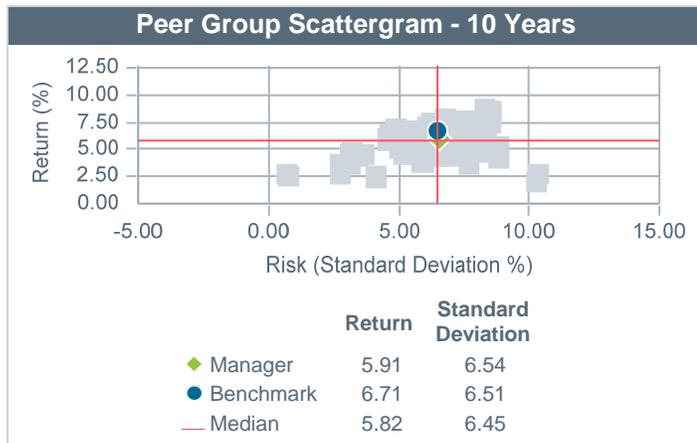
	Portfolio	Benchmark
Effective Duration	7.60	6.78
Spread Duration	5.59	N/A
Avg. Maturity	9.06	8.71
Avg. Quality	A2	Aa1/Aa2
Yield To Maturity (%)	2.89	1.76
Coupon Rate (%)	3.23	2.43
Current Yield (%)	3.10	N/A
Holdings Count	3,062	12,350



Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Allocation to "Other" consists of swaps.

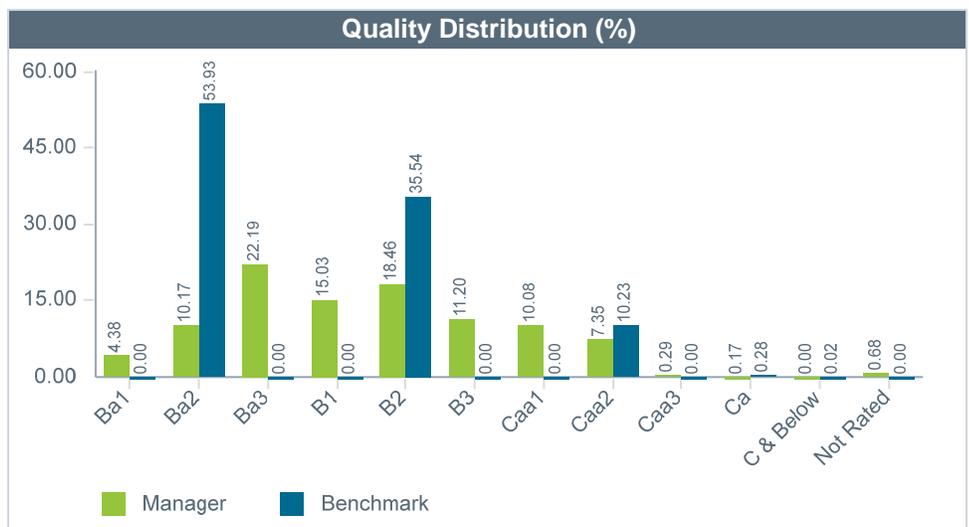


Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	0.58	4.56	8.21	5.47	5.13	5.91	6.41	13.90	-2.35	5.48	14.16
Benchmark	0.62	5.33	8.53	6.07	6.01	6.71	6.07	14.41	-2.27	7.48	17.49
Difference	-0.04	-0.77	-0.32	-0.60	-0.88	-0.80	0.34	-0.51	-0.08	-2.00	-3.33
Peer Group Median	0.55	4.71	7.78	5.28	4.97	5.82	5.28	13.51	-2.91	6.65	13.52
Rank	46	54	35	42	43	45	27	43	33	81	41
Population	670	653	621	542	481	358	659	682	669	626	594



Portfolio Characteristics

	Portfolio	Benchmark
Effective Duration	5.95	4.04
Spread Duration	3.84	3.76
Avg. Maturity	18.87	4.33
Avg. Quality	A3	B1
Yield To Maturity (%)	2.77	4.92
Coupon Rate (%)	4.24	5.66
Current Yield (%)	3.96	5.69
Holdings Count	207	2,123

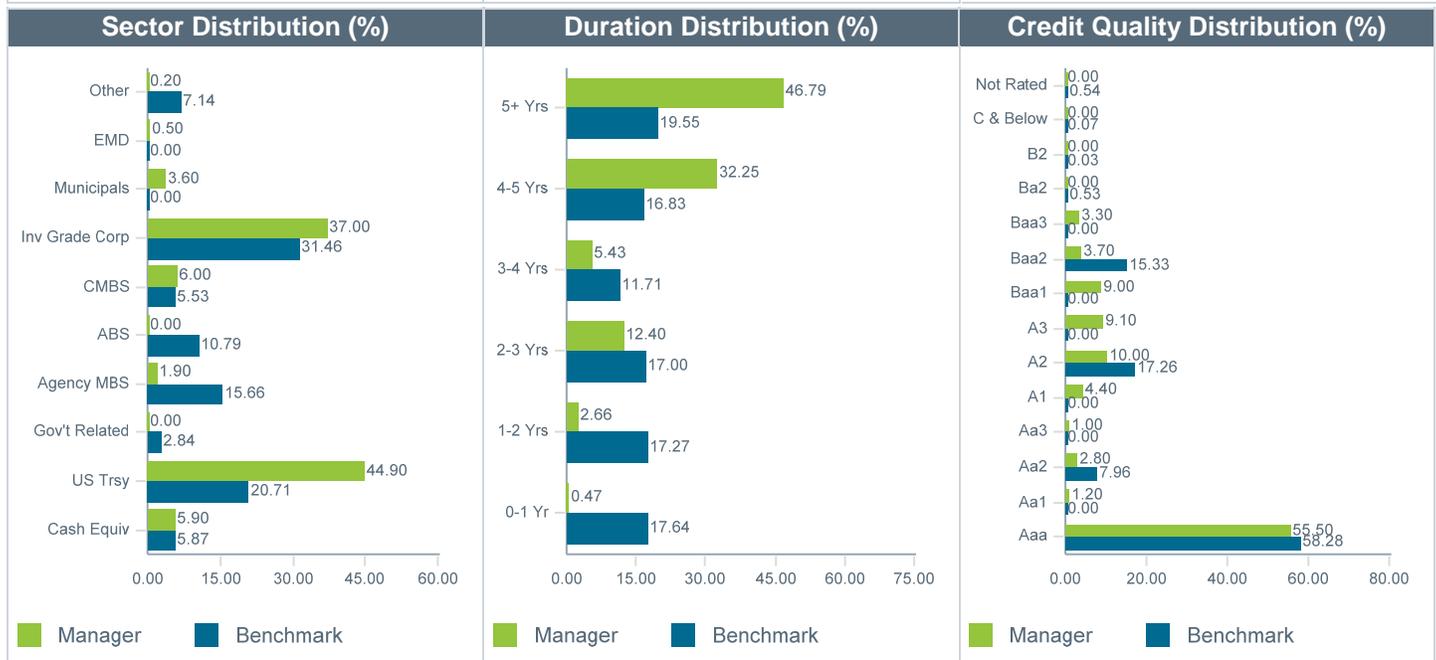
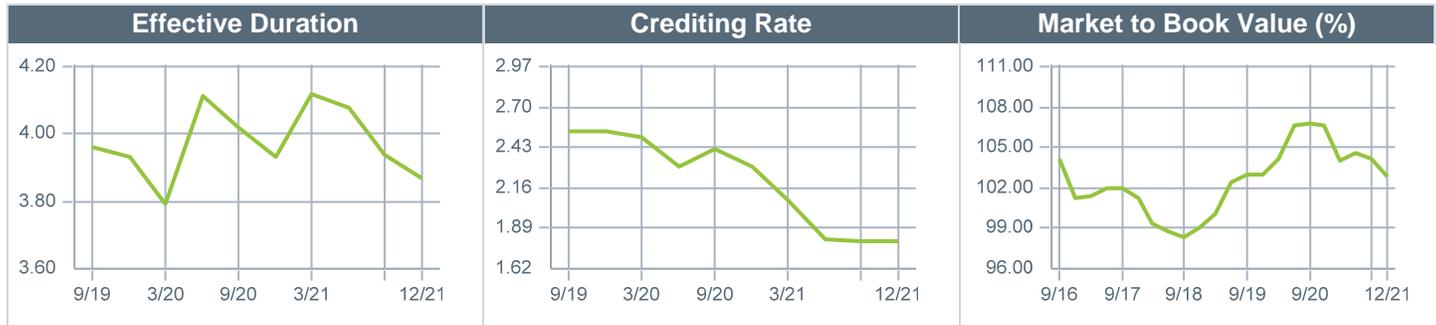


Performance shown is net of fees and product specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.



Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
Manager	0.47	1.87	2.30	2.36	2.31	2.36	2.43	2.60	2.53	2.37	2.33
Benchmark	0.42	1.76	2.17	2.14	2.04	2.00	2.24	2.51	2.23	1.96	1.79
Difference	0.05	0.11	0.13	0.22	0.27	0.36	0.19	0.09	0.30	0.41	0.54
Peer Group Median	0.37	1.57	1.97	1.94	1.83	1.75	2.04	2.35	2.10	1.77	1.60
Rank	24	26	16	6	6	7	7	6	2	2	1
Population	14	14	14	14	14	13	16	16	16	16	17

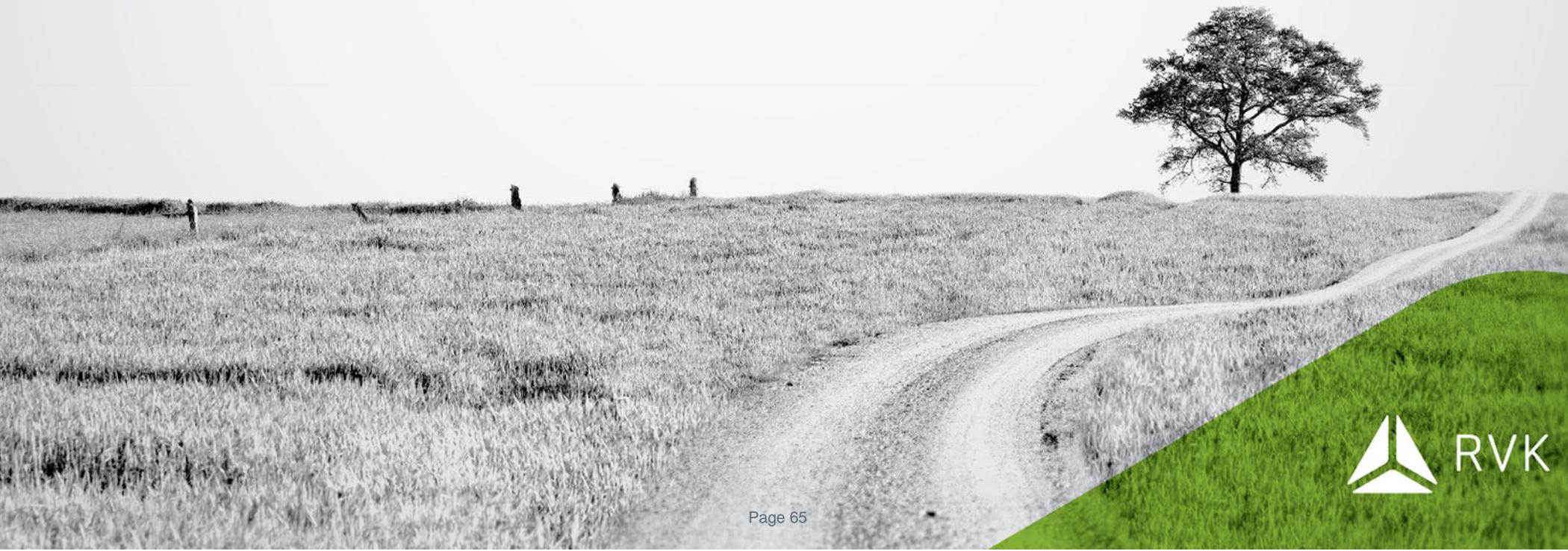
Peer Group Analysis	Portfolio Characteristics	Top Wrap Providers (%)																							
<p>Return (%)</p> <p>10 Years</p> <ul style="list-style-type: none"> ◆ Manager 2.36 (7) ● Benchmark 2.00 (36) <p>Median 1.75</p>	<table border="1"> <thead> <tr> <th></th> <th>Portfolio</th> <th>Benchmark</th> </tr> </thead> <tbody> <tr> <td>Effective Duration</td> <td>3.87</td> <td>3.20</td> </tr> <tr> <td>Avg. Quality</td> <td>Aa3</td> <td>A2</td> </tr> <tr> <td>Crediting Rate</td> <td>1.80</td> <td>1.72</td> </tr> <tr> <td>Market To BV (%)</td> <td>102.89</td> <td>101.99</td> </tr> </tbody> </table>		Portfolio	Benchmark	Effective Duration	3.87	3.20	Avg. Quality	Aa3	A2	Crediting Rate	1.80	1.72	Market To BV (%)	102.89	101.99	<table border="1"> <tbody> <tr> <td>Voya</td> <td>32.80</td> </tr> <tr> <td>Prudential</td> <td>32.70</td> </tr> <tr> <td>Transamerica</td> <td>32.70</td> </tr> <tr> <td>Cash Buffer</td> <td>1.80</td> </tr> </tbody> </table>	Voya	32.80	Prudential	32.70	Transamerica	32.70	Cash Buffer	1.80
	Portfolio	Benchmark																							
Effective Duration	3.87	3.20																							
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Performance shown is net of fees. Calculation is based on monthly periodicity. Benchmark allocation to "Other" consists of private placements and GIC/GIC-separate account.



Addendum & Glossary



Montana Public Employee Retirement Administration 401(a) & 457(b) Plans
Fee Analysis

As of December 31, 2021

	Fee Schedule	Market Value As of 12/31/2021 (\$)	Estimated Annual Fee (\$)
T Rowe Price Ret Bal Trust F (CF)	0.37 % of Assets	1,624,237	6,010
T Rowe Price Ret 2005 Trust F (CF)	0.37 % of Assets	2,593,982	9,598
T Rowe Price Ret 2010 Trust F (CF)	0.37 % of Assets	2,468,030	9,132
T Rowe Price Ret 2015 Trust F (CF)	0.37 % of Assets	6,707,533	24,818
T Rowe Price Ret 2020 Trust F (CF)	0.37 % of Assets	16,078,624	59,491
T Rowe Price Ret 2025 Trust F (CF)	0.37 % of Assets	28,501,514	105,456
T Rowe Price Ret 2030 Trust F (CF)	0.37 % of Assets	27,081,582	100,202
T Rowe Price Ret 2035 Trust F (CF)	0.37 % of Assets	31,224,778	115,532
T Rowe Price Ret 2040 Trust F (CF)	0.37 % of Assets	26,927,700	99,632
T Rowe Price Ret 2045 Trust F (CF)	0.37 % of Assets	30,124,537	111,461
T Rowe Price Ret 2050 Trust F (CF)	0.37 % of Assets	22,239,986	82,288
T Rowe Price Ret 2055 Trust F (CF)	0.37 % of Assets	18,596,797	68,808
T Rowe Price Ret 2060 Trust F (CF)	0.37 % of Assets	1,094,207	4,049
BlackRock Eq Idx F L (CF)	0.02 % of Assets	10,765,901	2,153
Vanguard Instl Indx;Inst (VINIX)	0.04 % of Assets	55,712,336	19,499
Vanguard Md-Cp I;Adm (VIMAX)	0.05 % of Assets	7,062,291	3,531
Vanguard S-C Id;Inst (VSCIX)	0.04 % of Assets	20,316,273	8,127
Vanguard SC G Id;Ins (VSGIX)	0.06 % of Assets	31,366,426	18,820
Vanguard Tot I S;Adm (VTIAX)	0.11 % of Assets	4,755,307	5,231
Vanguard Tot Bd;Adm (VBTLX)	0.05 % of Assets	4,841,972	2,421
Vanguard Bal Idx;Inst (VBAIX)	0.06 % of Assets	161,050,059	96,630
American Funds NPer;R6 (RNPGX)	0.41 % of Assets	58,334,838	239,173
Vanguard Equity Inc;Adm (VEIRX)	0.19 % of Assets	37,973,941	72,150
JPMorgan:US Eq;R6 (JUEMX)	0.44 % of Assets	10,473,155	46,082
Parnassus:Core Eqty;Inst (PRILX)	0.62 % of Assets	12,181,997	75,528
Alger:Capital Apprec;Z (ACAZX)	0.83 % of Assets	29,995,030	248,959
Fidelity Contrafund K6 (FLCNX)	0.45 % of Assets	72,840,977	327,784
MFS Mid Cap Value;R6 (MVCKX)	0.63 % of Assets	19,090,355	120,269
Jns Hndsn:Enterprise;N (JDMNX)	0.66 % of Assets	37,305,056	246,213
Neuberger Genesis;R6 (NRGSX)	0.74 % of Assets	19,128,449	141,551
BlackRockAdv SC Cr;K (BDSKX)	0.45 % of Assets	4,900,472	22,052
Dodge & Cox Intl Stock (DODFX)	0.63 % of Assets	8,007,432	50,447
Oakmark Internatl;Inv (OAKIX)	1.02 % of Assets	5,108,089	52,103
Artisan:Internatl;Inv (ARTIX)	1.18 % of Assets	2,414,857	28,495
Invesco Dev Mkt;Y (ODVYX)	0.95 % of Assets	2,753,419	26,157
PGIM Tot Rtn Bond;R6 (PTRQX)	0.39 % of Assets	13,192,984	51,453
Neuberger Hi Inc B;Inst (NHILX)	0.69 % of Assets	6,122,795	42,247
State of Montana Stable Value (SA)	0.37 % of Assets	259,227,449	966,918

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

General Comments

- RVK began monitoring the assets of the Montana Public Employee Retirement Administration as of 11/01/2019.
- Portfolio characteristics shown are as of the most recent available date.
- PIMCO management of the State of Montana Stable Value Fund assets commenced 4/1/2002 and 7/1/2002 for the 457(b) and 401 (a) Plans respectively. Montana PERA 401(a) Plan offered the PIMCO Moderate Duration Fund through to 2/28/2010. Thereafter, Montana PERA 401(a) and 457(b) Plans were both invested in the PIMCO Stable Value Fund (CF). On 9/2013, Montana PERA 401 (a) and 457(b) Plans moved to a separate account structure with a liquidity buffer and independent NAV.
- 1/1/2010, PIMCO was appointed Stable Value Program Manager.

Manager Transition Comments

- During Q4 2019, Franklin Mut Gl Disc;Z (MDISX) was removed from the 457(b) plan lineup.
- During Q2 2020, the T Rowe Price Ret Suite moved from class A to class F.
- During Q4 2020, BlackRock:Adv SC Cr;K (BDSKX) replaced PGIM QMA Sm-Cap Val;Z (TASVX).

Performance Comments

- Performance shown is net of fees and is product specific.
- Performance of the target date composite indexes is derived by applying the funds' target asset allocations to their underlying benchmarks. Discrepancies in performance between the target date funds and their composite indexes may be due to fees, degree of index replication, frequency of rebalancing, fair-value pricing, and/or securities lending.
- State of Montana Stable Value book value and market value performance prior to 9/2013 is represented by PIMCO Stable Value (CF).

Index Comments

- Vanguard Spl Mid Cap Index consists of S&P Mid Cap 400 Index (Cap Wtd) through 05/16/03; MSCI US Mid Cap 450 Index through 01/30/13; and CRSP US Mid Cap Index thereafter.
- Vanguard Spl Sm Cap Index consists of Russell 2000 Index through 05/16/03; MSCI US Sm Cap 1750 Index through 01/30/13; and CRSP US Sm Cap Index thereafter.
- Vanguard Spl Sm Cap Grth Index consists of S&P Sm Cap 600 Grth Index through 05/16/03; MSCI US Sm Cap Grth Index through 04/16/13; and CRSP US Sm Cap Grth Index thereafter.
- Vanguard Spl Tot Int'l Stock Index consists of Tot Int'l Comp Idx (an asset-weighted blend of stocks in the MSCI Eur Idx (USD) (Net), MSCI Pac Idx (USD) (Net), and MSCI Emg Mkts Idx (USD) (Net)) through 08/31/06; MSCI EAFE + Emg Mkts Idx (USD) (Net) through 12/15/10; MSCI ACW Ex US IM Idx (USD) (Net) through 06/02/13; and FTSE Gbl All Cap Ex US Idx (USD) (Net) thereafter.
- Vanguard Spl B US Agg Flt Adj Index consists of Bloomberg US Agg Bond Index through 12/31/09; and Bloomberg US Agg Flt Adj Index thereafter.
- Vanguard Balanced Composite Index consists of 60% DJ US TSM Index and 40% Bloomberg US Agg Bond Index through 05/31/05; 60% MSCI US Brd Mkt Index and 40% Bloomberg US Agg Bond Index through 12/31/09; 60% MSCI US Brd Mkt Index and 40% Bloomberg US Agg Flt Adj Index through 01/14/13; and 60% CRSP US Tot Mkt Index and 40% Bloomberg US Agg Flt Adj Index thereafter.
- TRP Ret Bal Index consists of 28% Russell 3000 Index, 12% MSCI ACW Ex US Index (USD) (Net), 30% Bloomberg US Agg Bond Index, and 30% Bloomberg US TIPS 1-5 Yr Index.

Separate Account Fee Schedule

- State of Montana Stable Value (SA) State Street Custody Fees - 0.015% for the first \$100 Million, and 0.010% thereafter.
- The State of Montana Stable Value (SA) fee shown represents total fees and is comprised of 0.194% Investment Management Fees, 0.151% Wrap Fees, 0.007% Acquired Fund Fees, and 0.012% Custody Fees.

T Rowe Price Ret Trust F (CF) Index Compositions

As of December 31, 2021

TRP Ret 2005 Index consists of 26.3% Russell 3000 Index, 11.3% MSCI ACW Ex US Index (USD) (Net), 44.0% Bloomberg US Agg Bond Index, and 18.5% Bloomberg US TIPS 1-5 Yr Index.

TRP Ret 2010 Index consists of 30.0% Russell 3000 Index, 12.8% MSCI ACW Ex US Index (USD) (Net), 40.8% Bloomberg US Agg Bond Index, and 16.5% Bloomberg US TIPS 1-5 Yr Index.

TRP Ret 2015 Index consists of 33.4% Russell 3000 Index, 14.4% MSCI ACW Ex US Index (USD) (Net), 38.8% Bloomberg US Agg Bond Index, and 13.5% Bloomberg US TIPS 1-5 Yr Index.

TRP Ret 2020 Index consists of 38.4% Russell 3000 Index, 16.5% MSCI ACW Ex US Index (USD) (Net), 35.1% Bloomberg US Agg Bond Index, and 10.1% Bloomberg US TIPS 1-5 Yr Index.

TRP Ret 2025 Index consists of 45.2% Russell 3000 Index, 19.3% MSCI ACW Ex US Index (USD) (Net), 30.3% Bloomberg US Agg Bond Index, and 5.3% Bloomberg US TIPS 1-5 Yr Index.

TRP Ret 2030 Index consists of 51.5% Russell 3000 Index, 22.1% MSCI ACW Ex US Index (USD) (Net), 24.3% Bloomberg US Agg Bond Index, and 2.3% Bloomberg US TIPS 1-5 Yr Index.

TRP Ret 2035 Index consists of 56.5% Russell 3000 Index, 24.3% MSCI ACW Ex US Index (USD) (Net), 19.3% Bloomberg US Agg Bond Index, and 0.0% Bloomberg US TIPS 1-5 Yr Index.

TRP Ret 2040 Index consists of 61.3% Russell 3000 Index, 26.3% MSCI ACW Ex US Index (USD) (Net), 12.5% Bloomberg US Agg Bond Index, and 0.0% Bloomberg US TIPS 1-5 Yr Index.

TRP Ret 2045 Index consists of 64.4% Russell 3000 Index, 27.6% MSCI ACW Ex US Index (USD) (Net), 8.0% Bloomberg US Agg Bond Index, and 0.0% Bloomberg US TIPS 1-5 Yr Index.

TRP Ret 2050 Index consists of 64.4% Russell 3000 Index, 27.6% MSCI ACW Ex US Index (USD) (Net), 8.0% Bloomberg US Agg Bond Index, and 0.0% Bloomberg US TIPS 1-5 Yr Index.

TRP Ret 2055 Index consists of 64.4% Russell 3000 Index, 27.6% MSCI ACW Ex US Index (USD) (Net), 8.0% Bloomberg US Agg Bond Index, and 0.0% Bloomberg US TIPS 1-5 Yr Index.

TRP Ret 2060 Index consists of 64.4% Russell 3000 Index, 27.6% MSCI ACW Ex US Index (USD) (Net), 8.0% Bloomberg US Agg Bond Index, and 0.0% Bloomberg US TIPS 1-5 Yr Index.

TRP Ret 2065 Index consists of 68.6% Russell 3000 Index, 29.4% MSCI ACW Ex US Index (USD) (Net), 2.0% Bloomberg US Agg Bond Index, and 0.0% Bloomberg US TIPS 1-5 Yr Index.

Glossary

Active Return - The difference between the investment manager/composite performance relative to the performance of an appropriate market benchmark.

Active Share - Measures the degree to which the holdings of a fund differ from the holdings of the benchmark. Active share is calculated by taking the sum of the absolute value of the differences of the weight of each holding in the fund versus the weight of each holding in the benchmark and dividing by two.

Alpha - A measure of the difference between a portfolio's actual returns and its expected performance, given its level of risk as measured by beta. It is a measure of the portfolio's historical performance not explained by movements of the market or a portfolio's non-systematic return.

Alpha Ratio - A measure of a portfolio's non-systematic return per unit of downside risk. It is measured by dividing the alpha of a portfolio by the downside risk. The non-systematic return is a measure of a portfolio's historical performance not explained by movements of the market.

Average Quality - Bond quality ratings are reported using the investment managers' and the index providers' preferred rating agency. *Average Quality for managers unable to provide this statistic is instead provided by Morningstar; if unavailable on Morningstar, it has been estimated using a credit quality distribution provided by the manager.* There are two primary rating agencies in the US. *Moody's* assigns ratings on a system that employs up to four symbols (consisting of letters and numbers), such as, Aaa, Aa2, etc., with Aaa being the highest or safest rating. *Standard & Poor's (S&P)* employs a system that uses + and - along with letters, such as AAA, AA+, etc. The two rating agencies' systems are summarized below:

<u>S&P</u>	<u>Moody's</u>	<u>Explanation</u>	<u>S&P</u>	<u>Moody's</u>	<u>Explanation</u>
Higher Credit Quality – Investment Grade			Lower Credit Quality – Below Investment Grade		
AAA	Aaa	Prime/Highest credit quality	BB+	Ba1	Speculative/Low credit quality
AA+	Aa1	High credit quality	BB	Ba2	
AA	Aa2		BB-	Ba3	
AA-	Aa3		B+	B1	Highly speculative
A+	A1	Upper-medium credit quality	B	B2	
A	A2		B-	B3	
A-	A3		CCC+	Caa1	Substantial credit/default risk
BBB+	Baa1	Lower-medium credit quality	CCC	Caa2	Extremely speculative
BBB	Baa2		CCC-	Caa3	
BBB-	Baa3		CC	Ca	Vulnerable to default
			C	Ca	
			D	C	In default

Beta - A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of a portfolio's non-diversifiable or systematic risk.

Book Value Return - Used by stable value and Guaranteed Investment Contracts (GIC) investments that are not valued daily. Book value returns are calculated based on the crediting rate set by the fund and guaranteed by the insurance wrap provider.

Box Plots - A graphical representation of the distribution of observations. From top to bottom, the four boxes represent the spread between the maximum value and the minimum value in each quartile. A quartile represents the values that divide the observations into four quarters (i.e., 1st quartile, 2nd quartile, 3rd quartile, and 4th quartile). The median observation is where the 2nd quartile and 3rd quartile meet.

Buy and Hold Attribution - At the beginning of the time period under analysis, the manager and benchmark portfolios are broken down into segments (i.e., styles, sectors, countries, and regions) based on the desired type of attribution. The formula assumes zero turn-over to the manager and benchmark portfolios throughout the period and calculates the segment returns ("buy and hold returns") to arrive at performance attribution. Due to portfolio turnover, buy and hold attribution may not accurately represent quarterly performance relative to the benchmark. Country, region, sector, and style allocations are as of the date one quarter prior to the reporting date, and the returns shown are for those segments throughout the quarter reported. Due to disclosure guidelines set by each investment manager, equity characteristics shown are as of the most recent date available. The following is the methodology for segment classification:

Sector - Attribution is calculated using the Global Industry Classification Standard (GICS), which is a detailed and comprehensive structure for sector and industry analysis. Stocks are classified by their primary sector as defined by S&P Capital IQ data.

Country/Region - Attribution is calculated using the Morgan Stanley Capital International (MSCI) region standards. Stocks are classified by their domicile country/region, as defined by S&P Capital IQ data, and thus may differ from the classification of the investment manager and/or index provider.

Style - Stocks are classified into the following style boxes: large/mid/small vs. growth/neutral/value. Stocks are classified along large/mid/small categories at the time of the Russell index rebalancing, using the index market cap boundaries as cutoff points. Stocks are classified along growth/neutral/value categories at the time of the Russell index rebalancing, using the price/book ratio as supplied by S&P Capital IQ. Stocks in the Russell 3000 Index portfolio are sorted by price/book ratio; names with the highest price/book ratio that make up 1/3 of the total market capitalization are assigned to the growth category, and names that make up the subsequent 1/3 of the total market capitalization are assigned to the neutral category, while the balance of the names are assigned to the value category. Stocks are unclassified when there is not enough data to determine a size and style metric.

Portfolio Characteristics and Buy and Hold Attribution reports utilize product-specific data for all mutual funds and commingled funds.

Capital Markets Review -

Breakeven Inflation - Measures the expected inflation rate at each stated maturity by taking the difference between the real yield of the inflation-linked maturity curve and the yield of the closest nominal Treasury maturity.

Consumer Confidence - Measures domestic consumer confidence as defined by the degree of optimism on the state of the economy that consumers express through saving and spending.

Consumer Price Index (CPI) - Measures the change in the price level of consumer goods and services.



Glossary

Federal Funds Rate - The interest rate at which a depository institution lends funds maintained at the Federal Reserve to another depository institution overnight. It is one of the most influential interest rates in the US economy, since it affects monetary and financial conditions, which in turn have a bearing on key aspects of the broad economy including employment, growth and inflation.

Option-Adjusted Spread - Measures the flat spread of an index or bond to the Treasury yield curve after removing the effect of any embedded options.

Purchasing Managers Index (PMI) - Measures economic activity by surveying purchasing managers on a monthly basis as to whether business conditions have improved, worsened, or stayed the same.

Real Gross Domestic Product (Real GDP) - An inflation-adjusted measure that reflects the value of all goods and services produced by an economy in a given year.

Unemployment Rate - The percentage of the total labor force that is unemployed but actively seeking employment.

US Dollar Total Weighted Index - Measures the value of the US Dollar relative to a basket of other world currencies. It is calculated as the weighted geometric mean of the dollar's value versus the EUR, GBP, CAD, SEK, CHF, and JPY.

VIX - Measures the implied volatility of S&P 500 Index options by looking at the market's expectation of the S&P 500 Index volatility over the next 30 day period. Commonly referred to as the "fear index" or the "fear gauge."

Consistency - The percentage of quarters that a product achieved a rate of return higher than that of its benchmark. The higher the consistency figure, the more value a manager has contributed to the product's performance.

Convexity - A measure of the shape of the curve that describes the relationship between bond prices and bond yields.

Correlation - A statistical measure of the relationship between asset class returns. A value of 1.00 is a perfect correlation; that is, the asset classes always move in the same direction. A value of -1.00 indicates a perfect negative correlation, in which the asset classes always move in opposite directions of each other. A value of 0 indicates there is no relationship between the direction of returns of the two asset classes. Correlation calculations only consider the direction of changes relative to two variables and not the magnitude of those changes.

Coupon Rate - The percentage rate of interest paid on a bond or fixed income security; it is typically paid twice per year.

Current Yield - The annual income of a security divided by the security's current price.

Down Market Capture - Down market by definition is negative benchmark return and down market capture represents the ratio in % terms of the average portfolios return over the benchmark during the down market period. The lower the value of the down market capture the better the product's performance.

Downside Risk - A measure similar to standard deviation that focuses only on the negative movements of the return series. It is calculated by taking the standard deviation of the negative returns for the selected periodicity. The higher the factor, the riskier the product.

Earnings Per Share - It is backward looking, calculated using the one year current EPS divided by the one year EPS five years ago.

Effective Duration - The approximate percentage change in a bond's price for a 100 basis point change in yield.

Excess Return vs. Market - Average of the monthly arithmetic difference between the manager's return and the benchmark return over a specified time period, shown on an annualized basis.

Excess Return vs. Risk Free - Average of the monthly arithmetic difference between the manager's return and the risk-free return (i.e., ICE BofAML 3 Mo US T-Bill Index unless specified otherwise) over a specified time period, shown on an annualized basis.

Excess Risk - A measure of the standard deviation of a portfolio's performance relative to the risk-free return.

Expense Ratios - Morningstar is the source for mutual fund expense ratios.

Indices - All indices and related information are considered intellectual property and are licensed by each index provider. The indices may not be copied, used, or distributed without the index provider's prior written approval. Index providers make no warranties and bear no liability with respect to the indices, any related data, their quality, accuracy, suitability, and/or completeness.

Information Ratio - Measured by dividing the active rate of return by the tracking error. The higher the information ratio, the more value-added contribution by the manager.

Market Capitalization - The total dollar market value of a company's outstanding shares.

Market to Book Value - A ratio of the market value of all fund assets relative to the book value of those assets for a stable value fund. Wrap contracts provide for the payment of individual participant benefits at book value under normal circumstances.

Market Value Return - The returns associated with the underlying assets of a portfolio used to support the book value return provided to investors. For stable value investments, the market value return is representative of the performance of the portfolio as a daily-valued investment, but is purely for illustrative purposes. The investor instead earns the stated book value return.

Modified Duration - The approximate percentage change in a bond's price for a 100 basis point change in yield, assuming the bonds' expected cash flows do not change.

Mutual Fund Performance - Whenever possible, manager performance is extended for any share class that does not have 10 years of history. Using Morningstar's methodology, a single ticker within the same fund family (often the oldest share class) is chosen to append historical performance.

Glossary

Peer Groups -

Investment Manager Peer Groups - RVK utilizes Investment Metrics' Peer Groups for investment manager peer comparison and ranking. The Investment Metrics Peer Group database includes performance and other quantitative data for over 840 investment management firms and 29,000 investments products, across more than 160 standard peer groups. Mutual Fund Peer Groups are net of fees.

Percentile Rankings - Percentile rank compares an individual fund's performance with those of other funds within a defined peer group of managers possessing a similar investment style. Percentile rank identifies the percentage of a fund's peer group that has a higher return (or other comparative measurement) than the fund being ranked. Conversely, 100 minus the individual fund's ranking will identify the percentage of funds within the peer group that have a lower return than the fund being ranked.

1 - Highest Statistical Value 100 - Lowest Statistical Value

Example: American Funds AMCP;R-4 (RAFEX) is ranked in the 4th percentile within the IM US Equity Large-Cap Growth Funds (MF) Peer Group for the Sharpe Ratio. Within the IM US Equity Large-Cap Growth Funds peer group, 4% of the other funds performed better than American Funds AMCP;R-4 (RAFEX), while 96% of the funds performed worse.

Performance Methodology - Performance shown is provided by the investment managers and is annualized for periods greater than one year.

Portfolio Characteristics - Due to disclosure guidelines set by each investment manager, portfolio characteristics shown are as of the most recent date available.

Price to Earnings Ratio - The ratio valuing a company's current share price relative to its trailing 12-month per-share earnings (EPS).

R-Squared - The percentage of a portfolio's performance explained by the behavior of the appropriate benchmark. High R-Squared means a higher correlation of the portfolio's performance to the appropriate benchmark.

Return - Compounded rate of return for the period.

Risk Free Benchmark - ICE BofAML 3 Mo US T-Bill Index unless specified otherwise.

Sector Allocation - Negative fixed income sector allocation reflects manager's use of derivatives, short selling, or interest rate swaps.

Sharpe Ratio - Represents the excess rate of return over the risk-free return (i.e., ICE BofAML 3 Mo US T-Bill Index unless specified otherwise), divided by the standard deviation of the excess return to the risk free asset. The result is the absolute rate of return per unit of risk. The higher the value, the better the product's historical risk-adjusted performance.

Simple Alpha - The difference between the manager's return and the benchmark's return.

Spread Duration - The approximate percentage change in a bond's price for a 100 basis point change in its spread over a Treasury of the same maturity.

Standard Deviation - A statistical measure of the range of a portfolio's performance. The variability of a return around its average return over a specified time period.

Time Period Abbreviations - **QTD** - Quarter-to-Date. **CYTD** - Calendar Year-to-Date. **FYTD** - Fiscal Year-to-Date. **YOY** - Year Over Year.

Tracking Error - A measure of the standard deviation of a portfolio's performance relative to the performance of an appropriate market benchmark.

Treynor Ratio - Similar to Sharpe ratio, but focuses on beta rather than excess risk (standard deviation). Treynor ratio represents the excess rate of return over the risk-free rate (i.e., ICE BofAML 3 Mo US T-Bill Index unless specified otherwise) divided by the beta. The result is the absolute rate of return per unit of risk. The higher the value, the better the product's historical risk-adjusted performance.

Up Market Capture - Up market by definition is positive benchmark return and up market capture represents the ratio in % terms of the average portfolio's return over the benchmark during the up market period. The higher the value of the up market capture the better the product's performance.

Yield to Maturity - The rate of return achieved on a bond or other fixed income security assuming the security is bought and held to maturity and that the coupon interest paid over the life of the bond will be reinvested at the same rate of return. The 30-Day SEC Yield is similar to the Yield to Maturity and is reported for mutual funds.

Yield to Worst - The bond yield calculated by using the worst possible yield taking into consideration all call, put, and optional sink dates.

Follow-Up Items



Investment Manager Update

Neuberger Hi Inc B;Inst (NHILX) – 0.6% of Combined Plans at \$6.1M as of December 31, 2021

- Neuberger Berman recently announced the retirement of two senior portfolio managers on the Non-Investment Grade team, Russ Covode and Dan Doyle, effective June 2022. Both are members of the Credit Committee and focused on high yield strategies.
 - The timing is not unexpected given both manager’s long tenure in the industry. Additionally, both provided a 12-month notice.
 - With the long lead time, Neuberger Berman had an opportunity to strengthen the rest of the team, adding a portfolio analyst, a senior trader, and a client specialist, with another junior analyst starting next year. In addition, Neuberger Berman recently added a Director of Capital Markets a few years ago. These roles help reduce the responsibilities that portfolio managers have historically held and allows them to focus more directly on portfolio management.
 - Neuberger Berman does not plan to add any new portfolio managers. They believe they have adequate coverage through Joe Lind and Chris Kocinski, who already manage about 75% of their high yield assets. Although the four portfolio managers work together and are generally named to all portfolios, Mr. Covode’s focus has been on Short Duration High Yield, while Mr. Doyle’s has been on the buy & hold-style approach of their High-Quality High Yield offering. These two strategies represent a much smaller portion of the High Yield platform.
 - Neuberger Berman is not planning to add additional members to the Credit Committee. The Committee is made up of the seven current high yield and bank loan portfolio managers, the co-Directors of Research, and the Director of Capital Markets, currently 10 in all. Its role is to approve all securities for investment, but portfolio managers are responsible for the inclusion of individual securities and sizing decisions.
- **RVK Opinion: Given Neuberger Berman’s record of previous transitions and additional resources added, RVK does not recommend action at this time but will continue to closely monitor the situation and communicate notable developments.**

Investment Manager Update

Dodge & Cox Intl Stock (DODFX) – 0.7% of Combined Plans at \$8.0M as of December 31, 2021

- Dodge & Cox provided an update to the planned leadership transition previously discussed at the July EIAC meeting. Senior Vice President and Director of International Equity, Diana Strandberg, will also be retiring at the end of 2022, after 35 years with the firm. She will transition her Committee positions over the next year but remain on the Board of Directors.
- **RVK Opinion:** The additional retirement represents one part of Dodge & Cox's long-term succession planning. RVK believes that Dodge & Cox continues to employ an experienced and deep research team. As a result, RVK is not recommending action based on this announcement.

PORTLAND

BOISE

CHICAGO

NEW YORK

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Short Term Investment Pool Management Overview

Presented by: Kirsten Haswell, John Carpenter, CPA, and
Kelsey Gauthier, CPA

Date: February 2022

Introduction

- Our focus is safety first, liquidity second, and income third.
- All transactions are executed with the strategic objective to achieve a high level of investment income compatible with:
 - Preservation of principal
 - Providing STIP participants with one-day liquidity
 - Prudent investment practices
- Risk mitigation and liquidity are key and interrelated concepts for STIP.

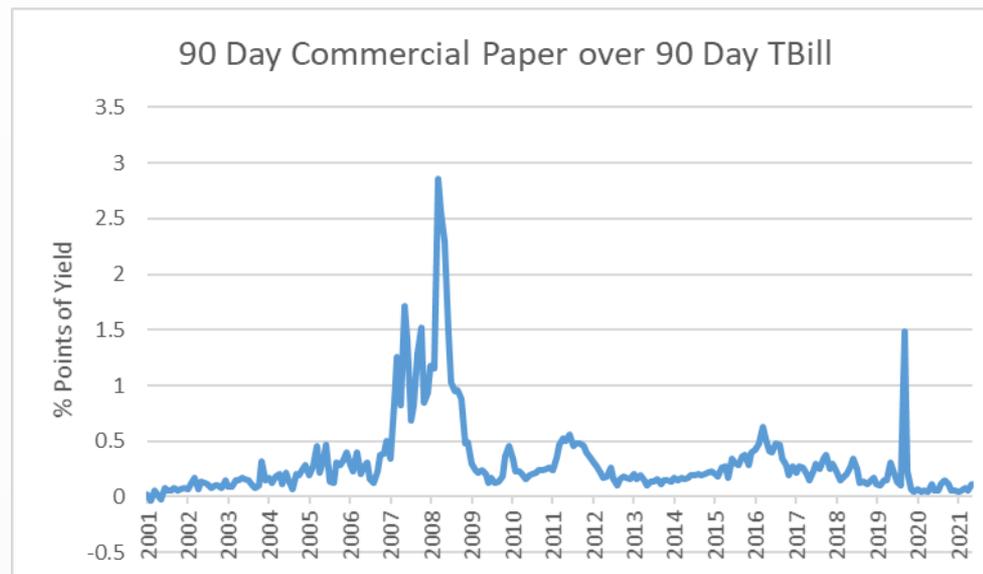
Risk

- The Short-Term Investment Pool (STIP) had over 1,200 transactions totaling in excess of \$44 billion for calendar year 2021.
- The STIP reserve was 0.87% of the STIP balance on 12/31/21.
- The fundamental qualitative risk for STIP is that a participant might not be able to redeem one share of STIP for one dollar.
- This risk is the sum of:
 - Credit Risk
 - Market Risk
 - Liquidity Risk
 - Interest Rate Risk

Risk

Credit Risk

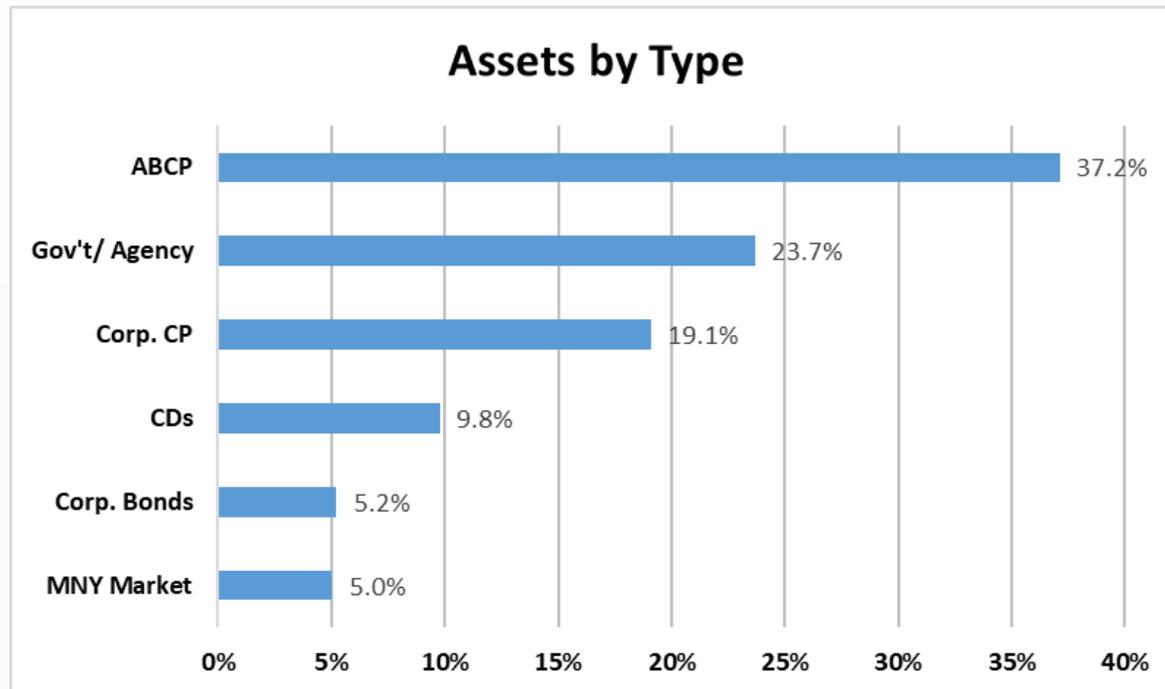
- Individual credit risk is the risk that a single security underperforms.
- Diversification and minimum quality are the key strategies to reduce individual credit risk.
- The Fixed Income team has created a STIP approved list that incorporates Investment Policy Statement restrictions and is discussed with Risk Management at least twice per year.



Risk

Market Risk

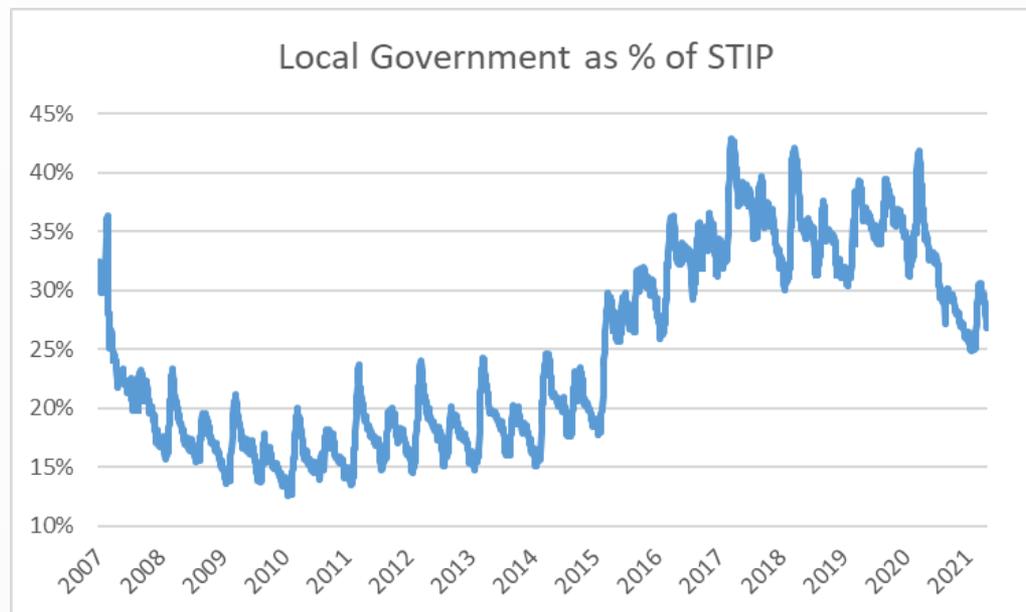
- Market risk is the possibility of losses due to factors that affect the overall performance of the financial markets.
- Maturity caps, minimum credit ratings, and limits on sector concentrations are key strategies to reduce market risk.



Risk

Liquidity Risk

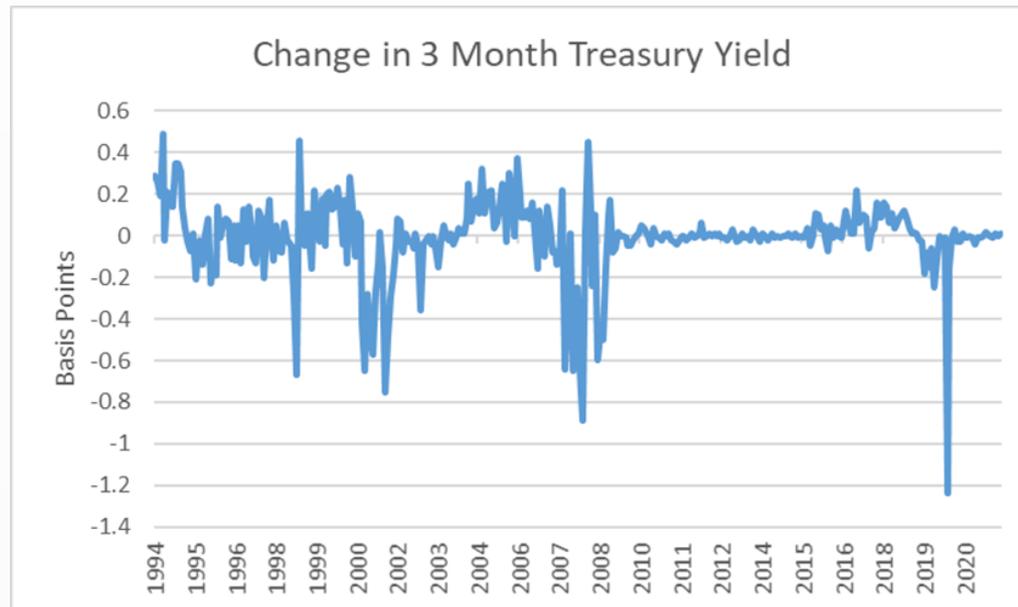
- Liquidity risk is the risk that maturities and money markets are insufficient to meet client redemptions - forcing sales at unfavorable prices.
- STIP redemptions are generally predictable and follow stable patterns.
- Increased local government participation may increase volatility.
- Close cooperation with accounting, DOA, and other investment teams to manage cash flows.



Risk

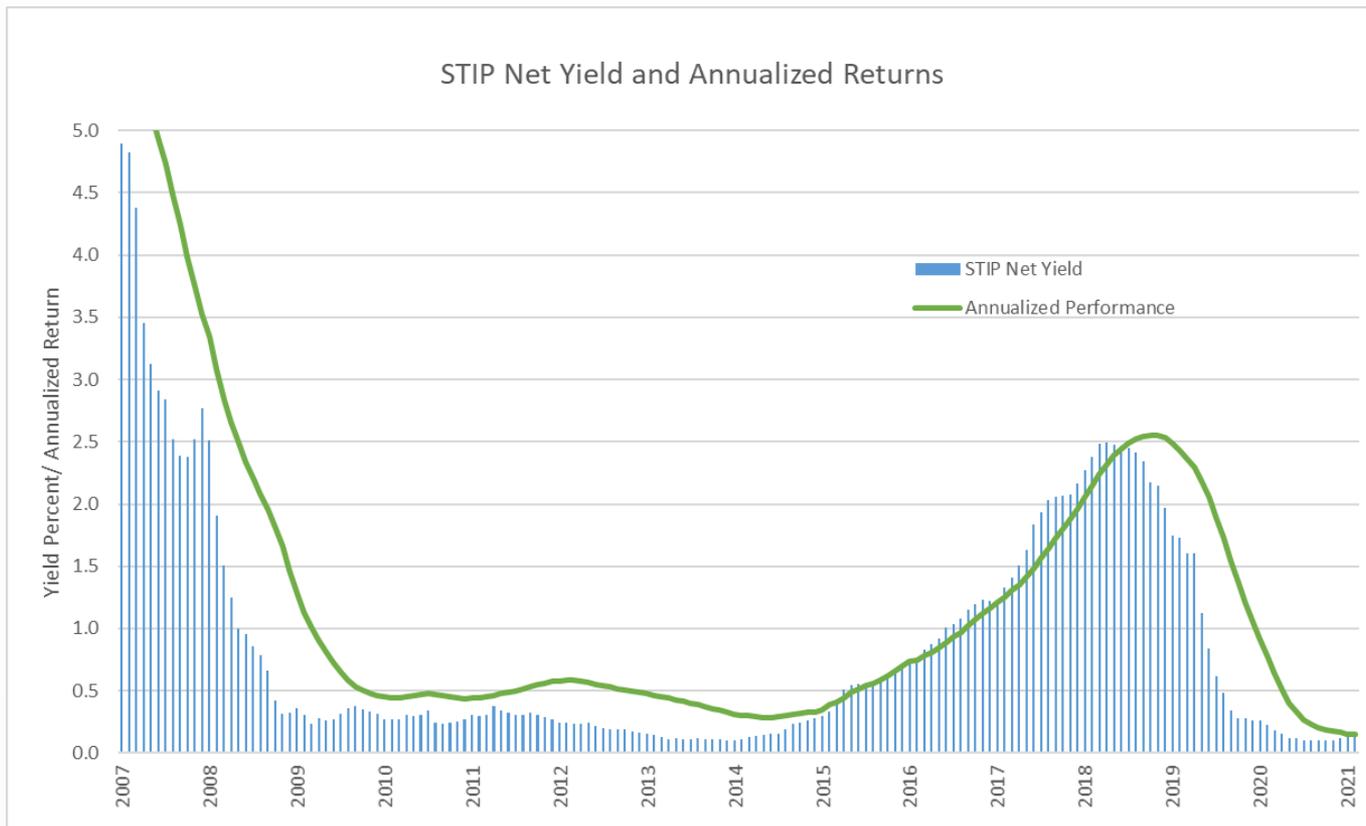
Interest Rate Risk

- Interest rate risk is the risk that the value of the portfolio will decrease due to movement in Treasury rates.
 - When interest rates are rising, the portfolio can miss out on additional yield.
 - When interest rates are decreasing, the portfolio will reinvest proceeds at a lower rate.
- Interest rate risk is usually less than credit risk in STIP because of the short duration of assets.



Performance

- STIP performance is compared to the Federal Reserve US Treasury Constant Maturity 1 Month Index and generally has tracked closely.
- The yield from securities is the biggest factor in performance in STIP.



Conclusion

- Staff overseeing STIP are contemplating, measuring, and managing risk in STIP.
- After the appropriate amount of risk is determined, staff are maximizing income.
- Bloomberg Demonstration

MONTANA

BOARD OF INVESTMENTS

To: Board of Directors
From: Doug Hill-Director In-State Loan Programs
Date: January 31, 2022
Subject: Commercial and Residential Loan Portfolios

As of January 3, 2022, the Commercial loan portfolio balance was \$191,252,154 and represents 108 loans. There are currently five loan reservations that total \$17,244,862 and eight loans committed that total \$6,543,986. The commercial loan portfolio, excluding the Veterans Home Loan Program, Multifamily Coal Trust Homes Program, and Intermediary Relending Program has a yield of 2.63%. There are no loans past due over 30 days.

The Residential loan portfolio reflected an outstanding balance, as of January 22, 2022, of \$1,976,619 and represents 55 loans with a yield of 6.26%. There are no outstanding reservations. There are two loans, with an FHA guaranty, over 90 days past due totaling \$122,271 or 6.15% of the portfolio.

The Veterans Home Loan Mortgage portfolio reflected an outstanding balance, as of January 22, 2022, of \$47,726,291 and represents 273 loans with a yield of 1.66%. There are one reservation totaling \$278,250 with a projected yield of 1.05%. There are four loans over 90 days past due totaling \$557,948, or 1.17% of the portfolio. The remaining available funds is \$1,995,459.

The Multifamily Coal Trust Homes Program reflected an outstanding balance, as of January 22, 2022, of \$5,084,886 and represents four loans with a yield of 2.65%. There are three reservations totaling \$9,293,995 with a projected yield of 2.53%. There are no past due loans. The remaining available funds is \$621,119.

The Intermediary Relending Program reflected an outstanding balance, as of January 3, 2022, of \$4,840,019 and represents 36 loans with a yield of 2.00%. There is \$486,819 available to advance. There are two loans committed that totals \$750,000. There are no past due loans. The remaining available funds is \$3,923,162.

The Montana Down Payment Assistance Programs started on January 13, 2022. There is one reservation for \$570,000 with a yield of 3.738%. The remaining available funds is \$36,430,000.

MONTANA

BOARD OF INVESTMENTS

I N T E R C A P

Activity Summary

As of December 31, 2021

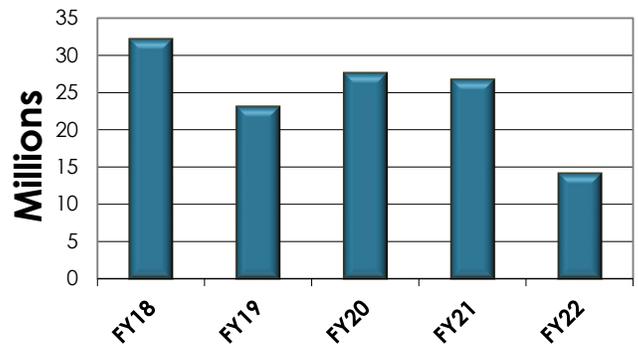
Since Inception 1987 - December 2021

Total Bonds Issued	168,000,000
Total Loan Commitments	673,244,991
Total Loans Funded	643,443,156
Total Bonds Outstanding*	90,600,000
Total Loans Outstanding	69,803,134
Loan Commitments Pending	29,801,835

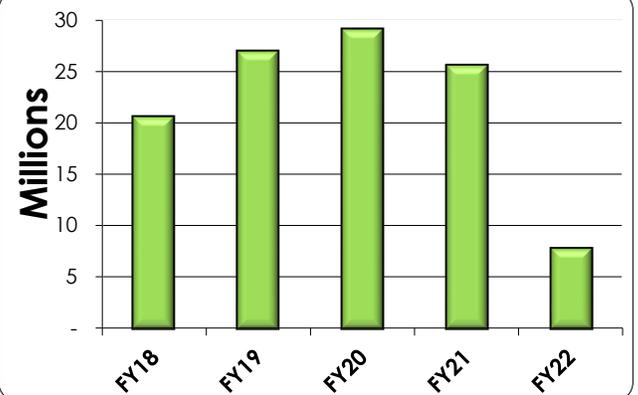
FY2022

Month	Commitments	Fundings
July-21	\$ 33,390	\$ 1,815,374
August	8,116,340	300,927
September	480,000	861,242
October	250,000	1,627,988
November	4,954,072	2,067,150
December	300,000	1,201,519
January		
February		
March		
April		
May		
June-22		
To Date	\$ 14,133,802	\$ 7,874,200

Commitments FY18-FY22



Fundings FY18-FY22



Note: Commitments include withdrawn and expired loans.

Variable Loan Rate History February 16, 2014 - February 15, 2022

February 16, 2014 - February 15, 2015	<u>1.00%</u>	February 16, 2018 - February 15, 2019	<u>3.15%</u>
February 16, 2015 - February 15, 2016	<u>1.25%</u>	February 16, 2019 - February 15, 2020	<u>3.37%</u>
February 16, 2016 - February 15, 2017	<u>1.55%</u>	February 16, 2020 - February 15, 2021	<u>2.50%**</u>
February 16, 2017 - February 15, 2018	<u>2.50%</u>	February 16, 2021 - February 15, 2022	<u>1.65%</u>

*Defeasance on January 25, 2022 to be redeemed in whole March 1, 2022.

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

MONTANA

BOARD OF INVESTMENTS

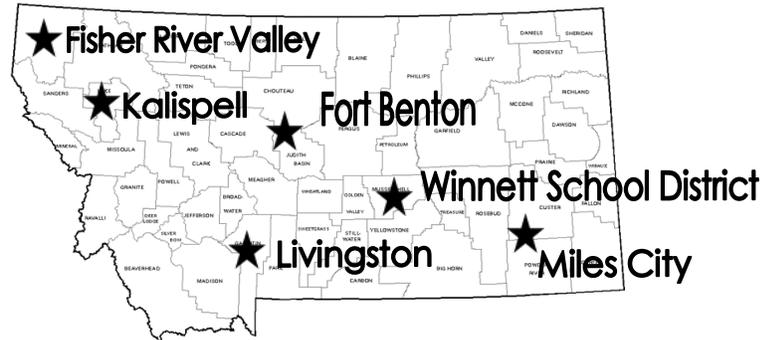
INTERCAP

TO: Members of the Board

FROM: Louise Welsh,
Sr. Bond Program Officer

DATE: February 16, 2022

RE: INTERCAP Staff Approved Loans Committed – Staff approved the following loans from October 1, 2021 to December 31, 2021.



Borrower:	City of Kalispell
Purpose:	Front end loader
Staff Approval Date:	October 4, 2021
Board Loan Amount:	\$ 250,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$ 250,000
Term:	5 years

Borrower:	Fisher River Valley Fire Service Area
Purpose:	Fire truck
Staff Approval Date:	November 9, 2021
Board Loan Amount:	\$ 328,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$ 328,000
Term:	10 years

Borrower:	City of Miles City
Purpose:	Fire truck
Staff Approval Date:	December 1, 2021
Board Loan Amount:	\$ 321,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$ 321,000
Term:	7 years

Borrower:	City of Fort Benton
Purpose:	Utility tractor and sweeper
Staff Approval Date:	December 13, 2021
Board Loan Amount:	\$ 24,000
Other Funding Sources:	\$ 1,680
Total Project Cost:	\$ 25,680
Term:	5 years

Borrower:	Winnett School District
Purpose:	Bus
Staff Approval Date:	December 28, 2021
Board Loan Amount:	\$ 57,087
Other Funding Sources:	\$ 0
Total Project Cost:	\$ 57,087
Term:	7 years

Borrower:	City of Livingston
Purpose:	Loader and grader
Staff Approval Date:	December 28, 2021
Board Loan Amount:	\$ 300,000
Other Funding Sources:	\$ 94,730
Total Project Cost:	\$ 394,730
Term:	10 years