

**REGULAR MEETING OF THE
MONTANA BOARD OF INVESTMENTS
DEPARTMENT OF COMMERCE
2401 Colonial Drive, 3rd Floor
Helena, Montana
February 11-12, 2020
AGENDA**

COMMITTEE MEETINGS

- A. Audit Committee** **8:30 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
 2. Approval of November 19, 2019 Committee Minutes
 3. FY 2019 Financials and Audit
 4. 2020 Audit Checklist Review
 5. Wipfli Management Letter
 6. Policy Revisions – **Decisions**
 - a. Governance Policy
 - b. Governance Policy Appendix B – Code of Ethics
 - c. Governance Policy Appendix N – Custodial Bank Policy
- B. Human Resource Committee** **10:00 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
 2. Approval of January 7, 2020 HR Committee Meeting Minutes
 3. Executive Director – Comments
 4. CIO Hiring Recommendation – **Decision**
 5. Deputy CIO Hiring Recommendation – **Decision**
- C. Loan Committee** **10:45 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
 2. Approval of November 19, 2019 Committee Minutes
 3. New Approved Lender
 4. In-State Loan Policy Revision – **Decision**
 5. INTERCAP Loan Requests – **Decisions**

BREAK **11:15 AM**

- Tab 1 CALL TO ORDER – Karl Englund, Chairman** **11:30 AM**
- A. Roll Call
 - B. Notice of Video Recording
 - C. Public Comment – *Public Comment on issues with Board Jurisdiction*
 - D. Approval of the November 19-20, 2019 Minutes
 - E. Administrative Business
 1. Audit Committee Report – **Decisions**
 2. Human Resource Committee Report – **Decision**
 3. Loan Committee Report – **Decision**
 - F. Comments from TRS and PERS Board Members
 - G. Comments from Board Legislative Liaisons

- Tab 2 EXECUTIVE DIRECTOR REPORTS – Dan Villa** **11:45 AM**
- A. Introduction of New Staff - Peggy MacEwen, Deputy Director
 - B. Member Requests or Follow up from Prior Meeting
 - C. Monthly Snapshot
 - D. Ethics Policy, Board and Staff Compliance
 - E. Disaster Recovery and Emergency Preparedness
 - F. FY 2019 Annual Report and Financial Statements – Update
 - G. Staff Outreach Efforts – Loan and Municipal Programs
 - H. Consolidated Asset Pension Pool (CAPP)

LUNCH **12:00 PM**

Tab 3	SHORT-TERM INVESTMENT POOL (STIP) REVIEW Kirsten Haswell and John Romasko, CFA	1:00 PM
Tab 4	INVESTMENT POLICY REVISIONS – Decisions Jon Putnam, CFA, FRM, CAIA, John Romasko, CFA	2:00 PM
	BREAK	2:30 PM
Tab 5	IN-STATE LOAN PROGRAM ACTIVITY Doug Hill, Director of In-State Loans	2:45 PM
Tab 6	INTERCAP Program Activity Louise Welsh, Senior Bond Program Officer, Savannah Morgan, Bond Program Officer	3:00 PM
	LITIGATION DISCUSSION	3:15 PM
	ADJOURN	5:00 PM

Board members will receive security badges and a briefing on new building access requirements/security upgrades upon adjournment.

AGENDA DAY 2

	RECONVENE AND CALL TO ORDER – Karl Englund, Chairman	8:30 AM
	1. Roll Call	
	2. Notice of Video Recording of Meeting	
	3. Public Comment – <i>Public Comment on issues with Board Jurisdiction</i>	
Tab 7	PRIVATE INVESTMENTS - NEW COMMITMENTS – Michael Nguyen, Thomas Winkler, CAIA	8:35 AM
Tab 8	NATURAL RESOURCES/REAL ESTATE – NEW COMMITMENTS – Ethan Hurley, CAIA & Emily Kovarik, CPA	8:55 AM
Tab 9	QUARTERLY PERFORMANCE REPORT – RVK, Inc.	9:15 AM
	BREAK	10:15 AM
Tab 10	CAPP PORTFOLIO LIQUIDITY ANALYSIS – RVK, Inc.	10:30 AM
Tab 11	INVESTMENT UPDATE	10:55 AM
	A. CIO Update – Dan Villa	
	B. Risk Management – Dan Zarling, CFA, CIPM	
	C. Cash Asset Class – Mike Pettit	
	D. Private Investments – Michael Nguyen	
	E. Real Estate – Ethan Hurley, CAIA	
	F. Natural Resources – Ethan Hurley, CAIA	
	G. Core Fixed Income - Jon Putnam, CFA, FRM, CAIA	
	H. Non-Core Fixed Income – Rande Muffick, CFA	
	I. Domestic Equity – Rande Muffick, CFA	
	J. International Equity – Rande Muffick, CFA	
	K. STIP – Kirsten Haswell	
	L. State Fund – Jon Putnam, CFA, FRM, CAIA	
	M. Trust Fund Investment Pool – John Romasko, CFA	
	RECAP OF STAFF TO DO LIST AND ADJOURNMENT – Karl Englund, Chairman	12:00 PM

Appendix

- A. Annual Board Meeting Schedule
- B. 24 Month Work Plan
- C. Acronym Index
- D. Terminology List

**MONTANA BOARD OF INVESTMENTS
DEPARTMENT OF COMMERCE
2401 Colonial Drive, 3rd Floor
Helena, Montana**

MINUTES OF THE MEETING – November 19-20, 2019

BOARD MEMBERS PRESENT:

Karl Englund, Chair
Mark Noennig, Vice Chair
Terry Cohea
Jim Edwards
Jeff Greenfield
Bruce Nelson
Maggie Peterson
Jack Prothero
Diane Fladmo

LEGISLATIVE LIAISONS PRESENT:

Senator Fred Thomas
Representative Jim Hamilton

STAFF PRESENT:

Polly Boutin, Associate Financial Manager
Jason Brent, CFA, CAIA, Investment Officer
Public Markets
Dana Chapman, Board Secretary
Frank Cornwell, CPA
Associate Financial Manager
Julie Feldman, CPA, Financial Manager
Kelsey Gauthier, CPA, Investment Accountant
Kirsten Haswell, Investment Analyst
Tim House, Investment Analyst
Doug Hill, Director of In-State Loan Programs
Ethan Hurley, CAIA
Director of Real Estate/Natural Resources
Teri Kolnik, CFA, Investment Analyst

Eron Krpan, CFA, CIPM, Investment Analyst
Savannah Morgan, Bond Program Officer
Michael Nguyen, Director of Private Equity
Mike Pettit, Director of Investment Operations
Jon Putnam, CFA, FRM, CAIA
Director of Fixed Income
John Romasko, CFA, Investment Officer
Steve Strong, Investment Analyst
Dan Villa, Executive Director/Acting CIO
Louise Welsh, Senior Bond Program Officer
Acting Deputy Director
Dan Zarling, CFA, CIPM
Director of Risk Management

GUESTS:

Becky Gratsinger, CFA, CEO, Senior Consultant, Principal, RVK, Inc.
Mark Higgins, CFA, Principal, RVK, Inc.
Shawn Graham, Executive Director, Teachers' Retirement System
Dore Schwinden, Executive Director, Montana Public Employee Retirement Administration
William Holahan, Legal Counsel, Montana Public Employee Retirement Administration
Tara Rice, Executive Director, Department of Commerce
Sean Puckett, CFA, CAIA, Next Gen

CALL TO ORDER

Chairman Karl Englund called the regular meeting of the Board of Investments (Board) to order at 11:32 a.m. As noted above a quorum of Board Members was present. Chairman Englund advised of video and audio recording of the meeting and asked for public comment on issues within Board jurisdiction. There was none.

Chairman Englund called for comments or revisions to the minutes from the October 8, 2019 Board Meeting.

Member Jack Prothero made a motion to approve the October 8, 2019 Board Meeting Minutes. Member Maggie Peterson seconded the motion. The motion carried.

ADMINISTRATIVE BUSINESS

Audit Committee Report

The Audit Committee met prior to the Board meeting. Committee Chair Maggie Peterson reported the Committee reviewed the Audit Committee Responsibilities Checklist. Ms. Julie Feldman provided an update on the fiscal year 2019 Financial Audit. There are currently three auditors on site.

Ms. Louise Welsh presented the draft 2019 Annual Report. The format is the same as last year.

The Audit Committee is recommending approval of the draft 2019 Annual Report, subject to minor corrections/revisions and Committee Chair Peterson so moved. Member Bruce Nelson seconded the motion. The motion carried.

Committee Chair Peterson stated the Committee also reviewed draft financial statements for the Unified Investment Program (UIP) and the Enterprise Program. The UIP net asset value increased from \$18.6 to \$19.6 billion, a \$1 billion increase. The Committee is recommending approval of both draft financial statements subject to any minor corrections/revisions.

Committee Chair Peterson made a motion to approve both the UIP and Enterprise Program financial statements, subject to minor corrections/revisions. Member Jeff Greenfield seconded the motion. The motion carried.

Committee Chair Peterson stated the Committee also reviewed and approved the FY19 Statutory Compliance Checklist. The checklist does not need full Board approval.

Committee Chair Peterson stated the Committee approved the final Wipfli SOC 1® Type 2 Report. The Committee is recommending Board approval of the final Report.

Committee Chair Peterson made a motion to approve the final SOC 1® Type 2 Report. Member Jack Prothero seconded the motion. The motion carried.

Lastly the Committee received a securities litigation status report from Mr. Mike Pettit. BOI received settlement monies of \$422,195 for 2019.

Human Resources (HR) Committee Report

The HR Committee met prior to the Board meeting. Committee Chair Terry Cohea noted that there were no responses to the CIO search firm Request for Proposal (RFP). It has been determined the CIO search will be handled internally and Executive Director Villa outlined key points for the CIO search in his memo. Staff will have additional clerical assistance to handle the logistics. Advertising will begin immediately, with a goal of late January, early February interviews.

Committee Chair Cohea made a motion to adopt the CIO hiring procedures as detailed in Director Villa's memo. Member Jim Edwards seconded the motion. The motion carried.

The Committee also reviewed staff annual performance appraisals.

Loan Committee Report

The Loan Committee met prior to the Board meeting. Committee Chair Jack Prothero stated the Committee approved a \$2 million loan to Lewis & Clark Library for remodeling, including seismic upgrades, and a \$2.8 million loan to the Montana Department of Transportation (MDT) for motor pool vehicle purchase. Neither loan requires full Board approval. The Committee also approved Resolution No. 244 which renames the Guaranty Fund to the Bond Program Operating Reserve Fund. There is about \$2.7 million in the Fund. Full Board approval is needed.

Committee Chair Prothero made a motion approve Resolution No. 244. Vice Chair Mark Noennig seconded the motion. The motion carried.

Public Employees' Retirement System (PERS) and Teachers' Retirement System (TRS) Updates

Member Jeff Greenfield reported the TRS Board met on October 11. Topics on the agenda included a review of the updated 2019 Goals and Objectives, review of the TRS Strategic Plan, an update on the computer program upgrades which are winding down, and a discussion on the 2019 actuarial valuation.

Member Maggie Peterson reported the PERS Board met on October 10. Items on the agenda included a discussion of the FY2019 Actuarial Valuation as well as a presentation on the audit by the internal auditor who relayed there were very few findings. Eight funds had one or more finding, mostly due to part-time employees who were not offered participation in the plan. The Board also approved the performance evaluation process for the executive director.

Legislative Liaisons Comments

Senator Fred Thomas stated there will be a legislative week in January. Several interim committees will be meeting during that time discussing budget, revenue and other key updates. Over the legislative term of 24 months, the legislature meets for the first four months and then goes mostly quiet. The January week meetings will ensure legislators are up to date and there will be discussions on possibly changing over to annual legislative sessions.

Chairman Karl Englund asked if an annual format would include one year of budget and one year of non-budget items.

Senator Thomas stated that was correct. There will still be a two-year budget cycle and the general session will still true up the budget. The format is yet to be determined if the switch is made to annual sessions. There is a lot of push to develop a more experienced body; term limits have stripped some of that out. The idea is to have a more knowledgeable body with more public involvement. At this point the legislature is taking input; there are a lot of details required and a plan needs to be developed.

Representative Jim Hamilton stated the legislature is not necessarily quiet during those non-session 20-month periods. Representative Hamilton stated he has attended a few interim committees including one looking at a tax study. The Revenue Interim Committee is focused on the tax side of things and on the sustainability of the budget. One item will be analyzing the risk to the budget from the pension plans if investments do not perform as well as expected.

EXECUTIVE DIRECTOR'S REPORT

Overall Comments

Executive Director Dan Villa reviewed requests and follow-up from the prior meeting. Mr. Eron Krpan will present the attribution analysis as discussed during the last meeting. Vice Chair Noennig brought up the liquidity question, and staff has started a liquidity analysis in house, looping in RVK. A full report will be presented at the February meeting. There is consensus we can afford to be more illiquid, although the exact specifics have not yet been determined.

The monthly snapshot, updated Resolution 217 Memo and the Governor's letter on meeting participation are all included in the Board packet. The proposed 2020 Board Meeting calendar needs to be formally adopted. Director Villa noted there were a few minor changes over the 2019 calendar. The one-day October meeting will be the Tuesday after the Columbus Day holiday and the February meeting has been moved up earlier in the month.

After further discussion, the Board changed the proposed February 4-5 meeting dates to February 11-12 due to the CIO interviews.

Member Terry Cohea made a motion approve the 2020 Board Meeting Calendar, as revised. Member Prothero seconded the motion. The motion carried.

Director Villa presented the 2020 Work and Education Plan noting it has been reviewed and updated to ensure all areas are covered.

Member Prothero made a motion to approve the 2020 Work and Education Plan. Member Terry Cohea seconded the motion. The motion carried.

Director Villa presented the final Contract for Investment Consulting Services with RVK, Inc. The final contract incorporates some revisions from Board guidance and input from RVK.

Member Maggie Peterson made a motion approve the final RVK, Inc. Consulting Services Contract as presented. Member Jim Edwards seconded the motion. The motion carried.

MT Teachers' Retirement System (TRS) & MT Public Employees' Retirement Administration (MPERA)
TRS Executive Director Shawn Graham presented a summary of the 2019 TRS Valuation Results which is available on the TRS website. The benefit financing formula is Contributions + Investment Income = Benefits + Expenses. The result reflects either a surplus or a deficit. The Contributions over the short term depend on the actuarial assumption; the long term relies on investment income and expenses.

Members of TRS include employees of school districts, some university and community colleges. TRS has 19,686 active members, 16,052 inactive members and serves 365 employers in Montana. Inactive members are those who are vested but have terminated employment, although at some point activity is expected. Terminated employees who are unvested can withdraw their money.

The market asset return averaged 5.69% vs. the 7.50% actuarial rate, or 1.81% below assumption. With smoothing over four years, the actuarial asset return was 7.00% vs. the actuarial rate of 7.50%, or 0.50% less than expected.

The funded ratio increased from 68.19% to 68.63% which decreased the amortization period from 31 to 29 years. If all assumptions are achieved, the plan would be 100% funded by 2048.

MPERA Executive Director Dore Schwinden presented a summary of the 2019 MPERB Valuation Results and noted MPERA Chief Legal Counsel Bill Holahan was in attendance and available for questions.

The Basic Retirement Funding Equation provides an annual valuation financial checkup for a plan, although it provides a snapshot only. If there is an imbalance on one side or other it reflects a surplus or deficit. MPERA has eight defined benefit plans, a defined contribution plan and a 457 plan. Empower Retirement manages the funds which serve over 70,000 members. There are 566 public employers who report their payrolls to MPERA. There are 3,500+ volunteer firefighters; their plan is funded by a fire premium tax.

The PERS market asset return averaged 5.58% vs. the 7.65% expected actuarial rate of return, or 2.07% below assumption. The actuarial asset return averaged 7.13% vs. the actuarial rate of 7.65%, or 0.52% less than expected.

The funded ratio increased slightly from 73.81% to 74.19%. Due to an increase in covered payroll for PERS with the new benefit tiers, the normal cost rate has gone down as the less costly tiers come into the system.

Director Schwinden noted MPERA is not paying down their unfunded liability as quick as TRS. Of the eight defined benefit plans, some are well funded and still not amortizing as required.

Active and retired membership has been stable over time, although retirees are expected to increase and the ratio of retirees vs. active members is about the same as TRS.

The amortization period decreased from 38 to 36 years and should improve as time goes on. All systems except for Highway Patrol improved, and Judges did well despite the contribution holiday. Sheriff Officer's retirement benefited from House Bill 383 two legislative sessions ago; previously it did not amortize at all. Now the fund amortizes, and the funding ratio is improving.

Game Wardens' and Peace Officers' System, which includes the Correctional Staff, is the only system where the employee rate is higher than the employer rate. Attempts at changing it through legislation have failed. PERS has made progress towards funding and if all projections hold, PERS will be 100% funded in 2053.

ASSET ALLOCATION

Mr. Eron Krpan began with a review of the Quarter to Date Attribution of the pension plans. The pension return for the quarter was 93 basis points. The summary shows how each asset class contributed to the total return. The SAA strategic asset allocation shows what the investment return would have been if pension assets were invested in the benchmark at mid-range, which would have returned 95 basis points for the quarter. The Tactical Asset Allocation (TAA) shows the additional positive or negative return vs. the actual return if invested in benchmarks at the neutral midpoints.

Director Villa added the SAA is the midpoint and TAA is where staff deployed assets and whether it was positive or negative. Underweighting domestic equities had a negative impact. Staff is recommending looking at the daily data which will help with the introduction of midpoints and show how performance is vs. the midpoints. Staff may decide the target is not the exact midpoint, although for now, the target is the midpoint of ranges. This can be used for stylistic approaches and will be reviewed once a year with the Board to help with the annual asset allocation decisions.

Director Villa stated staff brought asset allocation to the Board at the last meeting and asked if there were any questions. The revised Retirement Plans Investment Policy statement adjusts the asset allocation ranges and describes the new structures. One important change is that cash levels have been reduced. The new levels decrease the maximums for domestic and international equities and increases private investments slightly. On the efficient frontier, the expected return is 6.79% going by the range midpoints. The asset mix needed to achieve the actuarial rate would create too much risk/standard deviation. Staff will make a directional change and move into higher expected return asset classes and simplify the fixed income asset portfolios. Higher returning assets will be increased.

Ms. Gratsinger added many pension plans are reviewing their 10 to 20-year projections. All assets are expensive now. It's wise to be prepared to lose 28% in a down cycle. Investors are looking at leaning into risk as assumed returns look softer in the next few years. Near term, returns look more modest. Many plans have lowered their assumed rates of return, but all are bound by different laws, situations

and liabilities. For domestic U.S. equity, the BOI plan already has more than peers and we are not recommending an increase. A lot of plans have chosen private equity and real estate to attain returns.

Member Terry Cohea made a motion approve the Public Retirement Plans Investment Policy as revised. Member Jack Prothero seconded the motion. The motion carried.

CONSULTANT REPORT

Quarterly Performance Report – RVK, Inc. – Becky Gratsinger, CFA and Mark Higgins, CFA

Ms. Becky Gratsinger reviewed the Executive Summary and Capital Markets Review. There have been some productive markets, with some volatility along the way. One worry is the China/U.S. tariff trade issue and there have been some farmland issues over the last couple of days. It is a big issue and has affected global growth. The trend is towards slower global growth rates.

The Federal Reserve (Fed) has eased rates three times this year but may now hold tight where they are. Positive drivers include global central banks which may be prepared to provide easing. On the negative side, there is the inverted yield curve which has been linked to recessions. Short term interest rates remain higher than long term rates which is a continuing issue. If the Fed moves interest rates on the shorter end of the curve it would add to that. Over the third quarter of the calendar year, returns had difficulty in non-U.S. equity. The S&P 500 earned just under 2% over the quarter, the bond market was up 2.25%, real estate markets were up 1.3% and commodities have been negative. So far in 2019, U.S. large caps are up 20.55%, small caps 14.18% and the international developed world up 12.8%. Bond markets are up 8.52%. Prices are impacted by interest rates generally and investors still have the same concerns. Looking at a government shut down as well, investors were worried about it one year ago. At end of day yesterday, more returns have been added. The S&P 500 is up almost 27% calendar year to date. It has been a good period for risk assets and quite a bullish market for the year; the interest rate on the 10-year treasury was 1.8% yesterday.

Member Prothero noted although we look at public markets mostly, the portfolio has a large chunk in private markets, and he asked Ms. Gratsinger to share her thoughts on private markets in general.

Ms. Gratsinger replied the REIT index is used to analyze the real estate portfolio, and although the index has had very good returns, it does not accurately reflect the BOI portfolio. There are good income numbers in real estate, although price appreciation is expected to cool down a bit. The private equity market is compared to the small cap index; however, the private equity portfolio is very different. Private equity from a cycle point of view, you should watch for valuations and leverage. The pricing of deals is quite high, and leverage is elevated. Private equity returns have been good.

Mr. Higgins added benchmarking aside, private equity, real estate and natural resources are more of a skill game; finding the attractive opportunities. Calendar year to date returns look good.

Ms. Gratsinger noted for equity returns, there was a major correction at the end of 2018.

Mr. Higgins stated the retirement plans are at \$11.9 billion and will reach \$12 billion if fourth quarter returns hold. PERS is representative of all plans and it has a calendar year to date net return of 11.44%, although plans trailed the benchmarks due to the illiquids. Private equity, real estate and natural resources were a source of drag. Over 7-year and 10-year periods returns have exceeded 7.5%. Over the long-term domestic equity, private equity and the avoidance of hedge funds have all helped. The portfolio has remained consistent for the 5-year and 10-year periods for standard deviation/volatility. The ideal is less volatility, more return, and although borderline for 5-years, over 10-years the plan has less risk than peers. The Sharpe Ratio is in the top quartile for 5-years, and at 16% over 10-years. Plan beta is at the median and risk adjusted returns look good with a moderating beta, despite the high equity exposure.

The Trust Funds Investment Pool (TFIP) returned 2.0% for the quarter ending 9/30/19. STIP will see returns come down; there was a point where returns were hovering at 2.0%. STIP return for the quarter was 56 basis points.

Mr. Higgins provided a summary of asset class performance. Staff will be reconsolidating fixed income assets which will make performance measurement easier. Domestic equity has been tough; staff have thinned out managers which had some underperformance. The overweight to small caps continues and over the long term, we are supportive of the position. It is easier to gain an edge when not as many people are tracking the companies and we expect to get a boost on small caps. International equity has fared better. Domestic equity performance vs. the benchmark has trailed and is at or below the median. International has added value even though the portfolio is trailing peers. It has been a difficult time for managers to outperform the market.

Over 10 years the private equity portfolio has generated a 13.1% return and 12.2% since inception. There are areas that will provide attractive returns. Diversifying strategies is going away

The outlook is caution; double digit returns are not to be expected. With the inverted yield curve, there are signals of a recession at 20-24 months out; by mid-2020 we may see a recession. With the political uncertainty including the trade war and the 2020 election, it will be a volatile time and we may see some shock events. Allocate for the long term to weather any short-term shocks.

BOARD MEETING DAY 2

CALL TO ORDER

Board Chairman Karl Englund called the regular meeting of the Board of Investments (Board) to order at 9:00 a.m. A quorum of Board Members was present. Chairman Englund advised video and audio recording of the meeting was underway.

Commerce Executive Director Tara Rice was in attendance and introduced herself. Ms. Rice started at the Department of Commerce in the spring. BOI is administratively attached to Commerce which handles human resources and administrative issues. Ms. Rice stated she is thrilled to support the Board.

Chairman Englund called for public comment on any issues within the Board's jurisdiction not on the agenda. There was none.

MONTANA LOAN PROGRAMS

In-State Loan Program

Mr. Doug Hill provided a summary of the In-State Loan Program. As of November 4, the Commercial Loan portfolio had a balance of \$165,355,197 consisting of 107 loans. There are two reservations totaling \$7,390,000 and eight committed loans totaling \$56,038,132. The loan portfolio excluding the Veteran's Home Loan (VA) program has a yield of 3.04%. There are no past due loans.

As of October 19, the Residential Loan portfolio had a balance of \$3,342,962 consisting of 87 loans with a yield of 6.58%. There is one FHA loan past due more than 90 days in the amount of \$85,544, or 2.60% of the portfolio. The VA loan program as of October 19 had an outstanding balance of \$39,777,500 representing 233 loans with a yield of 1.91%. There are 24 reservations totaling \$5,253,934 with a projected yield 1.65%. There is one loan over 90 days past due totaling \$173,555 or 0.44% of the portfolio.

Member Prothero asked about the funding status of the VA program.

Mr. Hill stated with over \$5 million in reservations, the program is due to run out of money by about the second or third quarter of 2020.

Member Bruce Nelson noted The Springs in Bozeman is a huge and impressive facility. They are currently taking reservations.

Mr. Hill stated The Springs loan amount is \$28 million and has not been funded yet. The loan will likely be funded the first quarter of 2020 when construction is completed.

BOND PROGRAM REPORTS

Activity Report

Ms. Savannah Morgan presented the INTERCAP Activity Summary and staff approved loans. The eight staff approved loans committed were all repeat borrowers. Of note, total INTERCAP loans funded has surpassed half a billion since inception.

Chairman Englund observed it looks like loan fundings are down compared to previous years.

Ms. Louise Welsh agreed fundings are down and may be primarily due to the interest rate. INTERCAP's variable loan rate is a short-term investment and, in the current market conditions, short-term is a bit higher than the long-term fixed rates local banks can provide. The Department of Natural Resources and Conservation (DNRC) picked up most of the water and sewer project interim financing by their ability to offer lower rates. The fluctuation of the market makes it difficult to determine the outcome for the interest rate in next adjustment period between February 16, 2020 to February 15, 2021, however, at this point, looks favorable that it may go down during the annual remarketing of the program's Bonds in February.

INVESTMENT UPDATE (Quarter Ending 9/30/19)

CIO Update

Director Villa reviewed the quarterly report and stated the portfolio grew by nearly \$100 million last year. The dollar value add was \$429 million and we are still in a surplus position. Performance for the retirement plans is above the actuarial rates. The upcoming asset allocation changes include cash and domestic equity coming down, with other asset classes remaining flat. Changes to the core fixed income portfolio will be implemented next quarter and reports will reflect the newly adopted asset allocation.

According to policy there is a strategic asset allocation and staff will continue to have a broader conversation on how asset allocation can be adjusted in the interim on the way to maximizing return. Cash levels have been drawn down from 3.23% at 9/30/19 to 2.2% as of November 18. The lower performing assets have been deployed into other assets – the goal is to maximize equity exposure.

Asset allocation of the Consolidated Asset Pension Pool (CAPP) at quarter end has changed since last quarter; STIP is the largest factor.

Director Villa stated CAPP returns for the year continued strong for private equity and real estate, and fixed income performed relatively well. Staff are still building out the natural resources portfolio which is heavy in energy and continue to look at additional diversifiers. Although down, natural resources is an asset that lags. The real estate portfolio is being rebalanced and has scaled up.

Looking forward, staff will continue to draw down cash levels both with STIP and cash equivalents, which will be combined going forward. The fixed income team is looking to be the new liquidity source, with treasuries and other liquid assets.

Mr. Mike Pettit explained the pension plans have STIP and CAPP and there was high liquidity in both. Added together, the cash was high. Staff have been working to reduce cash levels by decreasing STIP and investing more in CAPP. Current pension plan cash is 1.68% as opposed to the prior level of 3.0%; it should decrease to 1.0% by the end of the month.

Director Villa added in the short term, the high cash was due to the domestic equities pool; cash was building up and there was a cash bias for a period.

Mr. Pettit stated the bias started 2.5 years ago. Cash started at 2.0% and the decision was made to slowly increase cash which was at 3.0% for a short time. Reviewing all liquidity added together, staff discussed and decided to reduce it.

Director Villa noted the discussion on liquidity and how much was needed began 18 months ago. Staff and RVK had an asset allocation discussion and the decision was made to address liquidity needs and deployment. Plan returns would have been better if the newly adopted asset allocation structure had been adopted a year ago. Staff analyzed where liquidity could be provided when needed. If there is the need to fund a large capital call, the cash asset class and STIP are available. Staff moved the other cash into better returning vehicles that are still liquid.

Mr. Putnam added there are agencies and treasuries which could be tapped at any time.

Ms. Gratsinger noted there are also coupon payments coming in from the real estate investments, as well other sources of income.

Director Villa added there are also contributions from pensions.

Mr. Dan Zarling noted the one-year CAPP Performance Attribution is included and shows the pension returns by contribution of each asset class to total return. Adding up the contribution by each asset class, return is 3.9% total for the year. The first three are domestic, international and private equity which are growth assets and have the highest exposure and expected returns. Due to the fourth quarter draw down, the contributions for risk assets was relatively small. When those three do not do well, it is dependent on the other nine asset classes to provide return. The remaining asset returns helped offset those three.

Private real estate could be considered a growth asset but is useful for income and stability. Fixed income assets are dependent on spread; high yield provides a combination of spread plus price appreciation. Staff have been increasing private equity credit exposure, which is similar to high yield. Private credit, like high yield, has more risk and less liquidity. Fixed income and spread assets in general are not expected to provide returns like growth assets which have a risk level similar to the equity markets.

Risk Management

Mr. Zarling reviewed the risk view of the portfolio. On a growth equity basis, the portfolio is over 6% small cap, balanced between international and U.S. International small cap has greater relative exposure than U.S. small cap and has a higher risk profile along with more return expectation. Over the past year, large caps have been outperforming. Emerging markets were at 5.5% and are subject to the same market forces. In general, we have 60% of our portfolio in growth assets which need to return 10% if all the other real and spread assets return just 4%.

Mr. Eron Krpan noted external managers, by contract, are responsible to ensure the trades they make are compliant with BOI policies. If they are out of compliance, staff receives notice. Although it happens occasionally, it is usually a data issue and not really an out of compliance issue. For the internal portfolios, staff uses Bloomberg for compliance checks. Trades are checked for compliance at the time of trade and approved by the risk or operations teams. If there is a transfer of cash between asset classes, it is checked to ensure adherence to the asset allocation policy. All securities are checked in the all daily holdings file, and portfolios are checked against policy limits.

Private Equity

Mr. Michael Nguyen stated the market environment continues with high valuations, high debt, and a lot of dry powder. Staff continues to be cautious. The private equity portfolio is fairly mature with near

breakeven cash flow; the portfolio is hitting the point where it will self-fund. Exits were down over 2019 and cash received back was below historical levels. Staff have completed eight deals over the year and are nearing completion of another. Of the nine deals, five are reups with existing managers, the other four are new relationships. Staff have a very long-term focus on relationships. New managers represent a strategy expansion and increased diversification of the portfolio.

Real Estate

Mr. Ethan Hurley stated real estate continues to be healthy. The fundamentals remain good, although have moderated some. Supply and demand are in check. Volumes came down a bit in the third quarter but remain healthy. Capitalization rates are stable, although there is room for them to compress more. Debt markets are widely available and REITS are booming, up almost 27% year to date. Pipelines are robust, fundraising strong and default rates continue to decline. The portfolio remains very North American centric. Regarding Asia, we will likely not be investing there anytime soon, as investors are just not getting paid for the extra levels of risk.

Natural Resources

Mr. Hurley stated the portfolio is within policy constraints. Oil is up a bit as of late; OPEC has been disciplined in cuts, and there is talk of additional cuts. The U.S. is producing oil at record amounts which may be contributing to the compression of the market. The fundamentals are strong; pricing is depressed. Master Limited Partnerships (MLPs) are at an all-time low. Staff will recommend adding to that position to add value; yields are high at 8%-9%. Specific to MLPs are mid-stream, transmission and storage. Timber exports have dropped off and prices are down across the board due to the U.S./China trade war. Housing starts are down; dry powder is still out there.

Member Jack Prothero inquired about the timber investment which suffered hurricane damage.

Mr. Hurley replied insurance proceeds will be paid out in two installments totaling \$20 to RMS Management due to the timber damage caused by Hurricane Michael. BOI's portion of the insurance proceeds will total around \$2 million. Salvage value was almost zero as area mills were out of commission after the hurricane and the timber was located right at ground zero.

Member Terry Cohea asked if staff requires insurance on all timber investments.

Mr. Hurley replied on new timber mandates, insurance coverage would be required. On the existing portfolio, insurance covers a portion of it, although not all. Other than weather events, insects and fires can also decimate timber stands.

Asked by Chairman Englund if timber has been a good investment, Mr. Hurley replied yes. Timber has provided a net 5% return and is a stabilizer as well as an income generator. With a net asset value north of \$100 million, staff do not expect to add more any time soon. Staff invested in timber as an inflation hedge and capital preserver.

Mr. Hurley explained natural resources is a long-term duration asset class. The portfolio is heavy on energy and staff are actively looking to diversify; aggregates have been a diversifier. Last week staff approved an investment in mitigation banking. This is when a commercial developer can't avoid wetland/stream damage. Those involved in returning land to its natural state earn credits and sell them to the private market. The credits offset the environmental impacts. It is an income driven strategy and has low correlation.

Fixed Income

Mr. Jon Putnam provided an overview of fixed income. The U.S. Treasury curve has been flat over the past year and interest rates have dropped 140 basis points on the 10-year Treasury. The Fed has stopped hiking rates after three cuts in July, September and October. The Fed has indicated they are on hold for now and the market is not projecting further cuts until at least next year. Inflation has been

the biggest driver of rate cuts; the Fed would like inflation at 2%; it has been around 1.6% to 1.7%. Currently economic and unemployment environments are reasonably good.

The Repo market came under some stress in September, which underlies what goes on in liquidity. Repo is where borrowers/lenders go for one day securitized loans. The money market lends to the broker dealer and pays it back the next day, when the loaned treasuries are returned. The market reflected a few September events. Corporate tax payments were due in September, corporations took cash out of markets and there was a higher cash demand. Banks usually take advantage of the higher rates, but they need to hold more cash because of regulatory changes. Repo rates increased for a few days. The Fed opened a repo window to lend money and will continue to do so on a temporary basis through January. The Fed has talked of opening a regular repo facility. While not a major issue, staff are monitoring. There is potential for an end of quarter stress on the markets, and we may see more stress at the end of the year.

STIP

Ms. Kirsten Haswell stated the repo rate increase was a good thing for STIP as staff were able to provide liquidity for days when the market was stressed at higher overnight rates. We also have a lot of SOFR floaters based on repo rates; STIP yield was over 5% for one day. Then the Fed came in and rates normalized.

Mr. Putnam added staff have been working to recombine the fixed income portfolios, which will occur in December; the settlement date is scheduled for December 2. The portfolio will be out of compliance with policy until the end of December as staff make the changes and gradually lower the range of fixed income.

Member Jack Prothero asked if staff will be eliminating or increasing any asset classes.

Mr. Putnam replied yes, staff will move more into mortgages and corporates, and TIPS (Treasury Inflation Protected Securities) will have its own portfolio and be reduced, as well as moving some into the aggregate portfolio. External fixed income manager Reams will also be separate. The TIPS portfolio is at about \$475 million and will be reduced to about \$250 million.

Broad Fixed Income

Mr. Steve Strong reviewed broad fixed income which includes only external manager Reams. Performance was flat for the quarter, although Reams had a good security selection in corporates. The portfolio outperformed the benchmark for the year trailing. They have a large overweight in mortgage backed securities and are underweight corporates. The portfolio is high quality, heavy on AAA and underweight on A rated credits. Reams has outperformed over the long term.

High Yield

Mr. Strong reviewed high yield performance for the quarter and over one year. Spreads widened over the quarter, then tightened again. High yield benefits from the Fed's rate cuts; corporate yield spreads remain tight and default rates low. The three high yield managers, Neuberger Berman, Shenkman and Oaktree, are slightly less interest rate sensitive than the benchmark. With good credit selection, they were able to outperform and are ahead of the benchmark for the quarter and trailing year.

Domestic Equity

Mr. Strong reviewed domestic equity performance for the quarter and stated for absolute relative returns, large caps have performed better than small caps in recent periods. Factors such as headlines and the trade agreement with China have created some volatility and affect market sentiment. At 9/30/19 the S&P 500 was valued at 17.5x estimated for the next 12-months earnings. The portfolio of managers underperformed the benchmark slightly for the quarter and over the last 12 months. The portfolio has a higher small cap stock allocation. Manager selection was positive for the quarter, though active management has struggled over longer periods.

Mr. Strong reviewed individual manager performance. Index funds make up the majority of the large cap stock allocation. Cash at the asset class level is at 2.1%, which will be further adjusted. Five managers were terminated earlier in the year with the broader restructuring of the domestic equities asset class.

Responding to a question from Member Fladmo about cash level fluctuations, Mr. Strong noted cash has been roughly 2% over the last few years and averaged just under 2% for the quarter. For the trailing year cash averaged 1.3%. The cash total does not include cash held by the managers.

International Equity

Mr. Strong stated international equity has performed better than domestic in relative terms, although it has had weaker absolute returns. International stocks were down for the quarter, emerging market stocks in particular. Although international stocks are cheaper on a relative basis, growth prospects are lower with less allocation to tech stocks, which contribute meaningfully to U.S. markets.

The portfolio is underweight international vs. U.S. stocks. China remains an issue and is a drag, and there are currency impacts when foreign currency is translated back to U.S. dollars. International slightly outperformed the benchmark for the quarter and the year due in part to small caps, and performance remains ahead over longer periods. Mr. Strong noted individual international managers are in generally positive territory. Cash is a bit higher, ending the quarter at 3.0% (after averaging 2.9% for the quarter and a bit over 2% for the year).

Montana State Fund

Mr. Jon Putnam stated staff will be redeeming UBS Core Real Estate within State Fund and moving into JPMorgan. JPMorgan changed their documentation and vehicle, and can accept non-pension funds, although it will take a couple of years to get out of UBS. Staff will also be increasing core real estate which has been discussed with State Fund.

Trust Funds Investment Pool (TFIP)

Mr. John Romasko stated the TFIP had strong performance over the quarter led by investment grade credit; the pool is now over \$2.5 billion. The value-add of high yield was offset by the real estate drag and the total portfolio unperformed the benchmark by 38 basis points. Market yield was down, and the 30-year Treasury hit as low as 1.95%. Global investment grade bonds had \$17 trillion in negative yielding bonds, and there was over \$1 billion of negative yielding corporate bonds. Staff is looking at various options and may come to the Board with suggestions.

Executive Director Villa reviewed items on the “to do” list for the next Board meeting:

1. Staff is working on the CIO search and will start the process this week to get ads posted.
2. Staff will work on implementing the new strategic asset allocation, including the fixed income changes.
3. The illiquidity study is coming; staff will be working with RVK.
4. Staff will add a cash asset class update.
5. Staff will bring budget and legislative proposals to the Board at the February meeting.
6. A timeline calendar for the CIO search process will be provided to the Board.
7. Attribution will be expanded on for future meetings including examples and explanations.

Having no further business before the Board, the meeting adjourned at 11:35 a.m.

Next Meeting

The next regular meeting of the Board will be February 11-12, 2020 in Helena, Montana. Complete copies of reports presented to the Board are on file with the Board of Investments.

MONTANA BOARD OF INVESTMENTS

APPROVE: _____
Karl J. Englund, Chairman

ATTEST: _____
Dan Villa, Executive Director

DATE: _____

BOI/drc 1/23/2020

MONTANA BOARD OF INVESTMENTS

Department of Commerce

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2401 Colonial Drive, 3rd Floor
Helena, MT 59601

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



Phone: 406/444-0001
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Website: www.investmentmt.com

TO: Members of the Board of Directors
FROM: Dan Villa, Executive Director
DATE: 1/31/2020
RE: February Executive Directors Report

1. Member Requests or Follow Up from Prior Meeting
 - a. CAPP Portfolio Liquidity Analysis – See Tab 10
2. Monthly Snap Shot – attachment
3. Monthly Website Traffic:



Pages	Pageview: ▾	Unique Views	Landings	Exits	
+	/	1,782	1,508	1,452	998
+	/home	526	431	376	305
+	/investments	455	354	118	125
+	/meetings	403	371	224	228
+	/stip	347	292	188	160
+	/unifiedinvestments/quarterlyperformancereports	333	221	70	134
+	/meetings/2019meetings	320	241	106	202
+	/annualreportsaudits	260	204	105	132
+	/board	232	178	44	44
+	/stip/dailyfactoryield	228	189	98	175

4. Ethics Policy, Board and Staff Compliance

All voting Board members and staff have signed the Ethics Form. If the Board adopts a revised version in the Audit Committee at the 2/11/2020 Board meeting, all voting Board members and staff will be asked to sign the new version for calendar year 2020.

5. Disaster Recovery and Emergency Preparedness

The Finance Manager has reached out to the Department of Administration to schedule our annual incident preparedness meeting. This includes representatives from DofA, the Budget Office, US Bank (as the depository bank) and State Street Bank (as custodial bank).

Revisions to our Continuity of Operations (COOP)/Continuity of Government (COG) plan were presented to the Board at its October 2019 meeting.

6. FY2019 Annual Reports and Financial Statements

The 2019 Annual Report was posted on December 29, 2019 in compliance with state law and Board policy. It can be found here:

<https://investmentmt.com/Portals/96/shared/AnnualReport/docs/FY2019/FY19AnnualReport.pdf?ver=2019-12-30-155239-623>

The Board's Audited Financial Statements for FY2019 can be found here:

<https://leg.mt.gov/content/Committees/Administration/audit/2019-20/Meetings/April-2020/18-04B.pdf>

7. Staff Outreach Efforts – Loan and Municipal Programs

IN-STATE LOAN PROGRAM 2019 OUTREACH – Doug Hill

- January 16 – Meeting with Missoula County Airport Authority, Neptune Aviation, and Bank of Montana to review Infrastructure loan to build new hangar.
- January 24 – Meeting with Tom Kaiserski at DOC and a business group looking at starting a hemp processing facility.
- February 12 – Attended the Montana Association of Counties; Community, Economic Development & Labor Committee meeting held in Helena. Presented an overview of the Loan Program.
- February 26 – Meeting with Missoula County Airport Authority board of directors to discuss Infrastructure Loan to Neptune Aviation.
- April 16 – Meeting with Travis Brazill, Market President, at Farmers State Bank-Helena.
- April 18 – Meeting with commercial lenders at Stockman Bank-Helena.

- April 19 – Meeting in Great Falls with Great Falls Development Authority, Governor’s Office of Economic Development, and business group looking at starting a medical and nonmedical glove manufacturing facility.
- April 24 – Meeting with Commercial Lenders at First Security Bank-Helena.
- April 25 – Presentation to MBA-Business class at UM-Leveraging Public Funds for Business.
- May 2 – Presentation at SBA lender training and attended the SBA Small Business Awards ceremony in Great Falls.
- May 20 – Meeting with BE Forrest Products and Montana Fabrication Works in Stevensville to review Infrastructure Loan Program.
- July 16 – Meeting with Montana Precision Products in Butte to discuss loan programs.
- December 2 – Meeting with TrailWest Bank and Montana Craft Malt in Butte on Participation Loan Program.
- 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.

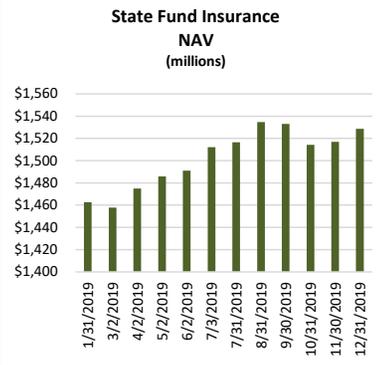
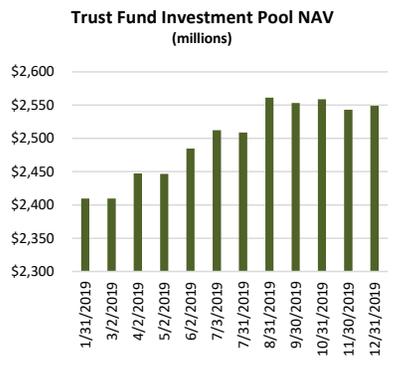
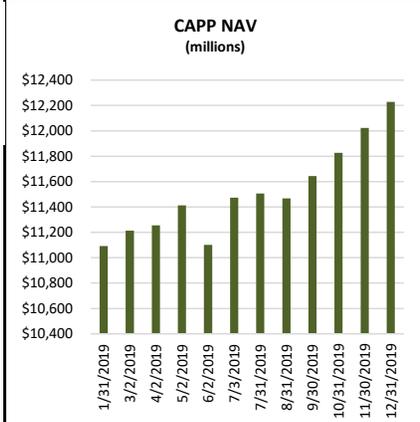
INTERCAP LOAN PROGRAM 2019 OUTREACH

- January 8 – WASACT Quarterly meeting – Helena
- February 20-22 – WASACT Rural Water Conference – Great Falls
- May 14 – WASACT Quarterly meeting – Helena
- September 10 – WASACT Quarterly meeting - Helena
- September 16 – MASBO (MT Assoc. of School Business Officials) Conference – Helena
- September 17 - County Treasurer’s Conference – Whitefish
- September 23-25 – MACo Annual Conference – Great Falls

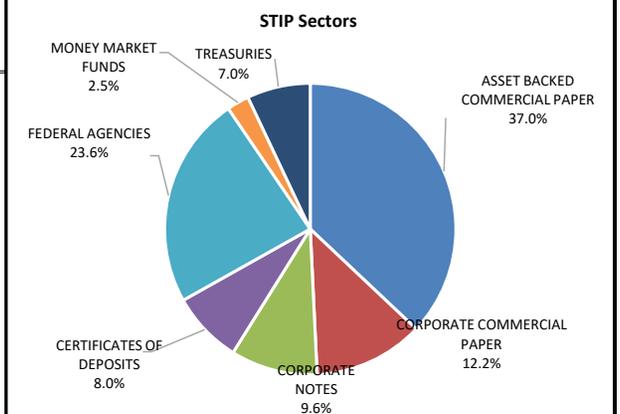
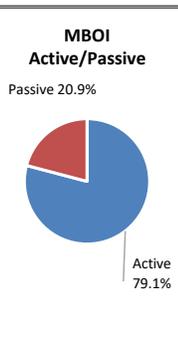
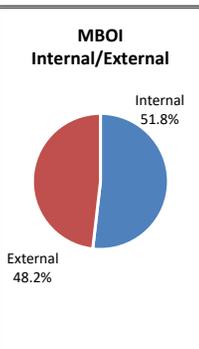
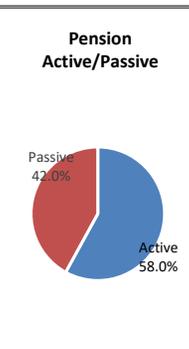
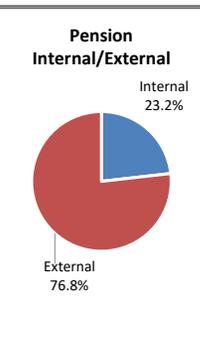
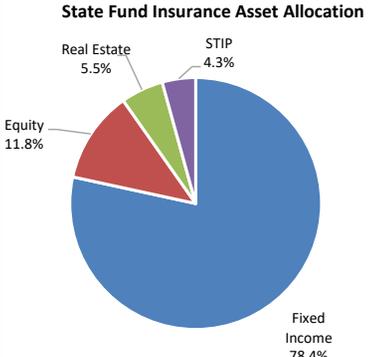
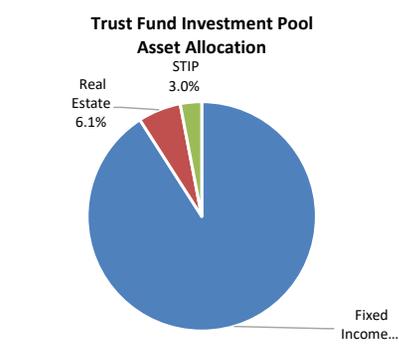
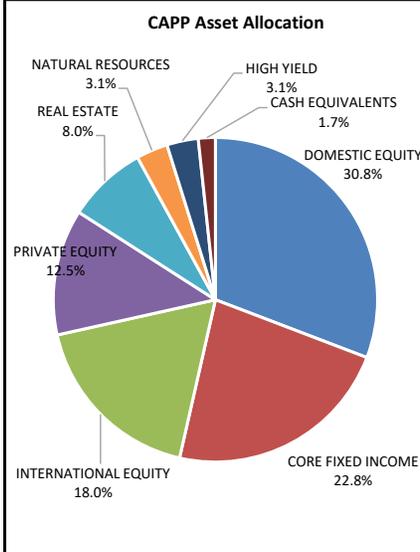
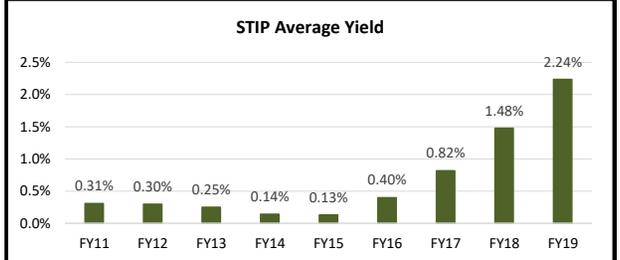
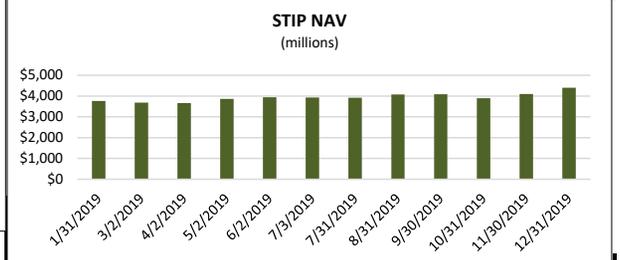
MBOI Snapshot
Asset Management View
12/31/2019 Unaudited
Assets Under Management \$20,655,759,073



CAPP	NAV	%	TFIP	NAV	%	State Fund	NAV	%	Non-Pool Fixed Income & Pending Activity	\$ (47,092,741)
DOMESTIC EQUITY	\$ 3,765,997,543	30.8%	Fixed Income	\$ 2,317,710,090	90.92%	Fixed Income	\$ 1,198,363,731	78.40%		
CORE FIXED INCOME	\$ 2,782,621,478	22.8%	Real Estate	\$ 154,379,152	6.06%	Equity	\$ 180,895,165	11.83%		
INTERNATIONAL EQUITY	\$ 2,196,606,618	18.0%	STIP	\$ 77,021,552	3.02%	Real Estate	\$ 83,755,887	5.48%		
PRIVATE EQUITY	\$ 1,534,353,812	12.5%				STIP	\$ 65,602,494	4.29%		
REAL ESTATE	\$ 973,788,465	8.0%	Total	\$ 2,549,110,795	100.00%	State Fund Total	\$ 1,528,617,277	100.00%		
NATURAL RESOURCES	\$ 384,777,020	3.1%								
HIGH YIELD	\$ 383,065,543	3.1%								
CASH EQUIVALENTS	\$ 207,398,632	1.7%								
CAPP Total	\$ 12,228,609,112	100.0%								



STIP*	NAV	%
ASSET BACKED COMMERCIAL PAPER	\$1,627,997,870	37.03%
FEDERAL AGENCIES	\$1,038,314,698	23.62%
CORPORATE COMMERCIAL PAPER	\$537,190,694	12.22%
CORPORATE NOTES	\$424,133,062	9.65%
CERTIFICATES OF DEPOSITS	\$350,616,851	7.97%
TREASURIES	\$309,415,411	7.04%
MONEY MARKET FUNDS	\$108,846,046	2.48%
STIP Total	\$4,396,514,631	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 \$243,468,678 is attributable the portion of STIP held within CAPP (\$166,540,619) and and TFIP (\$76,928,048) as a cash investment. Such value is represented in the NAV for the CAPP and STIP columns.

MBOI Snapshot
Asset Ownership View
12/31/2019 Unaudited



	CAPP Holdings	CAPP %	STIP Holdings*	STIP %	TFIP Holdings	TFIP %	Other Holdings ¹	Other %	Total Net Asset Value
Total Fund \$(000)	\$ 12,228,609	59.20%	\$ 4,153,046	20.11%	\$ 2,549,111	12.34%	\$ 1,724,993	8.35%	\$ 20,655,759
Pensions	CAPP	%	STIP	%	TFIP	%	Other	%	Total
FIREFIGHTER'S RETIREMENT	\$ 475,083	98.90%	\$ 5,266	1.10%	\$ -	0.00%	\$ -	0.00%	\$ 480,349
GAME WARDEN'S RETIREMENT	\$ 214,517	98.25%	\$ 3,832	1.75%	\$ -	0.00%	\$ -	0.00%	\$ 218,348
HIGHWAY PATROL RETIREMENT	\$ 156,501	98.92%	\$ 1,701	1.08%	\$ -	0.00%	\$ -	0.00%	\$ 158,202
JUDGE'S RETIREMENT	\$ 108,193	98.66%	\$ 1,467	1.34%	\$ -	0.00%	\$ -	0.00%	\$ 109,660
PUBLIC EMPLOYEES' RETIREMENT	\$ 6,069,669	99.04%	\$ 58,596	0.96%	\$ -	0.00%	\$ -	0.00%	\$ 6,128,265
SHERRIF'S RETIREMENT	\$ 391,772	98.78%	\$ 4,841	1.22%	\$ -	0.00%	\$ -	0.00%	\$ 396,614
POLICE RETIREMENT	\$ 451,059	99.07%	\$ 4,255	0.93%	\$ -	0.00%	\$ -	0.00%	\$ 455,314
TEACHER'S RETIREMENT	\$ 4,321,786	99.37%	\$ 27,497	0.63%	\$ -	0.00%	\$ -	0.00%	\$ 4,349,283
VOL. FIREMANS' RETIREMENT	\$ 40,028	99.58%	\$ 167	0.42%	\$ -	0.00%	\$ -	0.00%	\$ 40,195
Total	\$ 12,228,609	99.13%	\$ 107,621	0.87%	\$ -	0.00%	\$ -	0.00%	\$ 12,336,231
Trust Funds \$(000)	CAPP	%	STIP	%	TFIP	%	Other	%	Total
ABANDONED MINE TRUST	\$ -	0.00%	\$ 5,877	88.53%	\$ -	0.00%	\$ 761	11.47%	\$ 6,638
BELT WATER TREATMENT PLANT	\$ -	0.00%	\$ 1,550	6.02%	\$ 24,147	93.74%	\$ 64	0.25%	\$ 25,761
BPA MITIGATION TRUST FUND	\$ -	0.00%	\$ 3,745	32.84%	\$ 5,132	45.00%	\$ 2,527	22.16%	\$ 11,404
BUTTE AREA ONE RESTORATION	\$ -	0.00%	\$ 1,133	15.08%	\$ 6,365	84.68%	\$ 18	0.24%	\$ 7,516
BUTTE SILVER BOW	\$ -	0.00%	\$ 1,795	12.39%	\$ 12,660	87.37%	\$ 35	0.24%	\$ 14,490
CLARK FORK RIVER RESTORATION	\$ -	0.00%	\$ 7,424	24.24%	\$ 23,137	75.53%	\$ 70	0.23%	\$ 30,631
CLARK FORK SITE RAA	\$ -	0.00%	\$ 7,440	9.81%	\$ 68,199	89.94%	\$ 184	0.24%	\$ 75,823
COAL TAX CULTURAL TRUST FUND	\$ -	0.00%	\$ 695	4.37%	\$ 15,160	95.38%	\$ 40	0.25%	\$ 15,895
COAL TAX PARK ACQUISITION	\$ -	0.00%	\$ 1,913	6.45%	\$ 27,689	93.31%	\$ 73	0.25%	\$ 29,675
EAST HELENA COMPENSATION	\$ -	0.00%	\$ 3,021	49.83%	\$ 3,029	49.96%	\$ 12	0.20%	\$ 6,061
ENDOWMENT FOR CHILDREN	\$ -	0.00%	\$ 58	4.15%	\$ 1,328	95.60%	\$ 3	0.25%	\$ 1,390
FWP REAL PROPERTY TRUST	\$ -	0.00%	\$ 379	5.26%	\$ 6,798	94.49%	\$ 18	0.25%	\$ 7,195
HAROLD HAMM ENDOWMENT	\$ -	0.00%	\$ 4	8.04%	\$ 44	91.72%	\$ 0	0.24%	\$ 48
MONTANA HISTORICAL SOCIETY	\$ -	0.00%	\$ 527	13.43%	\$ 3,391	86.33%	\$ 9	0.24%	\$ 3,928
MONTANA POLE	\$ -	0.00%	\$ 6,125	21.37%	\$ 22,475	78.40%	\$ 66	0.23%	\$ 28,666
OLDER MONTANANS TRUST	\$ -	0.00%	\$ 11	1.10%	\$ 995	98.64%	\$ 3	0.25%	\$ 1,009
POTTER TRUST FUND	\$ -	0.00%	\$ 19	7.83%	\$ 218	91.92%	\$ 1	0.24%	\$ 237
RESOURCE INDEMNITY TRUST	\$ -	0.00%	\$ 23	0.02%	\$ 114,499	99.73%	\$ 291	0.25%	\$ 114,813
SMELTER HILL UP RESTORATIVE	\$ -	0.00%	\$ 3,682	37.44%	\$ 5,629	57.24%	\$ 523	5.32%	\$ 9,834
STREAMSIDE TAILINGS OPERABLE UNIT	\$ -	0.00%	\$ 2,290	11.95%	\$ 16,824	87.81%	\$ 46	0.24%	\$ 19,160
TOBACCO TRUST FUND	\$ -	0.00%	\$ 7,525	3.00%	\$ 242,745	96.75%	\$ 628	0.25%	\$ 250,897
TRUST AND LEGACY ACCOUNT	\$ -	0.00%	\$ 8,493	1.08%	\$ 777,215	98.67%	\$ 1,984	0.25%	\$ 787,693
UCFRB ASSESS/LITIG COST REC.	\$ -	0.00%	\$ 1,527	7.30%	\$ 19,346	92.46%	\$ 51	0.25%	\$ 20,924
UCFRB RESTORATION FUND	\$ -	0.00%	\$ 2,907	3.44%	\$ 81,459	96.31%	\$ 211	0.25%	\$ 84,578
UPPER BLACKFOOT RESPONSE	\$ -	0.00%	\$ 1,814	69.84%	\$ 779	29.99%	\$ 5	0.18%	\$ 2,597
WEED CONTROL TRUST	\$ -	0.00%	\$ -	0.00%	\$ 11,154	99.75%	\$ 28	0.25%	\$ 11,183
WILDLIFE HABITAT TRUST	\$ -	0.00%	\$ 1,134	7.28%	\$ 14,402	92.47%	\$ 38	0.25%	\$ 15,574
Z/L LT H2O TRUST FD	\$ -	0.00%	\$ 20,143	99.85%	\$ -	0.00%	\$ 30	0.15%	\$ 20,173
ZORTMAN/LANDUSKY LT H2O	\$ -	0.00%	\$ 15,488	99.85%	\$ -	0.00%	\$ 23	0.15%	\$ 15,511
Total	\$ -	0.00%	\$ 106,743	6.59%	\$ 1,504,821	92.93%	\$ 7,742	0.48%	\$ 1,619,306
Coal Severance \$(000)	CAPP	%	STIP	%	TFIP	%	Other	%	Total
BIG SKY ECON DEV FD	\$ -	0.00%	\$ 1,781	1.47%	\$ 118,710	98.27%	\$ 305	0.25%	\$ 120,796
PERMANENT COAL TRUST FUND	\$ -	0.00%	\$ 23,072	3.94%	\$ 393,353	67.10%	\$ 169,815	28.97%	\$ 586,240
SCHOOL FACILITIES FUND	\$ -	0.00%	\$ 4,064	7.81%	\$ 47,873	91.95%	\$ 128	0.25%	\$ 52,066
TREASURE ST. REG. WATER SYSTEM	\$ -	0.00%	\$ 1,192	1.17%	\$ 100,209	98.58%	\$ 256	0.25%	\$ 101,657
TREASURE STATE ENDOWMENT	\$ -	0.00%	\$ 3,221	1.10%	\$ 289,285	98.61%	\$ 866	0.30%	\$ 293,372
Total	\$ -	0.00%	\$ 33,330	2.89%	\$ 949,430	82.26%	\$ 171,371	14.85%	\$ 1,154,130
Operating Funds \$(000)	CAPP	%	STIP	%	TFIP	%	Other	%	Total
FWP LICENSE ACCOUNT	\$ -	0.00%	\$ 44,451	82.78%	\$ 7,167	13.35%	\$ 2,081	3.88%	\$ 53,699
LOCAL AGENCIES	\$ -	0.00%	\$ 1,729,027	99.86%	\$ -	0.00%	\$ 2,412	0.14%	\$ 1,731,439
MONTANA STATE UNIVERSITY	\$ -	0.00%	\$ 169,889	90.55%	\$ 17,439	9.29%	\$ 298	0.16%	\$ 187,627
MT TECH-UM AGENCY FUNDS	\$ -	0.00%	\$ 10,661	95.49%	\$ 487	4.36%	\$ 17	0.15%	\$ 11,164
STATE AGENCIES	\$ -	0.00%	\$ 625,931	99.86%	\$ -	0.00%	\$ 906	0.14%	\$ 626,837
TREASURER'S FUND	\$ -	0.00%	\$ 1,072,938	95.43%	\$ -	0.00%	\$ 51,440	4.57%	\$ 1,124,379
UNIV OF MONTANA	\$ -	0.00%	\$ 40,785	51.02%	\$ 31,425	39.32%	\$ 7,722	9.66%	\$ 79,932
Total	\$ -	0.00%	\$ 3,693,683	96.82%	\$ 56,519	1.48%	\$ 64,875	1.70%	\$ 3,815,076
Insurance Reserves \$(000)	CAPP	%	STIP	%	TFIP	%	Other	%	Total
MUS WORKERS COMPENSATION	\$ -	0.00%	\$ 10,467	70.89%	\$ 4,272	28.94%	\$ 26	0.17%	\$ 14,765
PERS DEFINED CONT DISABILITY	\$ -	0.00%	\$ 589	10.37%	\$ -	0.00%	\$ 5,091	89.63%	\$ 5,681
STATE FUND INSURANCE	\$ -	0.00%	\$ 65,531	4.29%	\$ -	0.00%	\$ 1,463,086	95.71%	\$ 1,528,617
SUBSEQUENT INJURY FUND	\$ -	0.00%	\$ 842	99.85%	\$ -	0.00%	\$ 1	0.15%	\$ 843
GROUP BENEFITS	\$ -	0.00%	\$ 62,405	68.97%	\$ 20,428	22.58%	\$ 7,654	8.46%	\$ 90,486
MUS GROUP INSURANCE	\$ -	0.00%	\$ 71,836	79.27%	\$ 13,642	15.05%	\$ 5,147	5.68%	\$ 90,624
Total	\$ -	0.00%	\$ 211,669	12.23%	\$ 38,341	2.21%	\$ 1,481,006	85.56%	\$ 1,731,016
Short Term Investment Pool				Intercap Statistics					
Account	# Accounts	Total Market Value	%	Loans Outstanding	Bonds Outstanding	Number of Borrowers	Loan Rate		
Total State	330	2,667,487,361.53	60.7%	\$ 72,988,890	\$ 105,065,000	170	3.37%		
Total Local	169	1,729,027,269.07	39.3%						
Total STIP	499	\$ 4,396,514,631	100.0%						
STIP Reserve		\$ 50,823,147							
Average Current Month STIP Yield		1.7255%							

Consolidated Asset Pension Pool

DAN VILLA

EXECUTIVE DIRECTOR/ACTING CHIEF INVESTMENT OFFICER

JANUARY 2020

A solid orange horizontal bar at the bottom of the slide.

About the Board of Investments

Art. VIII, Section 13 – The Unified Investment Program is the only program specifically created by Constitutional mandate and whose purpose is to hold and invest the assets of:

- Public funds, including those of the State, all counties, cities, towns, and other local government entities
- Public school fund and permanent funds of the Montana university system
- Public retirement system assets
- State compensation insurance funds

The Montana Board of Investments is lead by a nine member board of Montanans with specific areas of expertise, including business, law, and agriculture among others.

Our highly specialized staff of 32 make up functional teams who focus on:

- *Investments*
- *Accounting/Financial Compliance*
- *Bond & Loan Programs*
- *Operations*

Prudent Investor Rule

17-6-201, MCA requires the Board to follow the “prudent investor rule,” which requires the Board and staff:

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

Board Investment Pools

Consolidated Asset Pension Pool (CAPP)

- TRS, PERS, JRS, HPORS, SRS, GWPORS, MPORS, FURS, VFCA

Trust Funds Investment Pool (TFIP)

- Noxious Weed, Abandoned Mine, Environmental Settlements, Tobacco, etc.

Separately Managed Investments (SMI)

- Montana State Fund, Treasurer's Cash Account, etc.

Short-Term Investment Pool (STIP)

- Liquidity for state, local governments, school districts, and Montana University System

Consolidated Asset Pension Pool (CAPP)

Created in 2017, the CAPP was designed to simplify investment holdings across multiple asset classes and improve flexibility

The pension plans hold both CAPP and STIP to maximize returns and provide liquidity for benefit payments, respectively

Perpetual
Public
Funds

The Pension Funds are perpetual and will exist forever.

Short-term market fluctuations are to be expected and planned for.

Diversification and Non-Correlated Assets protect and preserve principle.

The Importance of Long-Term Investing

KEY TAKEAWAYS

- Buy-and-hold involves buying securities to hold for a long-term period, although the definition of long-term varies based on the investor.
- Market timing includes actively buying and selling to try and get into the market at the most advantageous times while avoiding the disastrous times.
- Research shows that long-term buy-and-hold tends to outperform, where market timing remains very difficult. Much of the market's greatest returns or declines are concentrated in a short time frame.
- There is an in-between strategy that combines buy-and-hold with active security selection; examples include allocation adjustments and tax management.

“Our favorite holding period is forever.”

- Warren Buffett

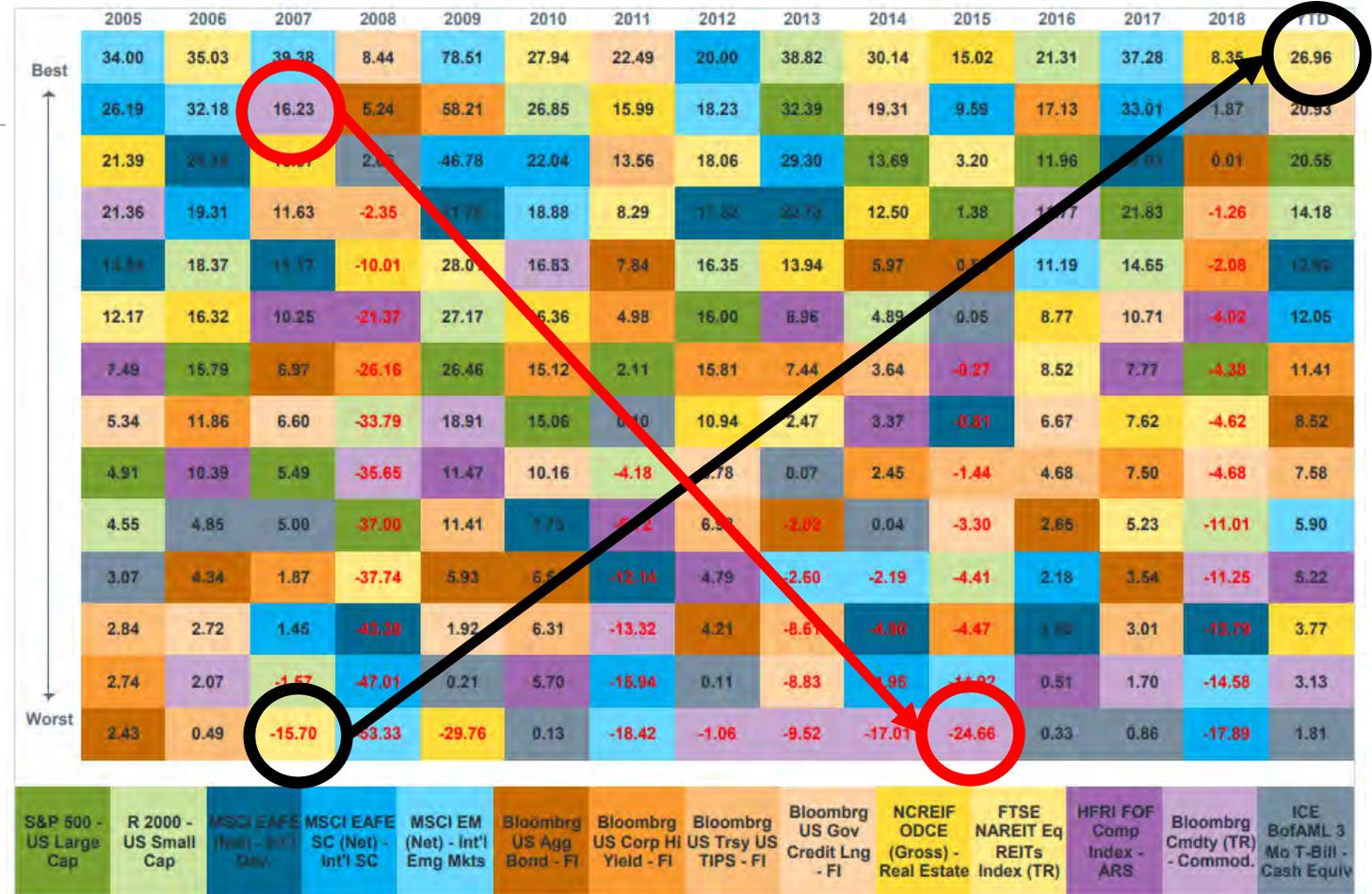
<https://www.investopedia.com/articles/stocks/08/passive-active-investing.asp>

Diversification

Spreads risk across key factors such as geography, volatility, liquidity and economic outcomes, which reduces the adverse impact of any one investment loss on the overall fund.

Annual Asset Class Performance

As of September 30, 2019



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

Correlation is the degree to which two asset types move together (closer to 1) or apart (closer to **-1**) throughout time.

Assets which are non-correlated have less return volatility and protect against losses.

RVK Assumptions

Expected Asset Class Correlations

	Domestic Equity*	International Equity*	Private Equity	Natural Resources*	Real Estate	TIPS	Broad Fixed Income/Mortgage Backed*	Emerging Markets Debt (Hard)	US Treasury Agency*	Investment Grade Credit*	High Yield Fixed Income	Diversifying Strategies*	Cash Equivalents
Domestic Equity*	1.00	0.83	0.74	0.74	0.22	0.02	0.16	0.49	0.02	0.26	0.62	0.82	0.02
International Equity*	0.83	1.00	0.70	0.86	0.27	0.15	0.00	0.64	-0.21	0.25	0.69	0.93	-0.06
Private Equity	0.74	0.70	1.00	0.72	0.42	-0.19	-0.26	0.28	-0.38	0.01	0.42	0.66	0.06
Natural Resources*	0.74	0.86	0.72	1.00	0.17	0.28	0.03	0.57	-0.25	0.36	0.67	0.85	-0.21
Real Estate	0.22	0.27	0.42	0.17	1.00	0.10	-0.04	0.21	-0.06	0.01	0.07	0.34	0.02
TIPS	0.02	0.15	-0.19	0.28	0.10	1.00	0.74	0.52	0.58	0.75	0.29	0.40	0.05
Broad Fixed Income/Mortgage Backed*	0.16	0.00	-0.26	0.03	-0.04	0.74	1.00	0.52	0.92	0.88	0.23	0.28	0.26
Emerging Markets Debt (Hard)	0.49	0.64	0.28	0.57	0.21	0.52	0.52	1.00	0.26	0.67	0.68	0.78	-0.01
US Treasury Agency*	0.02	-0.21	-0.38	-0.25	-0.06	0.58	0.92	0.26	1.00	0.72	-0.01	0.02	0.36
Investment Grade Credit*	0.26	0.25	0.01	0.36	0.01	0.75	0.88	0.67	0.72	1.00	0.46	0.50	0.21
High Yield Fixed Income	0.62	0.69	0.42	0.67	0.07	0.29	0.23	0.68	-0.01	0.46	1.00	0.79	-0.05
Diversifying Strategies*	0.82	0.93	0.66	0.85	0.34	0.40	0.28	0.78	0.02	0.50	0.79	1.00	-0.02
Cash Equivalents	0.02	-0.06	0.06	-0.21	0.02	0.05	0.26	-0.01	0.36	0.21	-0.05	-0.02	1.00

Non-Correlated Assets

Asset Class	Bottom Range	Top Range	Midpoint
Domestic Equities	24	36	30
International Equities	11	21	16
Private Investments	11	17	14
Natural Resources	1	7	4
Real Estate	5	13	9
Core Fixed Income	15	25	20
Non-Core Fixed Income	3	7	4
Cash*	0	4	2
TOTAL			100

**Includes cash at the CAPP and Plan level*

Strategic Asset Allocation

Investment Returns

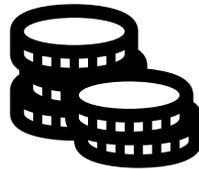
	Longest Measurable Plan Return (as of 11/30/2019)
Teachers Retirement System	7.70%
Public Employees Retirement System	7.69%
Game Wardens and Peace Officers Retirement System	7.59%
Highway Patrol Officers Retirement System	7.58%
Firefighters Unified Retirement System	7.55%
Judges Retirement System	7.59%
Municipal Police Retirement System	7.55%
Sheriffs Retirement System	7.58%
Volunteer Firefighters	7.39%

Strategic Direction



Increase allocations to higher yielding, less liquid asset classes, such as:

- Real Estate
- Natural Resources
- Private Investments



Redeploy lower yielding assets as opportunities in the market arise:

- Core Fixed Income
- Cash



Increase allocation to Domestic Equities as/if valuations become more attractive

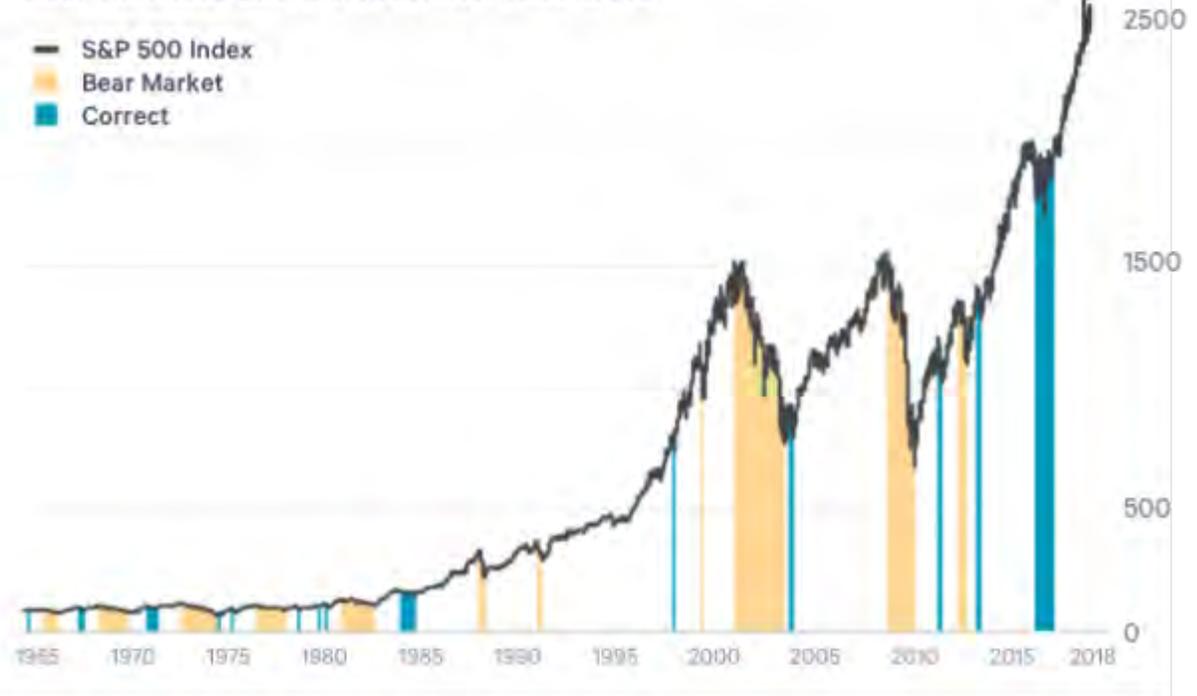
Downturns Happen, Followed by Recovery

Bear markets and corrections happen in public and private markets.

Montana guards against downside risk through broad diversification, cash and liquid holdings, and maintaining a long-term investment approach.

“What if” scenarios are considered in the investment decisions of the BOI.

Bear Markets and Corrections, 1965-2018



<https://blog.wealthfront.com/stock-market-corrections-not-as-scary-as-you-think/>

Implementation Costs and Return Differential

As of June 30, 2019...	Defined Contribution	Defined Benefit
Return	5% (projected)	7.69% (PERS) 7.7% (TRS)
Costs (in \$)	\$818,128	\$7,198,414*
AUM	\$223,532,240.44	\$19,455,172.97
Costs (% of AUM)	.366%	.037%

**BOI costs are inclusive of all internal BOI investment activities*

Defined Contribution Costs per MPERA “Defined Contribution Plan Participant Fees”

Cost Controls

For the rolling 5-years analyzed:

- Net total return was above both the US Public median and peer median.
- Investment costs were below both benchmark and peers.

1. Lower cost implementation style

- Less external active management (more lower cost passive and internal)
- More partnerships as a percentage of external
- Less fund of funds
- Less overlays
- Other style differences

2. Paying less than peers for similar services

- External investment management costs
- Internal investment management costs
- Oversight, custodial & other costs

Source: CEM Benchmarking
2018

Benefits, Income, and Asset Appreciation

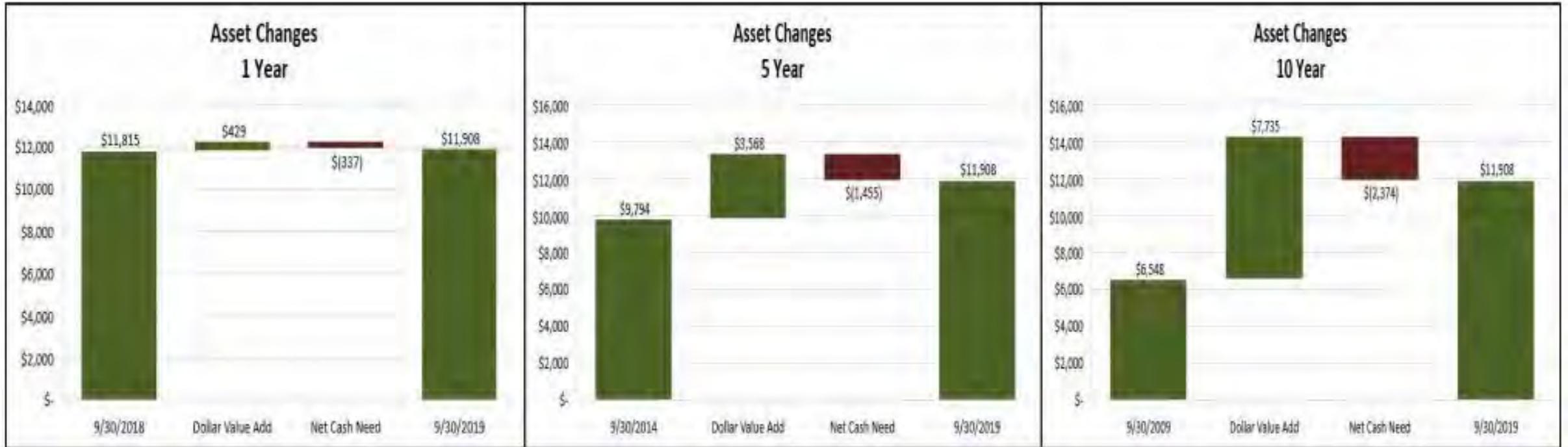
Annual Benefits Paid (<i>Net of Contributions</i>):	~\$350 million
<u>Less Dividend and Coupon Income:</u>	<u>~\$175 million</u>
Required Asset Appreciation	~\$175 million

For FY2019, this would require a rate of return of **1.5%** to cover net annual benefits and preserve corpus.

Anything in excess of 1.5% would improve funded status (surplus).

Anything less than 1.5% would decrease funded status (deficit).

Dollar Value Add Surplus (Net Cash Deficit)



One-Year Surplus: \$92 million

5-Year Surplus: \$2.113 billion

10-Year Surplus: \$5.361 billion

Fiduciary Duty

The Board, our consultants, and contractors have a fiduciary duty to the beneficiaries of the funds we manage.

Impacted individuals with standing and cause can sue for damages for “breach of fiduciary duty.”

Additional scrutiny for those without a fiduciary duty to the beneficiaries is absolutely warranted, particularly because legislators have a responsibility to the taxpayers as well.

Conclusion

Montana's pension funds:

- Investment returns are outperforming their peers
- Implementation costs are lower than peers
- Are broadly diversified to guard against economic volatility and market risk
- Meet or exceed long-term return expectations

Short Term Investment Pool Management Overview February 2020

- Kirsten Haswell – Investment Analyst
- John Romasko, CFA – Investment Officer

Introduction

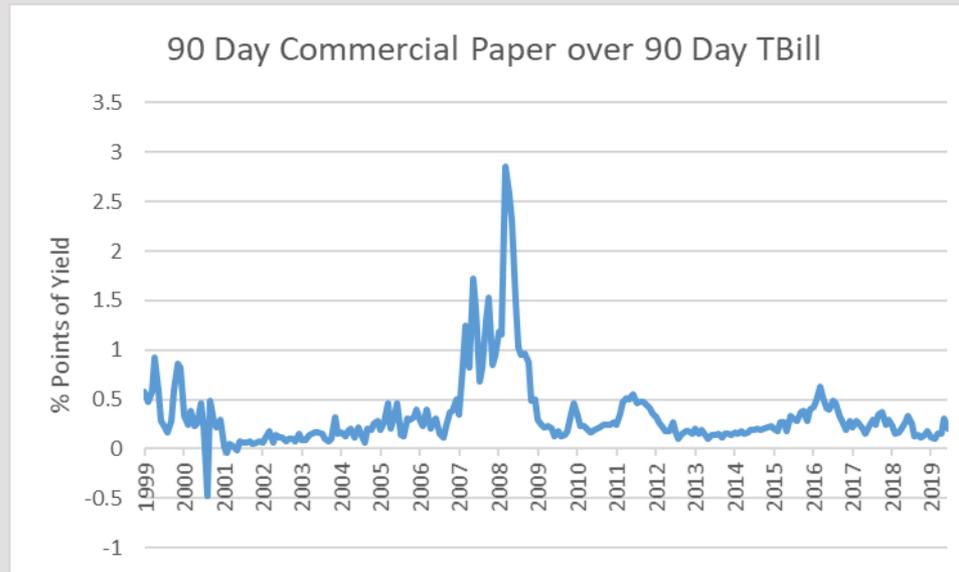
- Our focus is safety first, liquidity second and income third.
- All transactions are executed with the strategic objective to achieve a high level of investment income compatible with:
 - Preservation of principal
 - Providing STIP participants with one-day liquidity
 - Prudent investment practices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

Risk

- The Short Term Investment Pool (STIP) had over 1,050 transactions totaling in excess of \$27 billion for calendar year 2019.
- The STIP reserve was 1.16% of the STIP balance on 12/31/19.
- The fundamental qualitative risk for STIP is 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

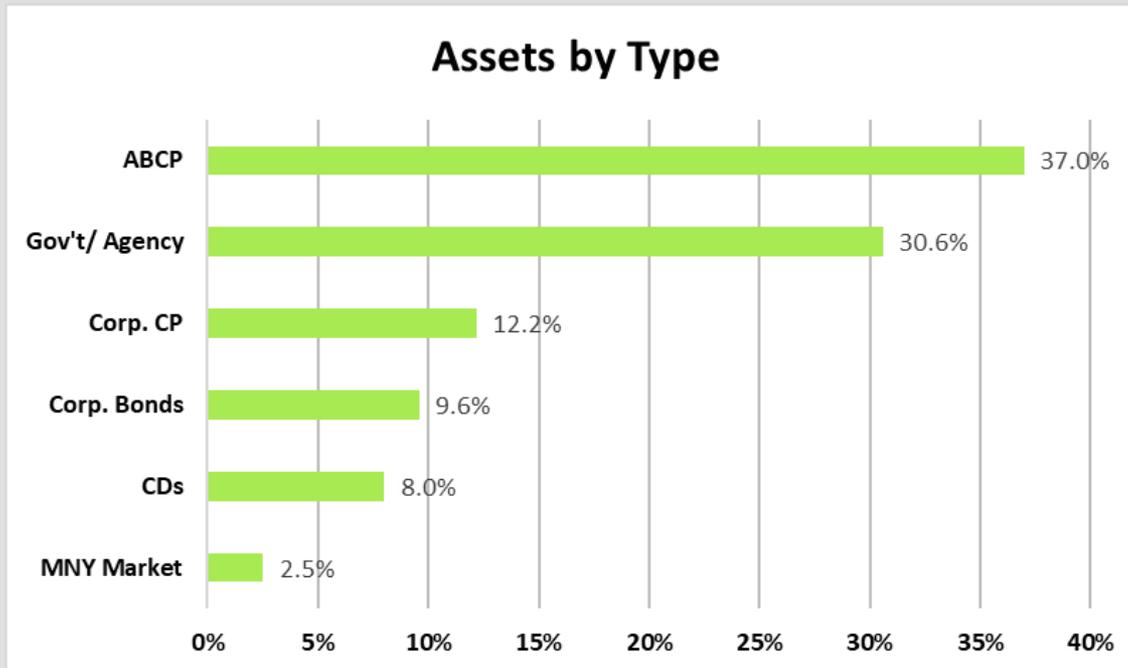
Credit Risk

- 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.



Market Risk

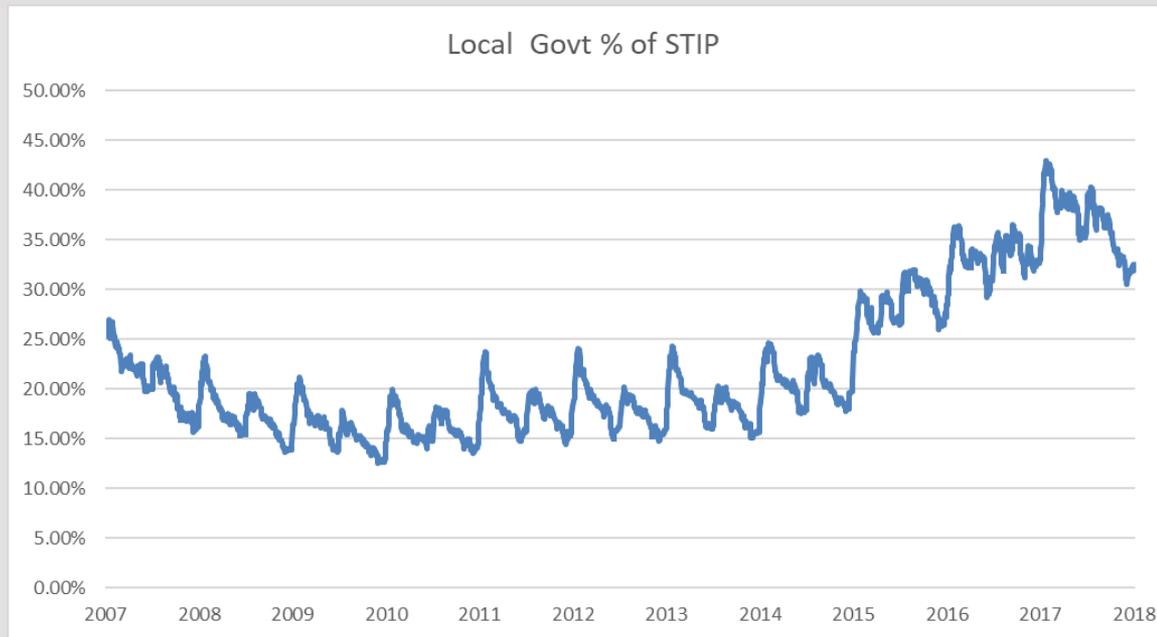
- Market risk is the possibility of losses due to factors that affect the overall performance of the financial markets.
- Maturity caps, minimum credit ratings, and limits on sector concentrations are key strategies to reduce market risk.



*As of December 31, 2019

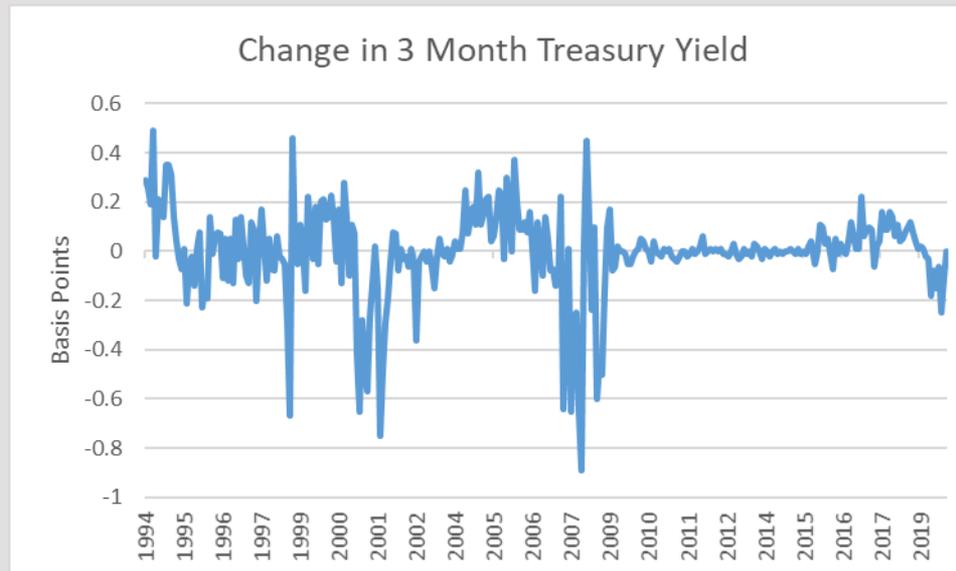
Liquidity Risk

- Liquidity risk is the risk 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



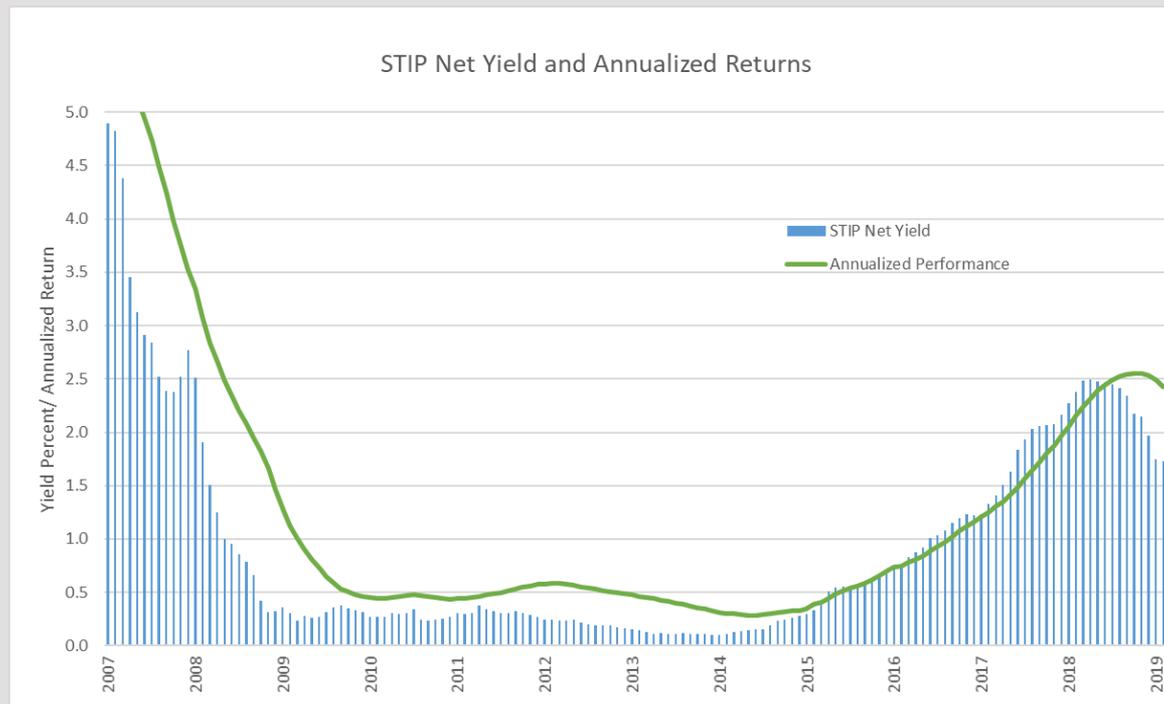
Interest Rate Risk

- Interest Rate risk is the risk 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.



STIP 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.
- LIBOR will be terminated at the end of 2021, the likely replacement is the Secured Overnight Financing Rate (SOFR).



Cash Asset Class Overview

- Cash asset class holds STIP and State Street's Short Term Investment Fund (STIF).
- The pension asset classes hold STIF as their liquidity vehicle, while Trust Fund, State Fund and all separately managed investments hold STIP.
- The management fees associated with STIF are approximately 10 bps more than 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

Department of Commerce

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Helena, MT 59601

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PO Box 200126
Helena, MT 59620-0126



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

To: Members of the Board
From: Jon Putnam, Director of Fixed Income
John Romasko, Investment Officer
Date: February 11, 2020
Subject: Proposed Changes to STIP Investment Policy
Proposed NEW Investment Policies for DEQ

Short Term Investment Pool – Proposed IPS Change

Important changes:

- Section 6 (page 4): Striking the sentence “The STIP NAV will be calculated based on the assumption that the STIP reserve is considered a liability on the financial statements.” This statement is inconsistent with the new account treatment of our financial statements per our consultant.
- Schedule I-A (page 9 & 10): Clarifying language related to rating agencies. Substituting “Nationally Recognized Statistical Rating Organization (NRSRO)”

Department of Environmental Quality

We have four new separate accounts for Department of Environmental Quality. Proposed IPS follow this memo.

- Barker Hughesville St Response
- Flying J CECRA Facilities Fund
- Libby Asbestos Site State Cost
- Luttrill Pit – Operation & Maintenance

SHORT-TERM INVESTMENT POOL (STIP) INVESTMENT POLICY

Approved April 3, 2018

~~Revised April 2, 2019~~

Proposed February 11, 2020

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1. Introduction

This policy is effective upon adoption and supersedes all previous Investment Policies related to the investment management of the Short-Term Investment Pool (STIP).

STIP is an investment program managed and administered under the direction of the Montana Board of Investments (MBOI) as authorized by the Unified Investment Program. STIP invests the operating funds of the State of Montana, participating local government entity funds, and the liquidity requirements of the various pension and trust funds managed by MBOI.

STIP is a commingled pool for investment purposes. The use of a commingled pool allows for simplified investing and accounting, as well as broader investment diversification, and it provides opportunities for fee savings.

2. Purpose

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

3. Legal and Constitutional Authority

The Montana Constitution, Article VIII, Section 13, requires that the Legislature provide for a Unified Investment Program for public funds. Section 17-6-201, MCA, established the Unified Investment Program, created the Montana Board of Investments (the “Board”) and gave the Board sole authority to invest state funds, including the Short-Term Investment Pool (STIP) in accordance with state law and the state constitution.

The Unified Investment program for public funds must be administered by the Board of Investments in accordance with the “prudent expert principle,” defined as:

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

The Board created the Short-Term Investment Pool (STIP) to allow qualifying funds, per sections 17-6-201, 202, and 204, MCA, to participate in a diversified pool. Although state agencies with accounts that retain their interest earnings are legally required to invest in STIP, local governments may voluntarily participate in the STIP.

The Board, as the investment fiduciary, is responsible for establishing the investment parameters for the STIP.

STIP is not registered with the Securities and Exchange Commission (SEC) as an investment company and therefore is not required to abide by the SEC’s rule 2a7 of the Investment Company Act of 1940.

STIP has a defined set of investment objectives and investment guidelines, including permitted investments, which are detailed in this policy statement.

4. Financial Reporting

The STIP financial statements are included in the Board's Consolidated Unified Investment Program financial statements, which are audited by the Montana Legislative Auditor.

On October 6, 2015, the Board approved, that for financial reporting purposes the STIP portfolio will be reported on a Net Asset Value basis versus amortized cost.

5. Strategic Investment Objectives

The Board's objective for STIP is to achieve a high level of investment income that is compatible with the preservation of principal, providing STIP participants with liquidity with one-day notification, and the prudent investment practices of the Board.

No Guaranteed Return – There is no minimum or maximum amount of interest rate or any guaranteed rate of return on STIP shares or funds invested in STIP shares.

No Warranty – The Board makes no warranty that funds will be immediately available in the event of any failure of a third party or that STIP participants will not suffer losses due to acts of God, or other calamities, or other market dislocations or interruptions.

STIP Not Insured Against Loss – STIP is NOT FDIC insured or otherwise insured or guaranteed by the federal government, the State of Montana, the Board or any other entity against investment losses.

Reserve fund – This Policy requires maintenance of a reserve fund to offset possible losses. STIP interest earnings may be used to fund this reserve before the net earnings are distributed to the STIP Participants. However, the reserves may not be adequate to cover investment losses.

6. Reserve

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

A deduction from earnings will occur while the amount of the reserve is below 1.15% of the NAV.

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

~~The STIP NAV will be calculated based on the assumption that the STIP reserve is considered a liability on the financial statements.~~

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

7. Time Horizon

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

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

8. Performance Measurement

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

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

9. Roles and Responsibilities

Board of Investments – The Board is responsible for approving the STIP Investment Policy Statement and has the authority to manage STIP as it considers prudent, and subject to such limitations as contained in law and the Constitution. The Board reviews this document periodically and, as needed, approves any changes to the policy.

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

Executive Director – The Executive Director is empowered by the Board to sign any and all documents required to conduct Board business, unless there are specific written policies or instructions from the Board to the contrary. The Executive Director is responsible for the oversight of the STIP investment program and the establishment of the STIP financial reporting procedures and the collection and reporting of all income.

Chief Investment Officer – The Chief Investment Officer (CIO) is empowered by the Board to serve as the principal staff person responsible for overseeing the investment activities under the Board's jurisdiction in compliance with the Board's policies. The CIO, with the support of other staff, is responsible for recommending investment policy changes for Board approval.

Investment Staff – The investment staff is responsible for, but not limited to, the following:

- Managing day-to-day STIP investment operations;
- Investing STIP assets and monitoring compliance in accordance with this Policy;
- Reporting to the Board the STIP investment results and investment characteristics at the Quarterly Board meetings; and
- Reporting any deviations from this Investment Policy to the Board.

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

10. Risk Management

Short-term investments held within STIP are exposed to a number of risks. The objective will be to mitigate the inherent risks associated with these securities, primarily liquidity risk, credit risk and interest rate risk.

a) Liquidity Risk

Based on the percentage of STIP Units Value usually necessary to meet the daily distribution requests of STIP participants, the liquidity needs for the STIP are generally low. However, illiquidity risk still needs to be monitored and managed by staff on a regular basis to ensure that assets are not required to be sold too quickly, or at an unfavorable time, and potentially at a discount to fair value to meet the cash needs of STIP participants.

In order to improve liquidity and manage both the expected and unexpected STIP participants' need for cash, the STIP Investment Objectives and Guidelines (Appendix I) require certain percentages of the STIP Units Value to either be invested in cash, direct obligations of the U.S. government, or in securities that will have an effective maturity for specifically defined short periods or time (daily and weekly).

b) Credit Risk

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligation in making full and timely principal and interest payments. The STIP will utilize credit ratings, issued by at least two of the nationally recognized statistical rating organizations (NRSRO), to assist in the monitoring and management of credit risk.

Approved List – Purchases of securities other than U.S. government or U.S. Agency obligations are restricted to those which are pre-approved. The approved list shall be maintained by Staff with issuers added or removed from time to time depending on an analysis of their risk characteristics and suitability for use in the portfolio. At least two investment staff must approve names on the list. One of the investment staff should be part of the internally managed fixed income team and the other person from the Risk Management team. Issuers on the list shall be reviewed at least semi-annually for continued inclusion on the approved list.

The STIP will minimize credit risk by means of the following:

1. Limiting Permissible investments to securities on the “Approved List”;
2. Pre-qualifying the financial institutions, broker/dealers, intermediaries and advisers with whom the STIP will conduct business;
3. Diversifying the investment portfolio so that potential losses on individual securities will be minimized; and
4. The STIP will maintain a reserve account.

c) Interest Rate Risk

The STIP portfolio will minimize the risk that the market value of the securities will deviate significantly from cost due to changes in the general level of interest rate by means of the following:

1. Structuring the investment portfolio so that securities mature to meet cash requirements for ongoing operations thereby normally avoiding the need to sell securities on the open market prior to maturity;
2. Maintaining a dollar-weighted average portfolio maturity of 60 days or less (for this purpose, the date to the next coupon reset date will be used for all floating or variable rate securities); and
3. The STIP will maintain a reserve account.

11. Securities Lending

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

STIP assets are currently not available for securities lending.

12. Investment Policy Review

The Board intends to keep this Policy updated as it modifies or amends the underlying contents. As stated in the Governance Policy, “the Board shall review this Investment Policy at least annually or more frequently at the request of Board staff. Statements may only be revised in a public meeting. All Statements shall be posted on the Board's web site for review by the public.”

Appendix I: Investment Objectives and Guidelines

Schedule I-A: Investment Objectives and Guidelines Short Term Investment Pool (STIP)

Effective Date of Schedule: April, 2, 2019

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

1. Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Pool; and
2. Provide diversified exposure to Cash Equivalent and Short-Term Fixed Income Investments in a prudent and cost-effective manner.

2. Investment Objective:

Strategic:

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

Performance:

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

3. Investment Guidelines:

The Montana Board Investment Staff will have full discretion to manage STIP 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 of Investments at the next scheduled quarterly Board meeting.

Permitted Investments:

Purchases of securities other than U.S. government or U.S. Agency obligations are restricted to those which are pre-approved and part of an "Approved List." STIP may invest only in the following securities and investment vehicles:

1. U.S. Treasury or U.S. dollar denominated securities fully guaranteed by the U.S. Government;
2. U.S. Government Agency securities denominated in U.S. dollars;

3. Publicly traded U.S. dollar denominated corporate bonds, notes, and medium term notes (MTNs);
4. U.S. dollar denominated Commercial Paper (CP);
5. U.S. dollar denominated Bankers' Acceptance (BA);
6. U.S. dollar denominated Certificates of Deposits (CD);
7. U.S. dollar denominated Asset-Backed Commercial Paper (ABCP);
8. Repurchase or Reverse Repurchase Agreements with an approved primary dealer or the custodial bank, and under the terms of a written master repurchase agreement;
9. Investments required to implement the bond credit enhancement authorized by Resolution 219;
10. SEC registered 2a-7 Institutional Money Market Funds that are considered "U.S. Treasury" or "U.S. Government" money market mutual funds according to the SEC regulations; and
11. Short term investment vehicle available through the custodial bank;
12. Variable rate securities based on an index that is approved by the Chief Investment Officer and purchased and monitored by Staff.

Restrictions

Concentration restrictions (Concentration restrictions are at the time of purchase)

1. A maximum of 40% of the STIP Units Value shall be held ABCP ;
2. A maximum of 10% of the STIP Units Value shall be held in Repurchase Agreements;
3. A maximum of 15% of the STIP Units Value shall be held in permitted SEC registered 2a-7 Institutional Money Market Funds;
4. A maximum of 10% of the STIP Units Value shall be pledged to secure Reverse Repurchase Agreements. Transactions will be used only to secure borrowings for temporary or emergency purposes;
5. A maximum of 25% of the STIP Units Value in the aggregate shall be held in all non-Government Variable Rate securities with maturities greater than 397 days;

Issuer Restrictions (Issuer restrictions are at the time of purchase)

6. A maximum of 30% of the STIP Units Value shall be held in any single issuer of U.S. Agency securities;
7. A maximum of 3% of the STIP Units Value shall be invested in any one issuer with the exception of U.S. Treasury and U.S. Agency securities as well as any Repurchase Agreements with a financial institution;
8. A maximum of 10% of the STIP Units Value in the aggregate shall be held in any one financial sponsor of ABCP as well as any direct obligations associated with the sponsor. Repurchase agreement obligations of a financial institution shall not be considered in this limit;
9. A maximum of 5% of the STIP Units Value shall be held in any single SEC registered 2a-7 Institutional Money Market Funds;
10. A maximum of 5% of the STIP Units Value shall be held in Repurchase Agreements with any single primary dealer or financial institution;

Rating Restrictions

11. ABCP, CP, BA or CD shall not have a Tier 2 or lower rating ~~lower than A-1 (S&P), P-1 (Moody's) or F1 (Fitch)~~ at any Nationally Recognized Statistical Rating Organization (NRSRO) at the time

- of purchase;
12. Corporate bonds, notes, or MTNs shall be rated a minimum of the sixth highest rating at any Nationally Recognized Statistical Rating Organization (NRSRO) not have a rating lower than A (S&P), A2 (Moody's) or A (Fitch) at the time of purchase;
 13. All securities, with the exception of securities fully guaranteed by the U.S. Government and approved Institutional Money Market Funds, must be rated by at least two Nationally Recognized Statistical Rating Organizations (NRSROs) of the three rating agencies (S&P, Moody's or Fitch) at the time of purchase.
 13. A maximum of 10% of the STIP Units Value shall be held in ABCP, CP, BA or CD rated with a Tier 2 at A-2 (S&P), P-2 (Moody's), or F2 (Fitch), or at a lower rating at any Nationally Recognized Statistical Rating Organization (NRSRO) at any time;

Liquidity Restrictions

14. A minimum of 10% of the STIP Units Value shall qualify as “daily liquid assets.” For this guideline is it assumed that “daily liquid assets” is defined as cash, direct obligations of the U.S. government, securities that will mature or are subject to a demand feature that is exercisable and payable within one business day, and a permitted SEC registered 2a-7 Institutional Money Market Fund;
15. A minimum of 15% of the STIP Units Value shall qualify as “weekly liquid assets.” For the purpose of this guideline, it is assumed that “weekly liquid assets” is defined as “daily liquid assets” (as defined above), government agency discount notes with remaining maturities of 60 days or less, securities that will mature or are subject to a demand feature that is exercisable and payable within five business days, and a permitted SEC registered 2a-7 Institutional Money Market Fund;
16. A maximum of 10% of the STIP Units Value shall be invested in Permitted Investments that are considered “illiquid.” For the purpose of this guideline, “illiquid” shall be defined as “a security that cannot be sold or disposed of in the ordinary course of business within seven calendar days at approximately the value ascribed to it by STIP.”
17. STIP shall maintain a dollar-weighted average portfolio maturity of 60 days or less (for this purpose, the date to the next coupon reset date will be used for all floating or variable rate securities);
18. ABCP purchases shall be limited to maturities of 90 days or less;
19. The maximum term of any Repurchase Agreement will be 30 days;
20. The maximum term of any Reverse Repurchase Agreement will be 90 days and must be matched to anticipated cash flows adequate to liquidate the transaction;
21. The maximum final maturity of any Permitted Investment shall not exceed 397 days (not including securities used as collateral in Repurchase Agreements or Permitted Investments considered “Variable Rate” securities, which on any reset date can reasonably be expected to have a market value that approximates its amortized cost);
22. A Variable Rate security shall have a maximum maturity of 2 years;

Other Restrictions

23. Risk assets will may be purchased only when the estimated aggregate effect of a worst-case scenario spread widening event does not exceed the amount of the STIP Reserve. Risk assets are assets other than Treasuries, Agencies and Government money markets. The estimated worst-case scenario is a calculation equal to the days to maturity dividend by 365 multiplied by 2.0% for securities maturing in less than one year and 3.5% for securities maturing in

greater than one year.

24. Acceptable forms of collateral under Repurchase Agreements will consist of U.S. Treasury-Securities which will be required to be maintained at a market value of 102% of the value of the Repurchase Agreement;

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 taking into account current market conditions and the associated costs. At the Board's next regularly scheduled quarterly meeting, the CIO or Staff shall inform the Board of any cases that the Pool allocations were outside of the limits and either inform the Board of the actions that were taken to return the Pool back within guidelines or a plan to do so.

Schedule I-B:

Investment Objectives and Guidelines Short Term Investment Pool (STIP) Reserve

Effective Date of Schedule: February 14, 2017

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

1. Statement of Purpose:

The purpose of these objectives and guidelines is to:

- 1) Establish the investment objectives and performance standards for the STIP Reserve
- 2) Provide exposure to low risk Cash Equivalent and Short-Term Fixed Income Investments in a prudent and cost-effective manner.

2. Investment Objective:

Strategic:

The objective of the Reserve is to attain the highest available total return within the parameters of the Investment Guidelines set forth below.

Performance:

Success in achieving this objective will be measured by comparing the risk and the net of expenses return of the Reserve to a **U.S. Treasury Constant Maturity 1 Month Index** (the "Benchmark"). Performance results will be monitored and evaluated quarterly. However, the success in achieving the objective will be measured on a three-year, five-year, and ten-year annualized basis.

3. Investment Guidelines:

The Montana Board Investment Staff will have full discretion to manage the STIP Reserve 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 of Investments at the next scheduled quarterly Board meeting.

Permitted Investments:

Purchases of securities other than U.S. government; U.S. Agency obligations or qualifying government money market funds are prohibited.

- 1) U.S. Treasury Securities
- 2) U.S. Government Agency securities issued at a discount
- 3) SEC registered 2a-7 Institutional Money Market Funds that are considered “U.S. Treasury” or “U.S. Government” money market mutual funds according to the SEC regulations

4. Other Restrictions

- 1) The maximum final maturity of any Permitted Investment shall not exceed 183 days
- 2) A minimum of 50% of the Reserve shall qualify as “daily liquid assets.” For this guideline it is assumed that “daily liquid assets” is defined as cash, direct obligations of the U.S. government, securities that will mature or are subject to a demand feature that is exercisable and payable within one business day, and a permitted SEC registered 2a-7 Institutional Money Market Fund;

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 taking into account current market conditions and the associated costs. At the Board’s next regularly scheduled quarterly meeting, the CIO or Staff shall inform the Board of any cases that the Pool allocations were outside of the limits and either inform the Board of the actions that were taken to return the Pool back within guidelines or a plan to do so.

Appendix II: Definitions

DEFINITIONS

1. Asset-Backed Security – Bonds or notes backed by loan paper or accounts receivable originated by banks, credit card companies, or other providers of credit; not mortgages.

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

3. Certificate of Deposit (CD) – A short-or medium-term, interest-bearing deposit obligation offered by banks and savings and loans. These may include “Yankee CDs” which are CDs issued by foreign banks or their U.S. affiliates in the U.S. which are denominated in U.S. dollars.

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

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

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

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

Schedule I-AD
Investment Objectives and Guidelines
Barker Hughesville St Response

Effective Date of Schedule: Pending

This schedule is effective upon adoption by the Board of Investments and supersedes all previous Investment Objectives and Guidelines for this specific portfolio.

Introduction:

The purpose of this policy statement is to provide a framework for Barker Hughesville St Response investments under the guidance of the Board.

DEQ filed a bankruptcy claim after ASARCO declared bankruptcy in 2005. DEQ made a claim for about \$43 million for the Barker Hughesville Mining District (BHMD) site. DEQ's claim was reduced to an allowed claim of \$7.1 million. The claim was paid in full with interest of about 17% or \$1,254,450.62. The funds in the DEQ special account are now at about \$9 million after earning some interest the last few years. The court also determined that the funds could only be spent on or at the BHMD site. Of the five ASARCO properties in Montana, the BHMD site is the only site that ASARCO did not own. Therefore, the court directed settlement funds to be provided directly to DEQ and into a special account. For the other four Montana sites, a special ASARCO Trust Fund was set up. These sites are Black Pine Mine (Philipsburg), Iron Mt. Mine/Flat Creek (Superior), Upper Blackfoot Mining Complex and East Helena Smelter.

DEQ is committed to only spending the funds at the BHMD site. DEQ believes most of the funds should be held in reserve for potential long-term operation and maintenance (O&M) costs related to the orphan share mines which DEQ must contribute 100% of the O&M costs. If opportunities arise to contribute to the clean-up cost of solid mining waste remedies, DEQ may try to help fund a portion of that work with the settlement funds. EPA and DEQ are currently working on completing an Operable Unit 1 Feasibility Study (FS) to address the orphan share mines upstream of the Block P Mine. Once the solid mining waste Record of Decision (ROD) is completed, it would be appropriate to discuss funding sources for those remedial response actions. DEQ is not opposed to spending some of the bankruptcy funds on the orphan share mining waste clean-ups. However, it is unknown when that may occur. Expenditures are expected to follow the schedule provided by the DEQ, as updated.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Barker Hughesville St Response account; and
2. Provide diversified investment exposure within the guidelines in a prudent and cost-effective manner.

Investment Objective:

Strategic:

The objective of the Barker Hughesville St Response portfolio is to attain above benchmark total return within the parameters of the Investment Guidelines set forth below with an emphasis on investment income and preservation of principal.

Performance:

Success in achieving this objective will be measured by comparing the risk and return of the account to the **Trust Funds Investment Pool benchmark, the Short-Term Investment Pool benchmark and the Bloomberg/Barclays 1-5 Year Treasury Index**, each weighted proportionately to the portfolio's holdings, over a five-year moving average.

Time Horizon:

The Barker Hughesville St Response is a long-term expendable trust fund. 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.

Investment Guidelines:

The Montana Board of Investments will have full discretion to manage the Barker Hughesville St Response 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 of Investments at the next scheduled quarterly Board meeting.

Permitted Investments:

The Barker Hughesville St Response may only invest in the following:

1. Debt obligations of the U.S. Government, including its agencies and instrumentalities
2. Trust Funds Investment Pool (TFIP)
3. Short-Term Investment Pool (STIP)

Other Restrictions:

1. A maximum of 99% of the market value of the portfolio will be held in any combination of TFIP or Government/Agency securities.
2. The maximum maturity of Government/Agency securities will be 6 years.

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.

Schedule I-AE
Investment Objectives and Guidelines
Flying J CECRA Facilities Fund

Effective Date of Schedule: Pending

This schedule is effective upon adoption by the Board of Investments and supersedes all previous Investment Objectives and Guidelines for this specific portfolio.

Introduction:

The purpose of this policy statement is to provide a framework for Flying J CECRA Facilities Fund investments under the guidance of the Board.

In 2008, Flying J (and its subsidiaries) filed a chapter 11 bankruptcy. The Department of Environmental Quality (DEQ) had claims under Montana's Comprehensive Environmental Cleanup and Responsibility Act (CECRA) and other statutes. The fund is a result of a settlement agreement to settle claims at Tank Hill (\$1,648,768.68), Big West Oil (\$150,000), and Diamond Asphalt (\$894,979.10) that was approved by the bankruptcy court in July 2010.

At Big West Oil, another liable person is conducting the final cleanup. Once the Big West Oil cleanup is complete and the site enters the operations and maintenance phase (approximately 2022), DEQ expects the liable person to request the \$150,000 (plus any interest) be applied to DEQ's future oversight costs.

At Tank Hill, other liable persons are conducting investigation and cleanup. Once the Tank Hill cleanup is complete and the site enters the operations and maintenance phase (approximately 2025), expenditures are expected to follow the schedule provided by the DEQ, as updated.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Flying J CECRA Facilities Fund account; and
2. Provide diversified investment exposure within the guidelines in a prudent and cost-effective manner.

Investment Objective:

Strategic:

The objective of the Flying J CECRA Facilities Fund portfolio is to attain above benchmark total return within the parameters of the Investment Guidelines set forth below with an emphasis on investment income and preservation of principal.

Performance:

Success in achieving this objective will be measured by comparing the risk and return of the account to the **Trust Funds Investment Pool benchmark, the Short-Term Investment Pool benchmark and the**

Bloomberg/Barclays 1-5 Year Treasury Index, each weighted proportionately to the portfolio's holdings, over a five-year moving average.

Time Horizon:

The Flying J CECRA Facilities Fund a long-term expendable trust fund. 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.

Investment Guidelines:

The Montana Board of Investments will have full discretion to manage the Flying J CECRA Facilities Fund 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 of Investments at the next scheduled quarterly Board meeting.

Permitted Investments:

The Flying J CECRA Facilities Fund may only invest in the following:

1. Debt obligations of the U.S. Government, including its agencies and instrumentalities
2. Trust Funds Investment Pool (TFIP)
3. Short-Term Investment Pool (STIP)

Other Restrictions:

1. A maximum of 99% of the market value of the portfolio will be held in any combination of TFIP or Government/Agency securities.
2. The maximum maturity of Government/Agency securities will be 6 years.

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.

Schedule I-AF
Investment Objectives and Guidelines
Libby Asbestos Site State Cost

Effective Date of Schedule: Pending

This schedule is effective upon adoption by the Board of Investments and supersedes all previous Investment Objectives and Guidelines for this specific portfolio.

Introduction:

The purpose of this policy statement is to provide a framework for Libby Asbestos Site State Cost investments under the guidance of the Board.

In October 2002, the Libby Asbestos Superfund Site (Site) was listed on the U.S. Environmental Protection Agency (EPA) National Priorities List (NPL). As part of the W.R. Grace bankruptcy proceedings, Montana and W.R. Grace entered into a \$5M settlement to be used for the state's 10% cost share for Operation and Maintenance (O&M) costs at some areas of the site. Expenditures are expected to follow the schedule provided by the DEQ, as updated.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Libby Asbestos Site State Cost account; and
2. Provide diversified investment exposure within the guidelines in a prudent and cost-effective manner.

Investment Objective:

Strategic:

The objective of the Libby Asbestos Site State Cost portfolio is to attain above benchmark total return within the parameters of the Investment Guidelines set forth below with an emphasis on investment income and preservation of principal.

Performance:

Success in achieving this objective will be measured by comparing the risk and return of the account to the **Trust Funds Investment Pool benchmark, the Short-Term Investment Pool benchmark and the Bloomberg/Barclays 1-5 Year Treasury Index**, each weighted proportionately to the portfolio's holdings, over a five-year moving average.

Time Horizon:

The Libby Asbestos Site State Cost is a long-term expendable trust fund. 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.

Investment Guidelines:

The Montana Board of Investments will have full discretion to manage the Libby Asbestos Site State Cost 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 of Investments at the next scheduled quarterly Board meeting.

Permitted Investments:

The Libby Asbestos Site State Cost may only invest in the following:

1. Debt obligations of the U.S. Government, including its agencies and instrumentalities
2. Trust Funds Investment Pool (TFIP)
3. Short-Term Investment Pool (STIP)

Other Restrictions:

1. A maximum of 99% of the market value of the portfolio will be held in any combination of TFIP or Government/Agency securities.
2. The maximum maturity of Government/Agency securities will be 6 years.

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.

Schedule I-AG
Investment Objectives and Guidelines
Luttrill Pit - Oper & Maint

Effective Date of Schedule: Pending

This schedule is effective upon adoption by the Board of Investments and supersedes all previous Investment Objectives and Guidelines for this specific portfolio.

Introduction:

The purpose of this policy statement is to provide a framework for Luttrill Pit - Oper & Maint investments under the guidance of the Board.

The Luttrell Pit is a part of the Basin Mine Site, a former heap leach gold mine located 17 miles southwest of Helena. The mine was developed and operated by Pegasus Gold Corp. (Pegasus) in the early 1990's. Pegasus closed the mine in 1993 and conducted a partial reclamation of the site. In 1998 Pegasus Gold Corp. declared bankruptcy. As the result of the bankruptcy settlement, The Montana Department of Environmental Quality (DEQ) became the owner of site and continues with reclamation activity.

During and after the Bankruptcy, the EPA entered into agreement with the Bankruptcy Trustee and later, the DEQ, to use a portion of the site (the Luttrell Pit) as a repository for historic mine waste from abandoned mine sites located throughout the region. As part of this Agreement, EPA has payed rental and use fees (\$2,301,278.21) to DEQ, as part of their on-going operation. As per Agreement between EPA and DEQ, the Operation and Maintenance (O&M) of the site is the responsibility of DEQ, once work at the site is completed and the repository has a final cap. DEQ will use monies collected from EPA to fund O&M. At present, EPA has no plans for placement of a final cap on the repository. DEQ does not envision any O&M costs until 2030.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Luttrill Pit - Oper & Maint account; and
2. Provide diversified investment exposure within the guidelines in a prudent and cost-effective manner.

Investment Objective:

Strategic:

The objective of the Luttrill Pit - Oper & Maint portfolio is to attain above benchmark total return within the parameters of the Investment Guidelines set forth below with an emphasis on investment income and preservation of principal.

Performance:

Success in achieving this objective will be measured by comparing the risk and return of the account to the **Trust Funds Investment Pool benchmark, the Short-Term Investment Pool benchmark and the Bloomberg/Barclays 1-5 Year Treasury Index**, each weighted proportionately to the portfolio's holdings, over a five-year moving average.

Time Horizon:

The Luttrill Pit - Oper & Maint a long-term expendable trust fund. 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.

Investment Guidelines:

The Montana Board of Investments will have full discretion to manage the Luttrill Pit - Oper & Maint 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 of Investments at the next scheduled quarterly Board meeting.

Permitted Investments:

The Luttrill Pit - Oper & Maint may only invest in the following:

1. Debt obligations of the U.S. Government, including its agencies and instrumentalities
2. Trust Funds Investment Pool (TFIP)
3. Short-Term Investment Pool (STIP)

Other Restrictions:

1. A maximum of 99% of the market value of the portfolio will be held in any combination of TFIP or Government/Agency securities.
2. The maximum maturity of Government/Agency securities will be 6 years.

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

Department of Commerce

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To: Members of the Board
From: Jon Putnam, Director of Fixed Income
John Romasko, Investment Officer
Date: February 11, 2020
Subject: Proposed Changes to TFIP Investment Policy

Trust Funds Investment Pool

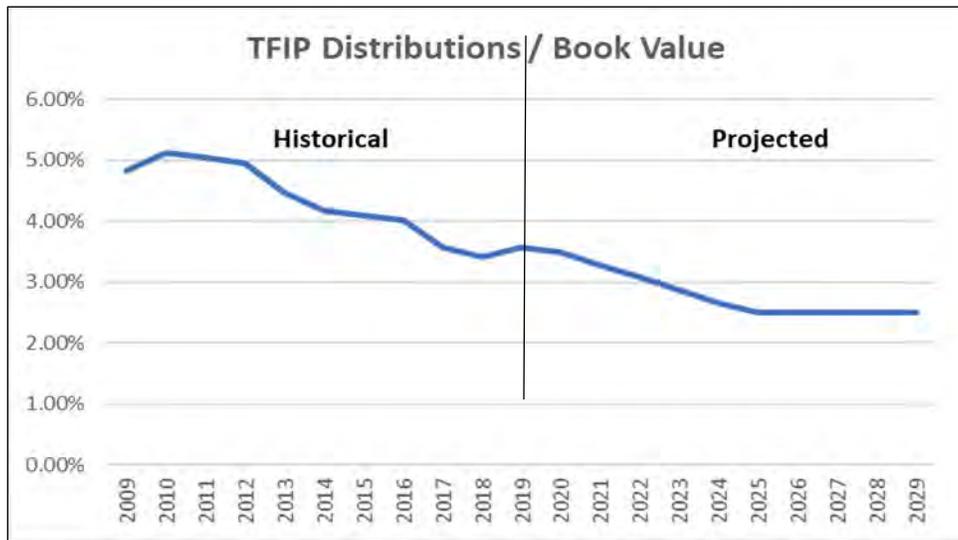
We are proposing several changes to the TFIP investment policy statement.

Important changes:

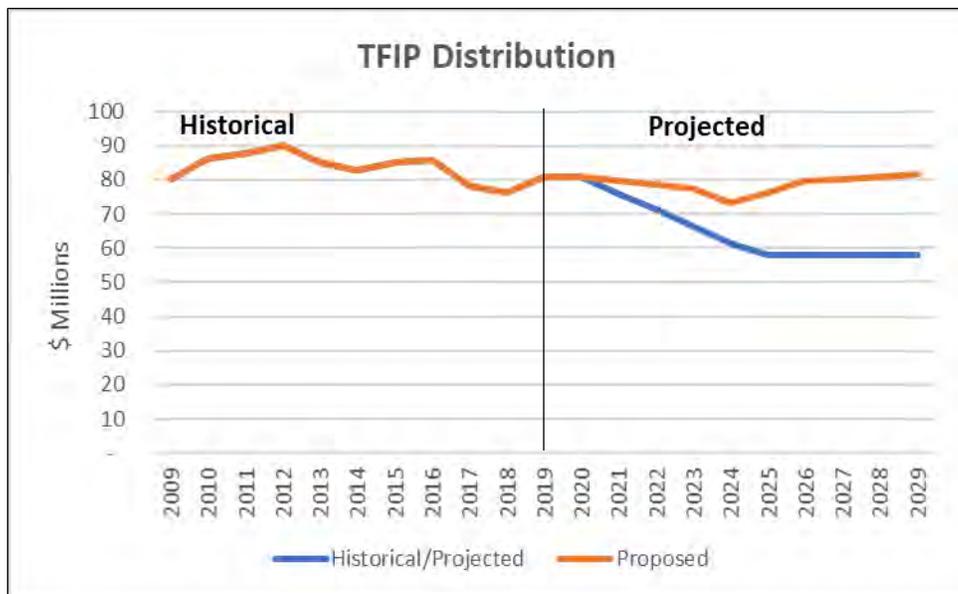
- Increasing the high end of the Real Estate Asset Class range from 8% to 30%.
- Changing the Real Estate Asset Class benchmark from the MSCI US REIT Index to the NCREIF ODCE Index
- Changing the name of the High Yield Asset Class to Non-Core Fixed Income
- Adding the ability to invest in Emerging Market Debt, Convertible Debt and Preferred Securities in the Non-Core Fixed Income Asset Class
- Updating the investment restrictions within the Investment Grade Fixed Income Asset Class

We are proposing changes to the TFIP guidelines to optimize asset allocation based on current market conditions. The income distributed from TFIP has been declining as interest rates have moved lower.

The chart below shows our best estimate of the path of TFIP distributions assuming no change in the current interest rate environment or the asset allocation. This analysis assumes the most recent distributed book yield of approximately 3.5% converges to the current yield to worst of the investment portfolio of approximately 2.5% in about five years.



The graph below presents one scenario where we add 1% to Non-Core Fixed Income and 5% to Real Estate in each of the next five years. It's assuming a rate of return of approximately 4.70% for Non-Core Fixed Income and 4.00% for Real Estate. The proposed scenario would result in the following annual TFIP distributions.



**TRUST FUNDS INVESTMENT POOL
INVESTMENT POLICY**

~~Approved April 3, 2018~~ Proposed April 14, 2020

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1. Introduction:

The Trust Funds Investment Pool (TFIP) was created by the Board on October 1, 1995. The pool is designed to provide participants exposure to a portfolio of income-producing assets. The use of a commingled pool allows for simplified investing and accounting, broader diversification and thus less risk than would otherwise be available for individual participants. The Trust Funds Investment Pool invests directly in the underlying Asset Classes. Each Asset Class has an underlying set of investment objectives and investment guidelines. Each account participating in the Trust Funds Investment Pool is separately identified for accounting and record keeping purposes.

This policy is effective upon adoption and supersedes all previous Investment Policies related to the investment management of the ~~Montana Public Retirement Plans~~ Trust Funds Investment Pool.

2. Purpose:

The purpose of this policy statement is to provide a broad strategic framework for the Trust Funds Investment Pool investments under the guidance of the Board of Investments.

3. Legal and Constitutional Authority:

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

The Unified Investment program for public funds must be administered by the Board of Investments in accordance with the “prudent expert principle,” defined as:

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

The Board, as the investment fiduciary, is responsible for establishing the investment parameters for the Trust Funds Investment Pool.

4. Strategic Investment Objectives

The Board’s primary objective is to provide investment income to participants. The Board’s secondary objective is to achieve the highest level of investment performance. 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 investment performance.

5. Time Horizon

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

6. Performance Measurement

Success in achieving these objectives will be measured by comparing the risk and return of the account to the **Bloomberg/Barclays U.S. Aggregate Bond Index** (the “Benchmark”). Performance results will be monitored and evaluated quarterly. However, success in achieving the objective will be measured on a three-year, five-year, and ten-year annualized basis.

7. Roles and Responsibilities

- a) **Board of Investments** – The Board is responsible for approving the Investment Policy Statement for the Trust Funds Investment Pool and has the authority to manage the Trust Funds Investment Pool as it considers prudent, and subject to such limitations as contained in law and the Constitution. The Board reviews this document periodically and, as needed, approves any changes to the policy.
As described in the Board of Investments Governance Manual, the Board delegates authority to the Executive Director, Chief Investment Officer, and other Staff to execute the day to day duties required to carry out the Board’s mission.
- b) **Executive Director** – The Executive Director is empowered by the Board to sign any and all documents required to conduct Board business, unless there are specific written policies or instructions from the Board to the contrary. The Executive Director is responsible for the oversight of the Trust Funds Investment Pool and the establishment of the financial reporting procedures and the collection and reporting of all income.
- c) **Chief Investment Officer** – The Chief Investment Officer (CIO) is empowered by the Board to serve as the principal staff person responsible for overseeing the investment activities under the Board’s jurisdiction in compliance with the Board’s policies. The CIO, with the support of other staff, is responsible for recommending investment policy changes for Board approval.
- d) **Staff** – The staff is responsible for:
 - I. Managing day-to-day operations and delegating work to external resources as appropriate;
 - II. Monitoring allocations and overseeing all investment manager due diligence activities and recommending changes to the CIO;
 - III. Monitoring and reporting to the Board the performance of each asset class and the individual managers’ performance;
 - IV. Informing the Board of any new managers or terminations; and
 - V. Reporting any deviations from this Investment Policy to the Board.

- e) **Investment Consultant** – The investment consultant assists the CIO and Staff with policy recommendations and provides advice to the Board. The investment consultant shall provide assistance to Staff as requested in conjunction with the management of all separate accounts.
- f) **External Managers** – Managers are responsible for all aspects of portfolio management as set forth in the contract specific to each manager. Managers must communicate with staff as needed, regarding investment strategies and results. Managers must also cooperate fully with staff regarding administrative, accounting, and reconciliation issues as well as any requests from the investment consultant and the mastercustodian.

8. Strategic Asset Allocation

The current asset allocation ranges for the Trust Funds Investment Pool are in **Appendix I**. The asset allocation ranges are subject to change as modifications are adopted by the Board, at which time **Appendix I** will be revised to reflect these changes.

9. Rebalancing

The actual asset allocation mix may deviate from time to time from the approved asset allocation ranges due to financial market performance, cash flows, and manager performance. Material deviations from the asset allocation ranges can alter the expected return and risk of the separate accounts. Rebalancing to remain within the Board-approved allocation ranges is delegated to staff in consultation with the Chief Investment Officer (CIO) and the Executive Director. Any necessary rebalancing will be made in a timely manner and will take into consideration associated costs and current market conditions.

10. Risk Management

a) **Evaluation of Investment Managers**

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

b) **Liquidity**

Many participants in the Trust Funds Investment Pool spend the income generated from their holdings. However, the total liquidity needs for the Trust Funds Investment Pool are generally low and participant capital is not expected to change dramatically on short notice. However, illiquidity risk still needs to be monitored and managed by staff on a regular basis to ensure that assets are not required to be sold too quickly, or at an unfavorable time, and potentially at a discount to fair value to meet the cash needs of pool participants.

A significant percentage of the investment in Core Real Estate is considered illiquid. Due to the limited liquidity of these assets, it will typically be impractical to fund participant cash needs or correct deviations from policy ranges through the purchase or sale of these assets.

The investments held in Investment Grade and High Yield Fixed Income are categorized as publicly traded securities. In “normal market” conditions many of the underlying assets can be liquidated in a relatively short period to accommodate both expected and unexpected withdrawals as well as any repositioning of the asset allocation to stay within approved ranges.

c) **Monitoring/Reporting – Transparency**

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

Staff shall provide regular reporting to the Board regarding the asset allocation and performance of the Trust Funds Investment Pool to confirm these items are known and adhere to all Investment Policy requirements and expectations.

d) **Leverage**

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

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

e) **Cash Investments**

Cash investments held within the Trust Funds Investment Pool entail an element of credit risk. Thus, only approved cash investment vehicles are permitted. These include the custodian’s STIF vehicle, STIP, or any SEC-registered money market fund all of which specifically address credit risk in their respective investment guidelines.

11. Securities Lending

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

12. Exercise of Shareholder Rights

a) Proxy Voting

Per the Montana Constitution, Article VIII, Section 13 “no public funds shall be invested in private corporate capital stock” with the exception of public retirement system and state compensation insurance fund assets. Therefore, the Trust Funds Investment Pool does not participate in proxy voting.

b) Class Action Litigation

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

13. Investment Policy Review

The Board intends to keep this Policy updated as it modifies or amends the underlying contents. As stated in the Governance Policy, “the Board shall review this Investment Policy at least annually or more frequently at the request of Board staff. Statements may only be revised in a public meeting. All Statements shall be posted on the Board’s web site for review by the public.”

Appendix I: Trust Funds Investment Pool Allocation Ranges

Permitted Ranges:

~~Proposed April 14, 2020~~ ~~Approved April 3, 2018~~

Trust Funds Investment Pool Asset Class		
Asset Class	Range Low	Range High
Real Estate	0	830
High Yield Non-Core Fixed Income	0	10
Investment Grade Fixed Income & Cash	6082	100

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

Proposed Date of Schedule: ~~April 3, 2018~~ April 14, 2020

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

Statement of Purpose:

The purpose of these objectives and guidelines is to:

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

Investment Objective:

Strategic:

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

Performance:

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

Investment Guidelines:

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

Most of the Real Estate Asset Class investments will be managed by external investment managers.

Permitted Investments:

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

1. Separate Accounts, Open-Ended Funds, Closed-Ended Funds, Exchange-Traded Funds (ETFs), Real Estate Investment Trusts (REITs), or Master Limited Partnerships (MLPs) managing publicly traded Real Estate, where the investments are approved by the Chief Investment Officer and purchased and monitored by Staff;

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

Other Restrictions

1. No less than 85% of the aggregate of the Real Estate Asset Class net asset value plus capital shall be invested in “Core” Real Estate. Real Estate is classified as “Core” if it is an investment in operating, substantially leased, and positively cash flowing institutional quality real estate across property types, geographies and markets;
2. No more than 35% of the aggregate of the Real Estate Asset Class net asset value plus uncalled committed capital should be in a single Fund, Partnership, or Separate Account;
3. Individual public securities received as distributions will be liquidated over a reasonable time period dependent on market conditions;
4. Cash held at the Real Estate Asset Class level (not including cash held in the underlying partnership interests, funds, or accounts) is limited to 5% of the Real Estate Asset class market value.

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

Leverage

Leverage is a significant risk factor. On an individual fund basis, the leverage level can range up to 50.0 percent. Leverage consists of the combined borrowing at the property level and the fund level. On a select basis, the leverage may exceed 75.0 percent for a given investment, if it is determined to be reasonable to do so. Leverage shall be monitored on an individual fund level and new investments shall be made with the intention that the total Real Estate Asset Class leverage shall not exceed 50%.

<u>Strategy</u>	<u>Leverage Policy Range</u>
Core Real Estate Investments	0% - 50%

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

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

Schedule II-B:
Investment Objectives and Guidelines
~~High Yield~~Non-Core Fixed Income Asset Class

Proposed Date of Schedule: ~~April 3, 2018~~ April 14, 2020

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

Statement of Purpose:

The purpose of these objectives and guidelines is to:

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

Investment Objective:

Strategic:

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

Performance:

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

Investment Guidelines:

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

Permitted Investments:

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

1. Securities and derivatives held in separate accounts, commingled funds, limited partnerships, or limited liability companies managed by ~~internal or~~ external investment managers and governed by their respective investment management contracts and investment guidelines;
- ~~2. Individual fixed income securities that are approved for purchase by the Chief Investment Officer and purchased and monitored by Staff; and~~

- ~~3. Cash — either an investment in the Short Term Investment Pool (STIP), a vehicle available through the Custodian, or an SEC registered money market fund that is considered a “US Treasury” or “US Government” money market fund per the SEC regulations.~~

Other Restrictions

1. A maximum of ~~510~~510% of the market value of the ~~Non-Core Fixed Income High Yield~~ Asset Class shall be held in Non-U.S. securities if they are denominated in a foreign currency;
2. The average duration of the ~~Non-Core Fixed Income High Yield~~ Asset Class will be maintained in a range of + or – 25% of the index duration;
3. A maximum of ~~525~~525% of the market value of the ~~Non-Core Fixed Income High Yield~~ Asset Class shall be invested in dedicated Emerging Market Debt mandates;
4. A maximum of 5% of the market value of the ~~Non-Core Fixed Income High Yield~~ Asset Class shall be invested in Cash held at the Asset Class level (not including cash held by internal or external managers in separate accounts or commingled funds); and
5. The ~~Non-Core Fixed Income High Yield~~ Asset Class market value invested in any single mandate/portfolio using an active investment strategy, other than internally managed mandates, shall be no greater than 5% of the Trust Fund Investment Pool Assets

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

**Schedule II-C:
Investment Objectives and Guidelines
Investment Grade Fixed Income Asset Class**

Proposed Date of Schedule: ~~April 3, 2018~~ April 14, 2020

This Schedule is effective upon adoption by the Board of Investments and supersedes all previous Investment Objectives and Guidelines for Investment Grade Fixed Income Asset Class.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

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

Investment Objective:

Strategic:

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

Performance:

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

Investment Guidelines:

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

Permitted Investments:

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

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

4. Dollar denominated securitized assets, including U.S. Agency mortgage backed securities (MBS), U.S. Agency collateralized mortgage obligations (CMOs) and asset backed securities (ABS).
5. Dollar denominated non-agency mortgage backed securities (RMBS) and non-agency commercial mortgage backed securities (CMBS).
6. Cash – either an investment in the Short-Term Investment Pool (STIP), a vehicle available through the Custodian, or an SEC registered money market fund that is considered a “US Treasury” or “US Government” money market fund per the SEC regulations.
 1. ~~Fixed income securities and derivatives held in separate accounts, commingled funds, limited partnerships, or limited liability companies managed by internal or external investment managers and governed by their respective investment management contracts and investment guidelines;~~
 2. ~~Individual fixed income securities that are approved for purchase by the Chief Investment Officer and purchased and monitored by Staff; and~~
 3. ~~Cash – either an investment in the Short-Term Investment Pool (STIP), a vehicle available through the Custodian, or an SEC registered money market fund that is considered a “US Treasury” or “US Government” money market fund per the SEC regulations.~~

Other Restrictions

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

11. A maximum of 10% of the Net Asset Value of the Investment Grade Fixed Income Asset Class may be held in commercial mortgage backed securities (CMBS).
12. A maximum of 3% of the Net Asset Value of the Investment Grade Fixed Income Asset Class may be held in a single corporate parent issuer, foreign/quasi government issuer or securitized specific pool at the time of purchase;
 - a. A maximum of 4% of the Net Asset Value of the Investment Grade Fixed Income Asset Class may be held in a single corporate parent issuer, foreign/quasi government issuer or securitized specific pool at any time;
13. A maximum of 5% of the Net Asset Value of the Investment Grade Fixed Income Asset Class may be invested in Cash;
14. The use of leverage is prohibited.
 - ~~1. At the time of purchase, corporate securities must be rated investment grade (Baa3/BBB-/BBB or higher) by Moody's, S&P, or Fitch. (in the case of split rated securities, the lowest rating will apply);~~
 - ~~2. Securities that drop below investment grade as defined above may be held to maturity, however the Investment Grade Fixed Income Asset Class may not hold more than 5% of its market value in securities rated below investment grade;~~
 - ~~3. A maximum of 10% of the market value of the Investment Grade Fixed Income Asset Class shall be held in Non U.S. securities in a foreign currency;~~
 - ~~4. The average duration of the Investment Grade Fixed Income Asset Class will be maintained in a range of + or - 20% of the Benchmark duration;~~
 - ~~5. The maximum maturity for individual securities held in the Investment Grade Fixed Income Asset Class will be 35 years;~~
 - ~~6. A maximum of 5% of the market value of the Investment Grade Fixed Income Asset Class shall be invested in Cash held at the Asset Class level (not including cash held by internal or external managers in separate accounts or commingled funds); and~~
 - ~~7. The Investment Grade Fixed Income Asset Class market value invested in any single mandate/portfolio using an active investment strategy, other than internally managed mandates, shall be no greater than 5% of the Total Trust Funds Investment Pool Assets.~~

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 Investment Grade Fixed Income Asset Class allocations were outside of the limits and either inform the Board of the actions that were taken to return the Investment Grade Fixed Income Asset Class back within guidelines or a plan to do so.

**TRUST FUNDS INVESTMENT POOL
INVESTMENT POLICY**

Proposed April 14, 2020

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1. Introduction:

The Trust Funds Investment Pool (TFIP) was created by the Board on October 1, 1995. The pool is designed to provide participants exposure to a portfolio of income-producing assets. The use of a commingled pool allows for simplified investing and accounting, broader diversification and thus less risk than would otherwise be available for individual participants. The Trust Funds Investment Pool invests directly in the underlying Asset Classes. Each Asset Class has an underlying set of investment objectives and investment guidelines. Each account participating in the Trust Funds Investment Pool is separately identified for accounting and record keeping purposes.

This policy is effective upon adoption and supersedes all previous Investment Policies related to the investment management of the Trust Funds Investment Pool.

2. Purpose:

The purpose of this policy statement is to provide a broad strategic framework for the Trust Funds Investment Pool investments under the guidance of the Board of Investments.

3. Legal and Constitutional Authority:

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

The Unified Investment program for public funds must be administered by the Board of Investments in accordance with the "prudent expert principle," defined as:

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

The Board, as the investment fiduciary, is responsible for establishing the investment parameters for the Trust Funds Investment Pool.

4. Strategic Investment Objectives

The Board's primary objective is to provide investment income to participants. The Board's secondary objective is to achieve the highest level of investment performance. 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 investment performance.

5. Time Horizon

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

6. Performance Measurement

Success in achieving these objectives will be measured by comparing the risk and return of the account to the **Bloomberg/Barclays U.S. Aggregate Bond Index** (the “Benchmark”). Performance results will be monitored and evaluated quarterly. However, success in achieving the objective will be measured on a three-year, five-year, and ten-year annualized basis.

7. Roles and Responsibilities

- a) **Board of Investments** – The Board is responsible for approving the Investment Policy Statement for the Trust Funds Investment Pool and has the authority to manage the Trust Funds Investment Pool as it considers prudent, and subject to such limitations as contained in law and the Constitution. The Board reviews this document periodically and, as needed, approves any changes to the policy.
As described in the Board of Investments Governance Manual, the Board delegates authority to the Executive Director, Chief Investment Officer, and other Staff to execute the day to day duties required to carry out the Board’s mission.
- b) **Executive Director** – The Executive Director is empowered by the Board to sign any and all documents required to conduct Board business, unless there are specific written policies or instructions from the Board to the contrary. The Executive Director is responsible for the oversight of the Trust Funds Investment Pool and the establishment of the financial reporting procedures and the collection and reporting of all income.
- c) **Chief Investment Officer** – The Chief Investment Officer (CIO) is empowered by the Board to serve as the principal staff person responsible for overseeing the investment activities under the Board’s jurisdiction in compliance with the Board’s policies. The CIO, with the support of other staff, is responsible for recommending investment policy changes for Board approval.
- d) **Staff** – The staff is responsible for:
 - I. Managing day-to-day operations and delegating work to external resources as appropriate;
 - II. Monitoring allocations and overseeing all investment manager due diligence activities and recommending changes to the CIO;
 - III. Monitoring and reporting to the Board the performance of each asset class and the individual managers’ performance;
 - IV. Informing the Board of any new managers or terminations; and
 - V. Reporting any deviations from this Investment Policy to the Board.

- e) **Investment Consultant** – The investment consultant assists the CIO and Staff with policy recommendations and provides advice to the Board. The investment consultant shall provide assistance to Staff as requested in conjunction with the management of all separate accounts.
- f) **External Managers** – Managers are responsible for all aspects of portfolio management as set forth in the contract specific to each manager. Managers must communicate with staff as needed, regarding investment strategies and results. Managers must also cooperate fully with staff regarding administrative, accounting, and reconciliation issues as well as any requests from the investment consultant and the mastercustodian.

8. Strategic Asset Allocation

The current asset allocation ranges for the Trust Funds Investment Pool are in **Appendix I**. The asset allocation ranges are subject to change as modifications are adopted by the Board, at which time **Appendix I** will be revised to reflect these changes.

9. Rebalancing

The actual asset allocation mix may deviate from time to time from the approved asset allocation ranges due to financial market performance, cash flows, and manager performance. Material deviations from the asset allocation ranges can alter the expected return and risk of the separate accounts. Rebalancing to remain within the Board-approved allocation ranges is delegated to staff in consultation with the Chief Investment Officer (CIO) and the Executive Director. Any necessary rebalancing will be made in a timely manner and will take into consideration associated costs and current market conditions.

10. Risk Management

a) **Evaluation of Investment Managers**

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

b) **Liquidity**

Many participants in the Trust Funds Investment Pool spend the income generated from their holdings. However, the total liquidity needs for the Trust Funds Investment Pool are generally low and participant capital is not expected to change dramatically on short notice. However, illiquidity risk still needs to be monitored and managed by staff on a regular basis to ensure that assets are not required to be sold too quickly, or at an unfavorable time, and potentially at a discount to fair value to meet the cash needs of pool participants.

A significant percentage of the investment in Core Real Estate is considered illiquid. Due to the limited liquidity of these assets, it will typically be impractical to fund participant cash needs or correct deviations from policy ranges through the purchase or sale of these assets.

The investments held in Investment Grade and High Yield Fixed Income are categorized as publicly traded securities. In “normal market” conditions many of the underlying assets can be liquidated in a relatively short period to accommodate both expected and unexpected withdrawals as well as any repositioning of the asset allocation to stay within approved ranges.

c) **Monitoring/Reporting – Transparency**

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

Staff shall provide regular reporting to the Board regarding the asset allocation and performance of the Trust Funds Investment Pool to confirm these items are known and adhere to all Investment Policy requirements and expectations.

d) **Leverage**

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

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

e) **Cash Investments**

Cash investments held within the Trust Funds Investment Pool entail an element of credit risk. Thus, only approved cash investment vehicles are permitted. These include the custodian’s STIF vehicle, STIP, or any SEC-registered money market fund all of which specifically address credit risk in their respective investment guidelines.

11. Securities Lending

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

12. Exercise of Shareholder Rights

a) Proxy Voting

Per the Montana Constitution, Article VIII, Section 13 “no public funds shall be invested in private corporate capital stock” with the exception of public retirement system and state compensation insurance fund assets. Therefore, the Trust Funds Investment Pool does not participate in proxy voting.

b) Class Action Litigation

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

13. Investment Policy Review

The Board intends to keep this Policy updated as it modifies or amends the underlying contents. As stated in the Governance Policy, “the Board shall review this Investment Policy at least annually or more frequently at the request of Board staff. Statements may only be revised in a public meeting. All Statements shall be posted on the Board’s web site for review by the public.”

Appendix I: Trust Funds Investment Pool Allocation Ranges

Permitted Ranges:

Proposed April 14, 2020

Trust Funds Investment Pool Asset Class		
Asset Class	Range Low	Range High
Real Estate	0	30
Non-Core Fixed Income	0	10
Investment Grade Fixed Income & Cash	60	100

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

Proposed Date of Schedule: April 14, 2020

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

Statement of Purpose:

The purpose of these objectives and guidelines is to:

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

Investment Objective:

Strategic:

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

Performance:

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

Investment Guidelines:

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

Most of the Real Estate Asset Class investments will be managed by external investment managers.

Permitted Investments:

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

1. Separate Accounts, Open-Ended Funds, Closed-Ended Funds, Exchange-Traded Funds (ETFs), Real Estate Investment Trusts (REITs), or Master Limited Partnerships (MLPs) managing publicly traded Real Estate, where the investments are approved by the Chief Investment Officer and purchased and monitored by Staff;

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

Other Restrictions

1. No less than 85% of the aggregate of the Real Estate Asset Class net asset value plus capital shall be invested in “Core” Real Estate. Real Estate is classified as “Core” if it is an investment in operating, substantially leased, and positively cash flowing institutional quality real estate across property types, geographies and markets;
2. No more than 35% of the aggregate of the Real Estate Asset Class net asset value plus uncalled committed capital should be in a single Fund, Partnership, or Separate Account;
3. Individual public securities received as distributions will be liquidated over a reasonable time period dependent on market conditions;
4. Cash held at the Real Estate Asset Class level (not including cash held in the underlying partnership interests, funds, or accounts) is limited to 5% of the Real Estate Asset class market value.

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

Leverage

Leverage is a significant risk factor. On an individual fund basis, the leverage level can range up to 50.0 percent. Leverage consists of the combined borrowing at the property level and the fund level. On a select basis, the leverage may exceed 75.0 percent for a given investment, if it is determined to be reasonable to do so. Leverage shall be monitored on an individual fund level and new investments shall be made with the intention that the total Real Estate Asset Class leverage shall not exceed 50%.

<u>Strategy</u>	<u>Leverage Policy Range</u>
Core Real Estate Investments	0% - 50%

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

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

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

Proposed Date of Schedule: April 14, 2020

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

Statement of Purpose:

The purpose of these objectives and guidelines is to:

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

Investment Objective:

Strategic:

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

Performance:

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

Investment Guidelines:

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

Permitted Investments:

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

1. Securities and derivatives held in separate accounts, commingled funds, limited partnerships, or limited liability companies managed by external investment managers and governed by their respective investment management contracts and investment guidelines;

Other Restrictions

1. A maximum of 10% of the market value of the Non-Core Fixed Income Asset Class shall be held in Non-U.S. securities if they are denominated in a foreign currency;
2. The average duration of the Non-Core Fixed Income Asset Class will be maintained in a range of + or – 25% of the index duration;
3. A maximum of 25% of the market value of the Non-Core Fixed Income Asset Class shall be invested in dedicated Emerging Market Debt mandates;
4. A maximum of 5% of the market value of the Non-Core Fixed Income Asset Class shall be invested in Cash held at the Asset Class level (not including cash held by internal or external managers in separate accounts or commingled funds); and
5. The Non-Core Fixed Income Asset Class market value invested in any single mandate/portfolio using an active investment strategy, other than internally managed mandates, shall be no greater than 5% of the Trust Fund Investment Pool Assets

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

**Schedule II-C:
Investment Objectives and Guidelines
Investment Grade Fixed Income Asset Class**

Proposed Date of Schedule: April 14, 2020

This Schedule is effective upon adoption by the Board of Investments and supersedes all previous Investment Objectives and Guidelines for Investment Grade Fixed Income Asset Class.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

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

Investment Objective:

Strategic:

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

Performance:

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

Investment Guidelines:

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

Permitted Investments:

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

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

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

Other Restrictions

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

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 Investment Grade Fixed Income Asset Class allocations were outside of the limits and either inform the Board of the actions that were taken to return the Investment Grade Fixed Income Asset Class back within guidelines or a plan to do so.

MONTANA BOARD OF INVESTMENTS

Department of Commerce

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To: Members of the Board
From: Jon Putnam, Director of Fixed Income
John Romasko, Investment Officer
Date: February 11, 2020
Subject: Proposed Changes to SFIP Investment Policy

State Fund Investment Pool

We are proposing several changes to the State Fund investment policy statement. We are asking the board to consider these changes and would ask for a vote at the April board meeting. The State Fund board will review the proposed changes at their March meeting. We have worked with State Fund staff to ensure that these changes are consistent with State Fund maintaining strong capital levels with their insurance regulator.

Important changes:

- Update to new IPS format
- Addition of a High Yield Asset Class in a range of 0 -7%
- Change the fixed income benchmark from the Bloomberg/Barclays Intermediate Government/Credit Index to the Bloomberg/Barclays Intermediate Aggregate Index

We are requesting an allocation to High Yield bonds in order to further diversify State Fund's portfolio. In addition, an allocation to High Yield is expected to modestly enhance portfolio return over the long term. Finally, the addition of High Yield is consistent with the asset composition of State Fund's peers.

We are also asking for a change in the fixed income performance benchmark for State Fund. We believe the change is more indicative of State Fund's portfolio composition and better reflects the broad fixed income market. It allows staff to achieve greater diversity across fixed income sectors. **(See Table 1)**

In addition, the Bloomberg/Barclays Intermediate Aggregate Index has presented a slightly higher return hurdle over time. However, staff is confident that they can continue to outperform the benchmark over the long term. **(See Table 2)**

Table 1

PORT Characteristics Report 12/31/19				Percentage Weight			Market Value
				Portfolio	Current Benchmark	Proposed Benchmark	Port
STATE FUND (MU26)				100.00	100.00	100.00	1,263,866,491
CORPORATES				49.09	30.88	19.74	620,378,423
		FINANCIAL INSTITUTIONS		21.44	12.17	7.78	271,002,577
		INDUSTRIALS		26.97	17.23	11.02	340,805,477
		UTILITIES		0.68	1.48	0.94	8,570,369
SECURITIZED				14.70	0.00	36.00	185,776,291
		ABS		4.81		0.55	60,757,410
		CMBS		5.64		2.48	71,310,878
		MBS / CMO		4.25		32.97	53,708,003
GOVERNMENT RELATED				10.90	4.52	2.88	137,729,658
		AGENCY		9.75	3.84	2.45	123,191,996
		LOCAL AUTHORITY		1.15	0.68	0.43	14,537,662
TREASURY				22.56	61.13	39.10	285,104,820
SOVEREIGN/SUPRANATIONAL				0.00	3.47	2.22	0
CASH				2.75	0.00	0.00	34,877,297

Table 2

	1 Year Return (Annualized)	3 Year Return (Annualized)	5 Year Return (Annualized)	10 Year Return (Annualized)	20 Year Return (Annualized)
Bloomberg Barclays Intermediate U.S. Aggregate Index	6.67%	3.26%	2.59%	3.15%	4.61%
Bloomberg Barclays Intermediate U.S. Govt/Credit Index	6.80%	3.24%	2.57%	3.05%	4.48%
Difference	-0.13%	0.02%	0.02%	0.10%	0.13%

**MONTANA STATE FUND
STATE FUND INVESTMENT POOL
INVESTMENT POLICY**

Proposed April 14, 2020

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1. Introduction:

Montana State Fund (MSF or State Fund) provides Montana employers with an option for workers' compensation and occupational disease insurance coverage and guarantees available coverage for all employers in Montana. The State Fund Investment Pool (SFIP) seeks to attain investment returns that assist State Fund in meeting liabilities as well as maintaining stable, cost effective rates for workers' compensation insurance. Workers' compensation benefit payments typically require immediate medical payments and then ongoing medical and indemnity benefits that can span four decades. Therefore, it is important to have a well-diversified, high quality portfolio that is positioned for the long term. The State Fund Investment Pool invests directly in the underlying Asset Classes. Each Asset Class has an underlying set of investment objectives and investment guidelines.

This policy is effective upon adoption and supersedes all previous Investment Policies related to the investment management of the State Fund Investment Pool.

2. Purpose:

The purpose of this policy statement is to provide a broad strategic framework for the State Fund Investment Pool investments under the guidance of the Board of Investments.

3. Legal and Constitutional Authority:

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

The Unified Investment program for public funds must be administered by the Board in accordance with the "prudent expert principle," defined as:

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

The Montana Constitution, Article VIII, Section 13 (4) requires:

"Investment of state compensation insurance fund assets shall be managed in a fiduciary capacity in the same manner that a prudent expert acting in a fiduciary capacity and familiar with the circumstances would use in the conduct of a private insurance organization. State compensation insurance fund assets may be invested in private corporate capital stock. However, the stock investments shall not exceed 25 percent of the book value of the state compensation insurance fund's total invested assets."

State Fund investments are subject to Title 33, Chapter 12 of the Montana Code. The purpose of Chapter 12 (Insurer Investments) *"is to protect the interests of insureds by promoting insurer solvency and financial strength."*

The Board, as the investment fiduciary, is responsible for establishing the investment parameters for the State Fund Investment Pool.

4. Strategic Investment Objectives

The Board's primary objective is to provide investment income that assists the State Fund in meeting claim benefit liabilities as well as maintaining stable, cost effective rates for workers' compensation insurance. The Board's secondary objective is to achieve long term capital appreciation in excess of inflation. 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 investment performance.

5. Time Horizon

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

6. Performance Measurement

Success in achieving these objectives will be measured by comparing the risk and return of the SFIP account to the return on the **Bloomberg Barclays Intermediate Aggregate Index** (fixed income), the return on the **S&P 500 index** (domestic equity), the return on the **MSCI ACWI Ex U.S. Index** (international equity), and the return of the **NCREIF ODCE index** (real estate), each weighted proportionately to the portfolio's holdings. Performance results will be monitored and evaluated quarterly. However, success in achieving the objective will be measured on a three-year, five-year, and ten-year annualized basis.

7. Roles and Responsibilities

- a) **Board of Investments** – The Board is responsible for approving the State Fund Investment Pool Investment Policy and has the authority to manage the SFIP as it considers prudent, and subject to such limitations as contained in this Policy, the law and the Constitution. The Board reviews this document periodically and, as needed, approves any changes to the policy.

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

- b) **Executive Director** – The Executive Director is empowered by the Board to sign any and all documents required to conduct Board business, unless there are specific written policies or instructions from the Board to the contrary. The Executive Director is responsible for the oversight of the State Fund Investment Pool and the establishment of the financial reporting procedures and the collection and reporting of all income.
- c) **Chief Investment Officer** – The Chief Investment Officer (CIO) is empowered by the Board to serve as the principal Staff person responsible for overseeing the investment activities under the

Board's jurisdiction in compliance with the Board's policies. The CIO, with the support of other Staff, is responsible for recommending investment policy changes for Board approval.

- d) **Staff** – The Staff is responsible for:
 - I. Managing day-to-day operations and delegating work to external resources as appropriate;
 - II. Monitoring allocations and overseeing all investment manager due diligence activities and recommending changes to the CIO;
 - III. Monitoring and reporting to the Board the performance of each asset class and the individual managers' performance;
 - IV. Informing the Board of any new managers or terminations; and
 - V. Reporting any deviations from this Investment Policy to the Board and the State Fund;
 - VI. Coordinating with the State Fund to provide financial data necessary for their quarterly reporting and calendar year closing cycle.

- e) **Investment Consultant** – The investment consultant assists the CIO and Staff with policy recommendations and provides advice to the Board. The investment consultant shall provide assistance to Staff as requested in conjunction with the management of the State Fund Investment Pool.

- f) **External Managers** – Managers are responsible for all aspects of portfolio management as set forth in the contract specific to each manager. Managers must communicate with Staff as needed, regarding investment strategies and results. Managers must also cooperate fully with Staff regarding administrative, accounting, and reconciliation issues as well as any requests from the investment consultant and the mastercustodian.

8. Strategic Asset Allocation

The current asset allocation ranges for the State Fund Investment Pool are in **Appendix I**. The asset allocation ranges are subject to change as modifications are adopted by the Board, at which time **Appendix I** will be revised to reflect these changes.

9. Rebalancing

The actual asset allocation mix may deviate from time to time from the approved asset allocation ranges due to financial market performance, cash flows, and manager performance. Material deviations from the asset allocation ranges can alter the expected return and risk of the separate accounts. Rebalancing to remain within the Board-approved allocation ranges is delegated to Staff in consultation with the CIO and the Executive Director. Any necessary rebalancing will be made in a timely manner and will take into consideration associated costs and current market conditions.

10. Risk Management

a) **Evaluation of Investment Managers**

The Investment Manager Evaluation Policy is a distinct policy that is regularly reviewed and updated separate from the SFIP Investment Policy because Staff utilizes the Investment Manager Evaluation Policy to oversee and manage other assets in addition to the State Fund

Investment Pool assets.

b) Liquidity

The total liquidity needs for the State Fund Investment Pool are generally low in relation to total invested assets and State Fund capital is not expected to change dramatically on short notice. However, illiquidity risk still needs to be monitored and managed by Staff on a regular basis to ensure that assets are not required to be sold too quickly, or at an unfavorable time, and potentially at a discount to fair value to meet the cash needs of State Fund.

A significant percentage of the investment in Core Real Estate and High Yield Asset Classes is considered illiquid. Due to the limited liquidity of these assets, it will typically be impractical to fund cash needs or correct deviations from policy ranges through the purchase or sale of these assets.

The investments held in Equities and Investment Grade Asset Classes are categorized as publicly traded securities. In “normal market” conditions, many of the underlying assets can be liquidated in a relatively short period to accommodate both expected and unexpected withdrawals as well as any repositioning of the asset allocation to stay within approved ranges.

c) Monitoring/Reporting – Transparency

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

Staff shall provide regular reporting to the Board regarding the asset allocation and performance of the State Fund Investment Pool to confirm these items are known and adhere to all Investment Policy requirements and expectations.

d) Leverage

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

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

e) Cash Investments

Cash investments held within the State Fund Investment Pool entail an element of credit risk. Thus, only approved cash investment vehicles are permitted. These include the custodian’s STIF vehicle, STIP, or any SEC-registered money market fund all of which specifically address credit risk in their respective investment guidelines.

11. Securities Lending

Section 17-1-113, MCA, authorizes the Board to lend securities held by the state. The Board may lend its publicly traded securities through an agent, to other market participants in return for

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

12. Exercise of Shareholder Rights

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

a) Proxy Voting

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

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

b) Class Action Litigation

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

13. Investment Policy Review

The Board intends to keep this Policy updated as it modifies or amends the underlying contents. As stated in the Governance Policy, “the Board shall review this Investment Policy at least annually or more frequently at the request of Board Staff. Statements may only be revised in a public meeting. All Statements shall be posted on the Board’s web site for review by the public.”

Appendix I: State Fund Investment Pool Allocation Ranges

Permitted Ranges:

Proposed April 14, 2020

State Fund Investment Pool Asset Class		
Asset Class	Range Low	Range High
Public Equity	0	15
Real Estate	0	8
High Yield	0	7
Investment Grade Fixed Income	70	100

Appendix II: Investment Objectives and Guidelines

Schedule II-A: Investment Objectives and Guidelines Public Equity Asset Class

Proposed Date of Schedule: April 14, 2020

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

Statement of Purpose:

The purpose of these objectives and guidelines is to:

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

Investment Objective:

Strategic:

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

Performance:

Success in achieving this objective will be measured by comparing the risk and after-fee return of the Equity Asset Class to the **S&P 500 Index and ACWI ex. U.S. Index** (the “Benchmark”) each proportionately weighted to the portfolio’s domestic and international equity holdings. Performance results will be monitored and evaluated quarterly. However, the success in achieving the objective will be measured on a three-year, five-year, and ten-year annualized basis.

Investment Guidelines:

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

Most of the Public Equity Asset Class investments will be managed by external investment managers.

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

Permitted Investments:

The Public Equity Asset Class may invest only in the following:

1. Securities and derivatives held in separate accounts, commingled funds, limited partnerships, or limited liability companies managed by external investment managers and governed by their respective investment management contracts and investment guidelines;
2. Exchange-Traded Funds (ETFs) based on an equity index that is approved by the Chief Investment Officer and purchased and monitored by Staff.

Other Restrictions:

1. A maximum of 15% of the market value of the State Fund Investment Pool will be invested in public equities;
2. A maximum of 4% of the market value of the State Fund Investment Pool will be invested in international equities.

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 Public Equity Asset Class allocations were outside of the limits and either inform the Board of the actions that were taken to return the Public Equity Asset Class back within guidelines or a plan to do so. State Fund will be notified of any exceptions or compliance violations within five days.

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

Proposed Date of Schedule: April 14, 2020

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

Statement of Purpose:

The purpose of these objectives and guidelines is to:

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

Investment Objective:

Strategic:

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

Performance:

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

Investment Guidelines:

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

Most of the Real Estate Asset Class investments will be managed by external investment managers.

Real Estate is classified as “Core” if it is an investment in operating, substantially leased, and positively cash flowing institutional quality real estate across property types, geographies and markets.

Permitted Investments:

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

1. Separate Accounts, Open-Ended Funds, Closed-Ended Funds, Exchange-Traded Funds (ETFs), Real Estate Investment Trusts (REITs), or Master Limited Partnerships (MLPs) managing publicly traded Real Estate, where the investments are approved by the Chief Investment Officer and purchased and monitored by Staff;
2. Private Investment partnership interests. These private partnerships may be direct limited partnerships, limited liability companies, or vehicles that primarily invest in partnerships, including Fund-of-Funds and Secondary Funds;
3. Individual public or private securities received as distributions from funds are also permitted to be held in the Real Estate Asset Class.

Other Restrictions

The following restrictions are preferred structures and limitations, recognizing precision relative to current market value or net asset value may not be feasible due to their illiquid nature.

1. No less than 75% of the aggregate of the Core Real Estate Asset Class net asset value plus capital shall be invested in “Core” Real Estate;
2. Separate Accounts, Open-Ended Funds, Closed-Ended Funds, Exchange-Traded Funds (ETFs), or Master Limited Partnerships (MLPs) managing publicly traded Real Estate may not exceed 25% of the aggregate of the Real Estate Asset Class net asset value plus uncalled committed capital;
3. The Core Real Estate Asset Class market value invested in any single mandate/portfolio shall be no greater than 5% of the State Fund Investment Pool Assets;
4. Individual public securities received as distributions will be liquidated over a reasonable time period dependent on market conditions.
5. Leverage will be monitored on an individual fund level. Total Real Estate Asset Class leverage shall not exceed 50%.

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

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

**Schedule II-C:
Investment Objectives and Guidelines
High Yield Asset Class**

Proposed Date of Schedule: April 14, 2020

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

Statement of Purpose:

The purpose of these objectives and guidelines is to:

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

Investment Objective:

Strategic:

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

Performance:

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

Investment Guidelines:

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

Permitted Investments:

The High Yield Asset Class may invest only in the following:

1. Securities and derivatives held in separate accounts, commingled funds, limited partnerships, or limited liability companies managed by external investment managers and governed by their respective investment management contracts and investment guidelines.

Other Restrictions

1. A maximum of 10% of the market value of the High Yield Asset Class shall be held in Non-U.S. securities if they are denominated in a foreign currency;
2. The average duration of the High Yield Asset Class will be maintained in a range of + or – 25% of the index duration;
3. A maximum of 25% of the market value of the High Yield Asset Class shall be in securities rated more than 6 notches below investment grade as defined by the average rating of the nationally recognized statistical rating organizations (NRSRO).

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 High Yield Asset Class allocations were outside of the limits and either inform the Board of the actions that were taken to return the High Yield Asset Class back within guidelines or a plan to do so. State Fund will be notified of any exceptions or compliance violations within five days.

**Schedule II-D:
Investment Objectives and Guidelines
Investment Grade Fixed Income Asset Class**

Proposed Date of Schedule: April 14, 2020

This Schedule is effective upon adoption by the Board of Investments and supersedes all previous Investment Objectives and Guidelines for Investment Grade Fixed Income Asset Class.

Statement of Purpose:

The purpose of these objectives and guidelines is to:

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

Investment Objective:

Strategic:

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

Performance:

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

Investment Guidelines:

Staff will have full discretion to manage the Investment Grade Fixed Income Asset Class consistent with the investment guidelines stated below. Compliance with the following guidelines for permitted investments and other restrictions is the sole responsibility of the Staff. Any exceptions or compliance violations are to be reported to the Board of Investments at the next scheduled quarterly Board meeting. State Fund will be notified of any exceptions or compliance violations within five days.

Permitted Investments:

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

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

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

Other Restrictions

1. A minimum of 20% of the market value must be held in U.S. Treasury/Agency securities;
2. A maximum of 10% of the market value may be held in dollar denominated quasi and foreign government securities;
 - a. Quasi and foreign government securities must be rated a minimum of the 7th highest rating by any nationally recognized statistical rating organization (NRSRO) at the time of purchase;
3. A maximum of 50% of the market value may be held in corporate bonds;
4. A maximum of 50% of the market value may be held in U.S. Agency mortgage backed securities (MBS & CMO);
5. A maximum of 5% of the market value may be held in asset backed securities (ABS);
6. A maximum of 10% of the market value may be held in commercial mortgage backed securities (CMBS);
7. The average duration will be maintained in a range of + or – 20% of the index duration;
8. The average life for individual fixed income securities will be less than 12 years;
9. A maximum of 3% of the market value may be held in a single parent company issuer, foreign/quasi government issuer or ABS specific pool at the time of purchase; there is no limit on U.S. Government/Agency securities;
 - a. Exposure to a single parent company issuer, foreign/quasi government issuer or ABS specific pool will be limited to 4% of the market value regardless of when securities were purchased;
10. Securities must be rated investment grade by at least two nationally recognized statistical rating organizations (NRSRO), with the exception of securities issued or guaranteed by agencies or instrumentalities of the U.S. Government. In the case of split-rated securities, the lower rating is used;
11. Securities that drop below investment grade as defined above may be held to maturity. However, the Investment Grade Fixed Income Asset Class may not hold more than 5% below investment grade;
12. Fixed income securities rated lower than the 7th highest rating by any nationally recognized statistical rating organization (NRSRO) are limited to 25% of the market value of the SFIP;
 - a. In the case of split rated securities, the lowest rating will apply;
13. Securitized assets must be rated a minimum of the 4th highest rating by any nationally recognized statistical rating organization (NRSRO) at the time of purchase;
 - a. Securities that drop below the 4th highest rating by any NRSRO may be held to maturity. However, the Investment Grade Fixed Income Asset Class may not hold more than 4% in these securities;
14. A minimum of 1% of the Investment Grade Fixed Income Asset Class will be held in cash investments;
15. The use of derivatives is prohibited;
16. The use of leverage is prohibited.

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 Investment Grade Fixed Income Asset Class allocations were outside of the limits and either inform the Board of the actions that were taken to return the Investment Grade Fixed Income Asset Class back within guidelines or a plan to do so. State Fund will be notified of any exceptions or compliance violations within five days.

**MONTANA BOARD OF INVESTMENTS
MONTANA STATE FUND
INVESTMENT POLICY STATEMENT**

LEGAL AND CONSTITUTIONAL AUTHORITY

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

INTRODUCTION

The purpose of this policy statement is to provide a broad strategic framework for Montana State Fund investments under the guidance of the Board. The Board manages the assets under the prudent expert principle (Section 17-6-201 MCA), which provides:

that the Board shall manage a portfolio

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

The Montana Constitution, Article VIII, Section 13 (4) requires:

“Investment of state compensation insurance fund assets shall be managed in a fiduciary capacity in the same manner that a prudent expert acting in a fiduciary capacity and familiar with the circumstances would use in the conduct of a private insurance organization. State compensation insurance fund assets may be invested in private corporate capital stock. However, the stock investments shall not exceed 25 percent of the book value of the state compensation insurance fund's total invested assets.”

Montana State Fund investments are subject to Title 33, Chapter 12 of the Montana Code. The purpose of Chapter 12 (Insurer Investments) *“is to protect the interests of insureds by promoting insurer solvency and financial strength.”*

OBJECTIVES

Strategic: Attaining investment returns that assist Montana State Fund in meeting liabilities as well as maintaining stable, cost effective rates for workers’ compensation insurance. Montana State Fund is the guaranteed provider of workers’ compensation insurance. Workers’ compensation benefit payments typically require immediate medical payments and then ongoing medical and indemnity benefits that can span 40 years. Therefore, it is important to have a well-diversified, high quality portfolio that is positioned for the long term.

**MONTANA BOARD OF INVESTMENTS
MONTANA STATE FUND
INVESTMENT POLICY STATEMENT**

Primary investment objectives:

1. Provide investment income by assuming a prudent amount of risk
2. Preserve principal by diversifying the portfolio across risk factors

Secondary investment objective:

1. Long term capital appreciation in excess of inflation

Performance:

Success in attaining the return objectives will be measured against:

1. The income component of the Barclays Capital Government / Credit Intermediate Term Index versus the income component of the State Fund Investment Pool.
2. The return on the Barclays Capital Government / Credit Intermediate Term Index, the return on the S&P 500 index and the return on the MSCI ACWI Ex U.S. Index (international equity index), and the return of the NCREIF ODCE index (real estate), each weighted proportionately to the portfolio's holdings, over a five-year moving average.

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

ASSET ALLOCATION – STATE FUND INVESTMENT PORTFOLIO (SFIP)

Fixed Income: A minimum of 75% of the market value of the SFIP will be invested in an internally managed fixed income portfolio.

Public Equities: A maximum of 15% of the market value of the SFIP will be invested in public equities. The allocation to public equities is targeted at 10% of total SFIP market value. Investment will be in publicly-traded stocks of domestic and international companies via the use of passive index funds.

- A maximum of 12% will be invested in an S&P 500 Index Fund
- A maximum of 4% will be invested in an ACWI ex. U.S. Index Fund

Core Real Estate: A maximum of 8% of the market value of the SFIP will be invested in core real estate. The allocation to core real estate is targeted at 5% of total SFIP market value. Investment will be in commingled funds which own and operate institutional quality real estate in the traditional property types (i.e. multi-family, office, retail and industrial).

Cash Investments: A minimum of 1% and a maximum of 5% of the market value of the SFIP will be held in cash investments. Cash investments held at the pool level, any managed account within it, or any separate account entail an element of credit risk. Thus, only approved cash investment vehicles are permitted. These include STIP, the custodian's STIF vehicle or any SEC-registered money market fund employed by our external asset manager's all of which specifically address credit risk in their respective investment guidelines.

**MONTANA BOARD OF INVESTMENTS
MONTANA STATE FUND
INVESTMENT POLICY STATEMENT**

PERMITTED FIXED INCOME INVESTMENTS

The fixed income portfolio may only invest in the following:

- Debt obligations of the U.S. Government, including its agencies and instrumentalities.
- Dollar denominated debt obligations of Quasi and Foreign Government entities.
- Dollar denominated debt obligations of domestic and foreign corporations.
- Dollar denominated securitized assets, including U.S. Agency mortgage backed securities (MBS), U.S. Agency collateralized mortgage obligations (CMOs), commercial mortgage backed securities (CMBS), and asset backed securities (ABS).

OTHER RESTRICTIONS – FIXED INCOME ALLOCATION

1. A minimum of 20% of the market value of the SFIP must be held in U.S. Treasury/Agency securities.
2. A maximum of 10% of the market value of the SFIP may be held in dollar denominated quasi and foreign government securities.
 - a. Quasi and foreign government securities must be rated equal to or higher than A3 by Moody's or A- by S&P at the time of purchase.
3. A maximum of 60% of the market value of the SFIP may be held in corporate bonds.
4. A maximum of 20% of the market value of the SFIP may be held in dollar denominated, international corporate bonds.
 - a. Exposure to a single foreign jurisdiction may not exceed 10% of the market value of the SFIP.
5. A maximum of 20% of the market value of the SFIP may be held in U.S. Agency mortgage backed securities (MBS & CMO).
6. A maximum of 5% of the market value of the SFIP may be held in asset backed securities (ABS).
7. A maximum of 5% of the market value of the SFIP may be held in commercial mortgage backed securities (CMBS).
8. The average duration of the fixed income portfolio will be maintained in a range of + or – 20% of the index duration.
9. The average life for individual fixed income securities will be less than 12 years.
10. A maximum of 3% of the market value of the SFIP may be held in a single parent company issuer, foreign/quasi government issuer or ABS specific pool at the time of purchase; there is no limit on U.S. Government/Agency securities.
 - a. Exposure to a single parent company issuer, foreign/quasi government issuer or ABS specific pool will be limited to 4% of the market value of the SFIP regardless of when securities were purchased.
11. Fixed income securities must be investment grade at the time of purchase as determined by Moody's (Baa3 or higher) or S&P (BBB- or higher).
 - a. Securities in the portfolio that drop below investment grade may be held to maturity at the discretion of the manager. However, the SFIP may not hold more than 5% below investment grade.
12. Fixed income securities rated lower than A3 by Moody's or A- by S&P are limited to 25% of the market value of the SFIP.
 - a. In the case of split rated securities, the lowest rating will apply.

**MONTANA BOARD OF INVESTMENTS
MONTANA STATE FUND
INVESTMENT POLICY STATEMENT**

13. A maximum of 15% of the market value of the SFIP may be held in Rule 144a securities, including a 10% maximum allocation to 144a securities without registration rights.
14. Securitized assets must be rated a minimum of Aa3 by Moody's and AA- by S&P at the time of purchase.
 - a. Securities in the portfolio that drop below Aa3/AA- may be held to maturity at the discretion of the manager. However, the SFIP may not hold more than 4% below Aa3/AA-.
15. Companion/Residual/Equity tranches of securitized assets are prohibited.
16. Interest only (IO) and principal only (PO) mortgage strips are prohibited.
17. Collateralized Bond / Debt / Loan Obligations (CBO's/CDO's/CLO's) are prohibited.
18. The use of derivatives is prohibited.
19. The use of leverage is prohibited.
20. Convertible securities or securities with an equity component are prohibited.
21. Securities with an inverse floating coupon are prohibited.

MBOI will notify Montana State Fund of any issues out of compliance within 5 days. Should the portfolio fall out of compliance, a reasonable cure period will be allowed so that compliance can be obtained through normal maturities or transactions at fair market value if deemed prudent by Staff in light of prevailing market conditions.

ADMINISTRATIVE

Securities Lending: Section 17-1-113, MCA, authorizes the Board to lend securities held by the state. The Board may lend its publicly traded securities held in the investment pools, through an agent, to other market participants in return for compensation. Currently, through an explicit contract, State Street Bank and Trust, the state's custodial bank, manages the state's securities lending program. The Board seeks to assess the risks, such as counterparty and reinvestment risk, associated with each aspect of its securities lending program. The Board requires borrowers to maintain collateral at 102 percent for domestic securities and 105 percent for international securities. To ensure that the collateral ratio is maintained, securities on loan are marked to market daily and the borrower must provide additional collateral if the value of the securities on loan increases. In addition to the strict collateral requirements imposed by the Board, the credit quality of approved borrowers is monitored continuously by the contractor. From time to time, Staff or the investment manager may restrict a security from the loan program upon notification to State Street Bank. Staff will monitor the securities lending program, and the CIO will periodically report to the Board on the status of the program.

MEMORANDUM

Montana Board of Investments

Department of Commerce

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

To: Board of Directors
From: Doug Hill-Director In-State Loan Programs
Date: January 29, 2020
Subject: Commercial and Residential Loan Portfolios

As of January 2, 2020, the Commercial loan portfolio balance was \$166,957,256 and represents 106 loans. There are currently four loan reservations that total \$16,700,000 and nine loans committed that total \$56,428,132. The commercial loan portfolio, excluding the Veterans Home Loan Program, has a yield of 3.00%.

There are no commercial loans past due over 30 days.

The Residential loan portfolio reflected an outstanding balance, as of January 20, 2020, of \$3,261,276 and represents 85 loans. The portfolio has a yield of 6.58%. There are no outstanding reservations. There is one loan, with an FHA guaranty, over 90 days past due totaling \$85,544 or 2.60% of the portfolio.

The Veterans Home Loan Mortgage portfolio reflected an outstanding balance, as of January 20, 2020, of \$45,771,427 and represents 260 loans with a yield of 1.88%. There are 10 reservations totaling \$1,907,558 with a projected yield of 1.70%. There is one loan over 90 days past due totaling \$172,131, or 0.38% of the portfolio.

INTERCAP Loan Program

Activity Summary

As of December 31, 2019

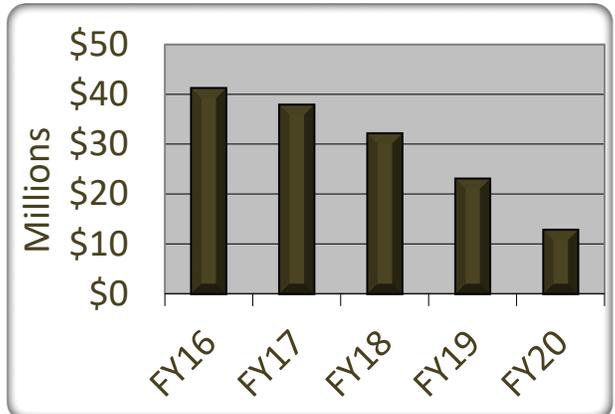
Since Inception 1987 - December 2019

Total Bonds Issued	168,000,000
Total Loan Commitments	626,111,692
Total Loans Funded	594,955,742
Total Bonds Outstanding	105,065,000
Total Loans Outstanding	72,988,890
Loan Commitments Pending	31,155,949

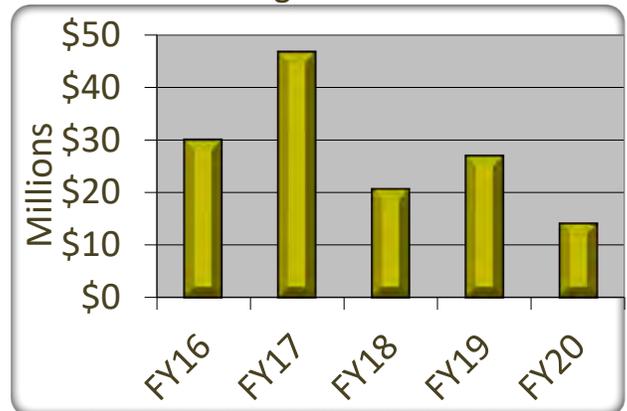
FY2020		
Month	Commitments	Fundings
July-19	\$ 1,447,634	\$ 1,028,463
August	710,000	2,252,511
September	782,700	2,466,764
October	4,800,000	1,882,130
November	5,032,000	3,147,838
December	62,374	3,311,600
January	-	-
February	-	-
March	-	-
April	-	-
May	-	-
June-20	-	-
To Date	\$ 12,834,708	\$ 14,089,307

Note: Commitments include withdrawn and expired loans.

Commitments FY16-FY20



Fundings FY16-FY20



Variable Loan Rate History February 16, 2012 - February 15, 2020

February 16, 2012 - February 15, 2013	<u>1.25%</u>	February 16, 2016 - February 15, 2017	<u>1.55%</u>
February 16, 2013 - February 15, 2014	<u>1.00%</u>	February 16, 2017 - February 15, 2018	<u>2.50%</u>
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>

MEMORANDUM

Montana Board of Investments

Department of Commerce

2401 Colonial Drive, 3rd Floor

(406) 444-0001

To: Members of the Board

From: Savannah Morgan, Bond Program Officer

Date: February 11, 2020

Subject: INTERCAP Staff Approved Loans Committed - Staff approved the following loans between October 1, 2019 to December 31, 2019.



Borrower:	Ronan
Purpose:	Purchase front-end loader
Staff Approval Date:	November 26, 2019
Board Loan Amount:	\$127,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$127,000
Term:	10 years

Borrower:	Ronan
Purpose:	Purchase equipment for front-end loader
Staff Approval Date:	November 26, 2019
Board Loan Amount:	\$105,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$105,000
Term:	7 years

Borrower:	McCone County
Purpose:	Purchase new Sheriff's vehicle and radio
Staff Approval Date:	December 12, 2019
Board Loan Amount:	\$62,374
Other Funding Sources:	\$ 0
Total Project Cost:	\$62,374
Term:	5 years

Montana Board of Investments
Loan Committee
INTERCAP Loan Summary and Approval



Borrower Sun Prairie Village County Water & Sewer District (Great Falls)

Date December 31, 2019

Approval Date _____

The District requests a \$1,335,000 interim loan in anticipation of the United States Department of Agriculture (USDA) Rural Development Services (RD)¹ long-term financing for wastewater system upgrades. The loan will be for up to two (2) years and in the form of a bond anticipation note (BAN). The project is expected to go out to bid this July with a projected drawdown schedule beginning in the fall of 2020.

The funding package for the \$2,572,000 project is as follows:

Borrower Portion		\$ 259,000
Montana Department of Commerce – TSEP ² Planning Grant		500,000
Rural Development Grant		478,000
INTERCAP Interim Loan	\$1,335,000	
Rural Development Loan		<u>1,335,000³</u>
	Total	\$ 2,572,000

¹<http://www.rurdev.usda.gov/>

²Treasure State Endowment Program

³12% contingency included.

Authorization

7-7-109 Montana Code Annotated (MCA) (2) (a) When all conditions exist precedent to the offering for sale of bonds of a political subdivision in any amount and for any purpose authorized by law or the political subdivision has applied for and received a commitment for a grant or loan of state or federal funds, its governing body may by resolution issue and sell, in anticipation of the receipt of the grant, loan, or bonds in an amount not exceeding the total amount of bonds authorized or the total amount of the loan or grant that is committed, notes maturing within not more than three years from the date on which the notes are issued.

INTERCAP Debt

The District had one prior commitment for interim financing in 2012 that was later withdrawn.

RD Commitment

The Code of Federal Regulations (CFR) Title 7, Chapter Xvii, Part 1780, Sub Part B, Section §1780.39 (b)(5)(i)(d) states, *“For all loans exceeding \$500,000, where funds can be borrowed at reasonable interest rates on an interim basis from commercial sources for the construction period, such interim financing may be obtained so as to preclude the necessity for multiple advances of Rural Utilities Services (RUS i.e. RD) loan funds. However, the approval official may make an exception when interim financing is cost prohibitive or unavailable. Guidance on informing the private lender of RUS’s commitment is available from the Agency. When interim commercial financing is used, the application will be processed, including obtaining construction bids, to the stage where the RUS loan would normally be closed, that is immediately prior to the start of construction. The RUS loan should be closed as soon as possible after the disbursement of all interim funds.”*

RD staff works closely with the borrower, engineer, other state and federal agencies and technical assistance providers throughout the planning, application and construction phases of all RD financed projects to ensure each one is a viable project, a sound credit, and in the local government entity’s best interest. Prior to authorizing draws on the interim loan, RD staff goes through an exhaustive process to ensure the borrower meets the

multitude of requirements as if they were to close and release funds on the RD long-term revenue bond. RD provides three documents to Board staff that evidence their due diligence and commitment to fund the project as follows:

- Letter of Conditions (LOC): The LOC assures the Board that the processing office completed the credit analysis, verified user number and rate revenue sufficient to support all costs of the facility after the project is complete, validated the engineering design, and oversaw environmental due diligence. The approving official, Community Programs Director (Director), reviews the application package, the LOC delineating the conditions the applicant must meet prior to closing, and the processing office’s recommendation to approve. If the applicant agrees to the conditions and the Director concurs with the processing office’s findings, the funds are obligated to the project. It is important to note that RD will not issue the LOC unless funds have been appropriated by Congress and are available. The Director affirmed that Congress does not claw back funding once appropriated.
- USDA, Office of General Counsel (OGC) Closing Instructions: The closing instructions assure the Board that RD approved the loan, obligated funds to the project, and the OGC reviewed and approved all the bond proceedings. The closing instructions list the items that need to be completed prior to closing. As required in the above federal regulation, all the requirements are met prior to closing and releasing funds either on an RD loan or, if interim financing is involved, authorizing any interim draws. A 5%-10% contingency, depending on the complexity of the system, is added after bids are received to establish the total project cost.
- Letter of Intent (“I” Letter): The Director’s “I” letter acknowledges that INTERCAP is the interim financing source, that each draw will be authorized by RD and that funds will be available to payoff both principal and interest on the INTERCAP loan when the engineer issues the Certificate of Substantial Completion to the contractor for RD loan only projects. However, over 90% of the cases involve grant funds as well. The amount of grant versus loan depends on the borrower’s available cash. RD requires the loan be closed before the first draw of RD grant funds so that when construction is 60-80% complete, INTERCAP is paid in full and RD carries through to project completion. If there is financial hardship in the community, the project is grant only with no loan component or interim financing involved.

Repayment

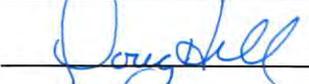
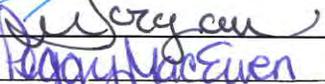
The bond proceeds from the District’s issuance and sale of a revenue bond to RD will repay the BAN. Special conditions to the Board’s commitment to ensure the revenue bond takes out the BAN are as follows:

1. Prior to disbursing funds, the Board requires evidence of RD’s commitment to pay off the BAN with a long-term loan. Copies of the following will provide sufficient evidence:
 - RD Letter of Conditions (**MBOI has on file**)
 - USDA Office of General Council (OGC) Loan Closing Instruction
 - RD Letter of Intent to Fund (“I” Letter)
2. The Board requires approval from RD for each specific draw on the loan.
3. The Board requires the District to hire Bond Counsel to prepare the necessary BAN documents and provide the opinion at closing. The Bond Counsel needs to be nationally recognized and rendering a bond counsel opinion in the last ten years.

Recommendation

Providing interim financing is in step with INTERCAP’s statutory mission to reduce, to the extent possible, the cost of public indebtedness to taxpayers and residents. Since 1996, INTERCAP and RD have been successful partners in this endeavor, saving communities with populations under 10,000 on interest expense, which is better spent on vital water and wastewater projects that protect the health and quality of life in Montana. Funds are never drawn until the RD-approved construction contract documents have been signed and RD is satisfied there are sufficient funds to complete the entire project. To date, the Board has never needed to convert one of these BANS into a long-term revenue bond. Approval recommended.

Staff Loan Committee

Dan Villa, Executive Director		Recommended <u>1/2/20</u>
Doug Hill, Dir. In-State Loan Programs		Recommended <u>12/31/19.</u>
Louise Welsh, Sr. Bond Program Officer		Recommended <u>12/31/19</u>
Savannah Morgan, Bond Program Officer		Recommended <u>12.31.19</u>
Peggy MacEwen, Deputy Director		Recommended <u>1/2/20</u>

Board Loan Committee – February 11, 2020

- Jack Prothero, Chairperson – Loan Committee Yes No Abstain
- Bruce Nelson, Member Yes No Abstain
- Terry Cohea, Member Yes No Abstain
- Jim Edwards, Member Yes No Abstain

Approved _____

**Montana Board of Investments
Loan Committee
INTERCAP Loan Summary and Approval**



Borrower Department of Corrections (DOC)

Date January 22, 2020

Approval Date _____

The DOC is requesting to borrow \$2.75 million to finance a long-range building request at the Montana State Prison Facility in Deer Lodge. The project costs are associated with the expansion of the cook chill building otherwise known as the Food Factory. The loan will be in the form of a general promise to pay of the DOC with a 15-year term. The funding package for the \$3,000,000 total project cost is as follows:

Borrower Portion	\$ 250,000
INTERCAP Loan	<u>2,750,000</u>
Total	\$3,000,000

Authorization

In May 2019, the legislature passed by majority vote the long-range building appropriations in House Bill 5 (HB5) and the general appropriations in House Bill 2 (HB2). The two bills provided DOC the legislative authority-only approval to proceed with the long-range building project and the budget authority to repay the debt service.

HB5 authority-only authorization is given to projects that the funding of which does not require legislative appropriation, such as grants, donations, auxiliary funds, and, as in this case, proprietary (enterprise) funds. As the attached legal opinion from the DOC Acting Chief Legal Counsel points out, the legislative passage of these proposals satisfies the intent of the following statute that is specific to state agency INTERCAP loans.

17-5-1612, MCA, The legislature intends that individual state agencies may borrow from the program established in this part, as specifically authorized by the legislature under the following conditions: (1) A loan for which the security is an enterprise or internal service fund source may be approved by a simple majority vote of the legislature.

INTERCAP Debt

The DOC is a new borrower to the program.

Repayment

There will be approximately \$246,000 annual debt service on the proposed loan. DOC is designating its enterprise fund, the Montana Correctional Enterprises Division (MCE); Food Factory Fund 06573, as the primary repayment source of the loan. The Food Factory program prepares bulk and trayed meals, including baked goods, at the Montana State Prison Facility for eight institutions in Montana. Users are charged by the tray and in bulk including delivery. The DOC/MCE will impose a \$.10/meal increase that, based on past five-year average, is expected to generate approximately \$267,000 additional revenue annually. The fees charged for this service are legislatively approved each biennium in HB2 and adjusted to ensure the fund does not carry more than 60 days of working capital at fiscal yearend.

Financial Report

	<u>FY19</u>	<u>FY18</u>
Beginning Fund Balance	\$ 2,614,656	\$ 2,400,683
Revenues	4,976,596	4,981,717
Expenditures	<u>4,930,453</u>	<u>4,767,744</u>
Ending Fund Balance	\$ 2,660,799	\$ 2,614,656
Net Change in Fund Balance	\$ 46,143	\$ 213,973
Fund Balance Cash	\$ 537,801	\$ 523,924

COMMENTS:

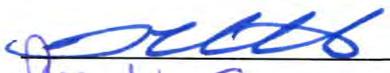
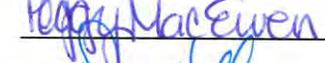
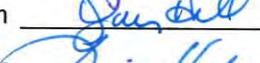
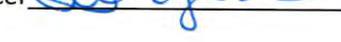
FY18 Without the \$139,325 depreciation expense, the net change in fund balance would have been \$353,298.

FY19 Without the \$172,623 depreciation expense, the net change in fund balance would have been \$218,766.

Recommendation

The DOC has the resources to service the debt. Approval recommended.

Staff Loan Committee - Recommendation

Dan Villa, Executive Director		Date: <u>1/23/20</u>
Peggy MacEwen, Deputy Director		Date: <u>1/23/20</u>
Doug Hill, Dir. of In-State Loan Program		Date: <u>1/22/20</u>
Louise Welsh, Sr. Bond Program Officer		Date: <u>1/22/20</u>
Savannah Morgan, Bond Program Officer		Date: <u>1.22.2020</u>

Board Loan Committee – February 11, 2020

Jack Prothero, Chairperson – Loan Committee

Approval
 Yes No Abstain

Terry Cohea, Member

Yes No Abstain

Bruce Nelson, Member

Yes No Abstain

Jim Edwards, Member

Yes No Abstain

Approval Date: _____



Montana Department of Corrections
Director's Office

Steve Bullock, Governor
Reginald D. Michael, Director

January 3, 2020

RECEIVED
JAN 06 2020
BOARD OF INVESTMENTS

Louise Welsh
Board of Investments, Senior Bond Program Manager
PO Box 200126
Helena, MT 59620

RE: Loan from Bd. Of Investments for MCE food factory expansion

Dear Ms. Welsh,

The Department of Corrections, Montana Correctional Enterprises (DOC/MCE) Division, recently applied for a Board of Investments INTERCAP loan on October 2, 2019 in the amount of \$2,750,000 to fund a long-range building request at the Montana State Prison (MSP) Facility at Deer Lodge.

DOC/MCE, as part of the legislative process, requested building expansion and update at the centralized cook chill kitchen (known as the Food Factory) at MSP through Architecture and Engineering's Long-Range Building (LRB) Program. The facility produces over 13,000 meals per day in a facility designed to produce 10,000.

As part of Ms. Butler's testimony to both the Legislative LRB and Budget Sub-Committees, it was explained that the building project would be funded through a loan, with cook chill rates of \$.10 per meal charged to customers to repay the loan. In the LRB Committee, Ms. Butler testified that she would be requesting a \$3,000,000 loan with estimated interest of 4%, paid back over a fifteen-year period with payments of over \$22,000 per month.

The Long-Range Building Committee unanimously passed the \$3,000,000 proposal and the DOC/MCE budget were passed out of the sub-committees with a majority vote. In addition, both proposals passed both Legislative bodies by simple majority votes. The documentary materials and oral testimony submitted with respect to the proposal clearly reflect that funding for the project would be secured by a loan.

This letter serves as my unqualified legal opinion that the passage of these proposals through simple majority votes by the two sub-committees and the Senate and House, satisfies the intent of M.C.A. § 17-5-1612(1): "A loan for which the security is an enterprise or internal service fund source may be approved by a simple majority vote of the legislature."

If you have additional questions concerning this matter, please do not hesitate to contact me.

Very sincerely,

A handwritten signature in black ink, appearing to read "Ira Eakin". The signature is fluid and cursive, with a prominent initial "I" and a long, sweeping tail.

Ira Eakin
Senior Counsel
(Acting Chief Legal Counsel)
Department of Corrections
(406) 628-8303



Executive Summary and Capital Markets Review

Montana Board of Investments

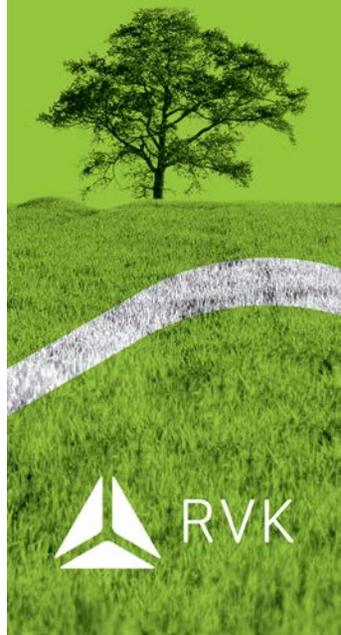
Period Ended: December 31, 2019



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Executive Summary



CAPITAL MARKETS REVIEW & TOTAL FUND PERFORMANCE HIGHLIGHTS

MONTANA BOARD OF INVESTMENTS

Economic and Capital Market Review

The fourth quarter of 2019 was a strong quarter for global equity markets, capping off an exceptional year overall. For the one-year period ending December 31, 2019, US equity markets returned **31.5%**, while international developed and emerging markets returned **22.0%** and **18.4%**, respectively. Credit markets also produced exceptional returns as a result of downward pressure on interest rates, modest inflation expectations, and strong corporate financial performance. Although reduced interest rates helped fuel US equity returns during the first half of the year, Q4 returns appeared to be linked more closely to progress on international trade negotiations. Specifically, bilateral negotiations between the US and China resulted in a “Phase One” trade agreement announcement. The agreement included a partial rollback of tariffs, and generally reduced trade tensions between the two countries. US economic data released in Q4 was also generally positive, although softness persisted in a few sectors. Manufacturing, in particular, continued to weaken, as evidenced by the Institute for Supply Management (ISM) Purchasing Managers Index (PMI) index remaining below 50 in Q4, indicating contraction in the sector. Global central banks remain accommodative, although market participants do not expect further accommodation in 2020. Several of the macroeconomic drivers of 4th quarter performance are outlined in **Figure 1**. Index returns representative of major asset class performance are presented in **Figure 2**.

Figure 1: Drivers of 4th Quarter Asset Class Performance

Positive Drivers	Negative Drivers
<ol style="list-style-type: none"><li>1. US-China Trade Dispute De-escalation – Bilateral negotiations between the US and China finally resulted in an announced “Phase One” trade agreement, which included a partial rollback of tariffs. Markets reacted positively to rumors prior to the announcement and built on gains after the announcement.<li>2. US Economic Data Remains Generally Positive – Despite softness in a few sectors, such as manufacturing, US economic data released during the quarter was generally positive. Employment data continued to strengthen, with monthly non-farm payrolls expanding by an average of 184,000 per month during Q4, and the unemployment rate ended the year at 3.5%.	<ol style="list-style-type: none"><li>1. Steepening US Treasury Yield Curve – The yield curve steepened during the quarter due to declines in short term rates, coupled with increases in longer term rates of three years and beyond. This was a negative outcome for longer dated bonds, which had previously benefitted from past declines. The Bloomberg US Aggregate Index returned just 0.2% during the quarter, although the 1-year return of 8.7% remains exceptional.<li>2. Concerns over Global Growth – The most recent World Bank Global Economic Prospects report cited weakness in global trade and investment as key factors contributing to the global growth slowdown realized in 2019—much of it directly related to trade tensions between the US and China.

Figure 2: Key Market Index Returns
Period Ending December 31, 2019

Index	Asset Class	QTD	FYTD	CYTD/ 1 Year	5 Year	10 Year
S&P 500 (Cap Wtd)	US Large Cap Equity	9.07	10.92	31.49	11.70	13.56
Russell 2000	US Small Cap Equity	9.94	7.30	25.53	8.23	11.83
MSCI EAFE (Net)	Int'l Developed Markets	8.17	7.01	22.01	5.67	5.50
MSCI Emerging Markets (Net)	Int'l Emerging Markets	11.84	7.09	18.44	5.61	3.68
Bloomberg US Agg Bond	US Fixed Income	0.18	2.45	8.72	3.05	3.75
NCREIF ODCE (Gross)	Private Real Estate	1.52	2.85	5.35	8.97	11.42
Bloomberg Commodity (TR)	Commodities	4.42	2.50	7.69	-3.92	-4.73

Investment Performance: Total Fund

Figure 3 shows the performance of the MBOI pension plans, as represented by the Public Employees' Retirement Plan. A short commentary regarding performance at the total fund level is also provided below.

Figure 3: MBOI Total Fund Performance (Net of Fees)
Period Ending December 31, 2019

	QTD	FYTD ¹	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years
Total Fund Composite (Net)	4.79	5.76	16.77	9.28	7.37	8.84	8.97
Public Employees Benchmark	6.33	7.00	21.23	9.71	7.88	9.46	N/A
<i>Difference</i>	<i>-1.54</i>	<i>-1.24</i>	<i>-4.46</i>	<i>-0.43</i>	<i>-0.51</i>	<i>-0.62</i>	N/A
Rank	51	45	45	46	27	10	2

¹ Fiscal year to date covers the trailing period beginning July 1, 2019.

RVK Commentary

- **Positive Returns Across Most Asset Classes** – The portfolio posted a positive return of 4.79% net of fees, largely driven by strong returns in International and Domestic Equity, which returned 8.91% and 8.74%, respectively. The combined Core and Non-Core Fixed Income composite returned 0.58% for the quarter. The only pool to produce negative returns during the quarter was Natural Resources with a return of -0.20%.
- **Strong Peer Rankings** – MBOI rankings versus peers remain strong across all time periods of five years and beyond. In addition, on a risk-adjusted basis, the plans continue to perform well over a ten-year period, providing returns that exceed those of peers with less risk. A graphic demonstrating this relationship can be found on **page 12** of the Performance Report. However, over the prior 3-year period, peer rankings have hovered close to median. With limited visibility into the allocation of peers, it is difficult to pinpoint contributors and detractors over the prior 3 years, but potential factors include higher allocations to underperforming asset classes, such as fixed income, real estate, natural resources, and cash.
- **Mixed Relative Performance for Asset Class Composites** – The asset class composites posted mixed returns relative to their respective benchmarks over the quarter. The Domestic Equity Pool

underperformed its benchmark by 33 basis points and International Equity underperformed its benchmark by 29 basis points, net of fees. Non-Core Fixed Income underperformed its benchmark by 27 basis points, net of fees. Performance for the Core Fixed Income composite is not yet available given the recent consolidation of assets; however, RVK is working with State Street to obtain this performance history for future reports.

In the illiquid asset pools (i.e., Private Investments, Real Estate, and Natural Resources), relative returns were mixed. The Natural Resources Pool and Private Equity pools underperformed by 779 basis points and 490 basis points, respectively. The Real Estate Pool outperformed its benchmark by 188 basis points. As we have discussed in past meetings, over short time periods, illiquid asset pools often deviate substantially from public market indices. This issue is most acute in extreme up markets (MBOI composites often underperform) or extreme down markets (MBOI composites often outperform). During 2019, the strong public equity, REIT, and commodity markets generally led to underperformance of the corresponding MBOI asset pools.

Finally, the Trust Funds Investment Pool outperformed its index by 27 basis points, while the Short Term Investment Pool kept pace with its respective benchmark posting an absolute return of 0.46%.

Investment Performance: Asset Class Composites

In 2017, MBOI streamlined the accounting and reporting for retirement plan assets. The most notable change involved the creation of the “Consolidated Asset Pension Pool” (CAPP). Under the CAPP structure, all retirement plans hold an allocation to a single investment pool (CAPP), as well as an allocation to the Short Term Investment Pool (STIP). As of December 31, 2019, CAPP assets totaled approximately \$12.2 billion, and STIP assets totaled approximately \$4.4 billion.

The performance relative to benchmarks and peers for the major asset class composites held within the CAPP are summarized on **pages 16-17** of the quarterly performance report. A high level commentary on each asset class is also provided below (in addition to non-retirement asset pools, such as the Trust Funds Investment Pool). Unless stated otherwise, all returns are reported on a net of fees basis. For Natural Resources and Non-Core Fixed Income, historical performance remains limited to 33 months or less, as these pools were recently established by the MBOI. During Q4 2019, the CAPP was restructured as follows:

1. Diversifying Strategies was eliminated
2. The Core Fixed Income Pool was created, and now includes TIPS, Investment Grade Credit, US Treasury & Agency, Mortgage Backed, Reams, and the TIPS portfolio formerly held in Diversifying Strategies.
3. The Non-Core Fixed Income Pool was created, and now includes High Yield Fixed Income.
4. Private Equity was renamed to Private Investments.

The highlights for each of the MBOI asset classes are as follows.

- **Montana Domestic Equity Pool** – The MBOI Domestic Equity Pool returned 8.74% for the quarter, underperforming the Domestic Equity Custom Index by 33 basis points. Relative to peers, the pool ranked in the 46th percentile for the quarter. The quarter saw high single and low double digit returns for major indices across all size segments and styles. Active managers generally struggled to keep up with strong benchmark returns. The MBOI’s performance mirrored this trend, as evidenced by

the performance of the Domestic Equity Pool relative to the benchmark. At the individual manager level, active manager performance for the MBOI was mixed, with large-cap managers showing some improvement during the quarter, while small-cap managers largely underperformed their corresponding benchmarks. For example, J.P. Morgan and T. Rowe outperformed their respective benchmarks by 76 and 24 basis points during the quarter, while Vaughan Nelson and DFA trailed their benchmarks by 462 and 185 basis points, respectively. Despite mixed relative performance, the domestic equity portfolio has performed reasonably well versus peers, ranking above median over all trailing periods out to the 10-year period.

- **Montana International Equity Pool** – The MBOI International Equity Pool returned 8.91% for the quarter, underperforming the International Equity Custom Benchmark by 29 basis points. Relative to peers, the pool ranked in the 65th percentile for the quarter, and has ranked below median over all trailing periods. However, the pool has outperformed its benchmark over the 1-10 year trailing periods.
- **Core & Non-Core Fixed Income** – The combined Core and Non-Core Pools returned 0.58% for the quarter, outperforming the Bloomberg US Aggregate Bond Index by 40 basis points. The Non-Core Fixed Income Pool currently consists of High Yield, which returned 2.34% for the quarter and trailed the Bloomberg US High Yield 2% Issuer Cap Index by 27 basis points. The Core Fixed Income Pool currently has less than a full quarter of returns as a result of the recent consolidation.
- **Trust Funds Investment Pool** – The Trust Funds Investment Pool returned 0.45% for the quarter, outperforming the Bloomberg US Aggregate Bond Index by 27 basis points. The strong relative long-term performance of the pool continues to benefit from strong internal management of the bond pool, along with small allocations to both real estate and high yield.
- **Natural Resources** – The Natural Resources pool returned -0.20% for the quarter, underperforming the MSCI ACW Commodity Producers Index (USD) (Net) by 779 basis points. As a new investment pool in the CAPP, relative performance for this pool only extends back 33 months, thus a meaningful assessment of relative performance of this pool will take additional time. In addition, relative to most other pools in the portfolio, it is important to note that the underlying investments in this pool differ substantially from those held in the benchmark. Thus relative performance should be viewed with caution, particularly over short-term investment horizons.
- **Real Estate Pool** – The Real Estate Pool returned 1.10% for the quarter, outperforming the Real Estate Custom Index by 188 basis points. Relative to peers, the pool has ranked around or above median for all trailing periods out to the 10-year period. Drivers of both absolute and relative performance continue to be the timing of entry into the asset class, as well as material differences between benchmark and portfolio holdings.
- **Short Term Investment Pool** – The Short Term Investment Pool returned 0.46% for the quarter, marginally underperforming the iMoney.net Money Fund Median¹, but performing in-line with the Federal Reserve US Treasury 1-Month Constant Maturity Rate. Over the past year, the pool returned 2.28%.
- **Private Investments Pool** – The Private Investments Pool returned 3.77% for the quarter, which

¹ The iMoney.net Money Fund Median is reported on a gross of fees basis.

underperformed the Private Equity Custom Index by 490 basis points. As we have discussed in past meetings, private investments provide valuable diversification and return enhancement for the MBOI pension plans. Over the last 10 years, the portfolio has returned 12.84% net of fees, making it the second highest-returning asset class over the long run, closely behind domestic equity. In addition, during major market drawdowns (particularly those that are short-lived), private equity can provide substantial volatility reduction.

Capital Markets Review

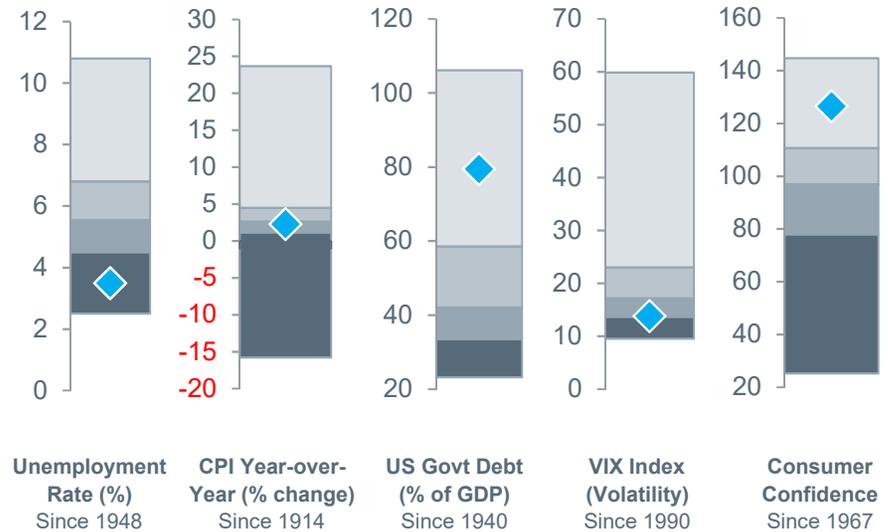


Fourth Quarter Economic Environment

Key Economic Indicators

The fourth quarter of 2019 was a strong quarter for global equity markets, with representative US, developed non-US, and emerging market indices each substantially adding to gains realized earlier in the year. Credit markets also finished in positive territory, as supportive financial conditions and a general risk-on market sentiment drove spreads to tighten across the quality spectrum. Falling discount rates drove valuations and performance for US equities during the first half of the year, but increases in Q4 appeared more directly tied to optimism around international trade. Bilateral negotiations between the US and China finally resulted in an announced “Phase One” trade agreement, including a partial rollback of tariffs, which de-escalated trade tensions to a degree. US economic data released during Q4 was generally positive—although softness remains in some key sectors, such as manufacturing. The ISM PMI value was below 50 in Q4, indicating contraction in the manufacturing sector. Global central banks remain accommodative, though the market expects little additional help from the Federal Reserve in 2020. During its most recent meeting, the FOMC did not forecast any additional rate cuts in 2020.

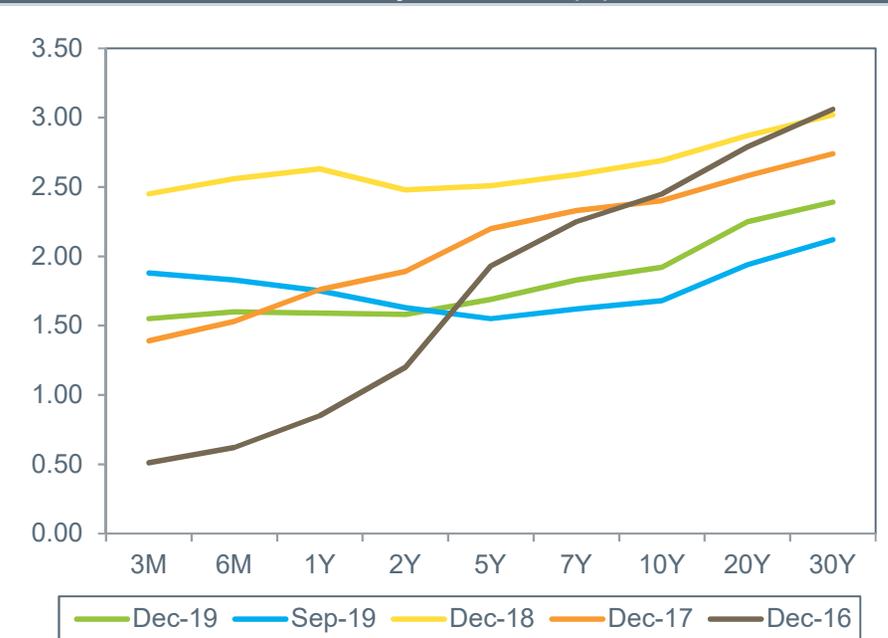
Key Economic Indicators



Economic Indicators

	Dec-19	Sep-19	Dec-18	Dec-16	20 Yr
Federal Funds Rate (%)	1.55 ▼	1.90	2.40	0.55	1.79
Breakeven Infl. - 5 Yr (%)	1.70 ▲	1.35	1.49	1.86	1.85
Breakeven Infl. - 10 Yr (%)	1.79 ▲	1.52	1.71	1.97	2.03
CPI YoY (Headline) (%)	2.3 ▲	1.7	1.9	2.1	2.2
Unemployment Rate (%)	3.5 —	3.5	3.9	4.7	5.9
Real GDP YoY (%)	N/A	2.1	2.5	2.0	2.1
PMI - Manufacturing	47.2 ▼	47.8	54.3	54.3	52.6
USD Total Wtd Idx	90.82 ▼	93.25	91.79	95.72	86.07
WTI Crude Oil per Barrel (\$)	61.1 ▲	54.1	45.4	53.7	61.9
Gold Spot per Oz (\$)	1,517 ▲	1,472	1,282	1,148	935

Treasury Yield Curve (%)



Market Performance (%)

	QTD	CYTD	1 Yr	5 Yr	10 Yr
S&P 500 (Cap Wtd)	9.07	31.49	31.49	11.70	13.56
Russell 2000	9.94	25.53	25.53	8.23	11.83
MSCI EAFE (Net)	8.17	22.01	22.01	5.67	5.50
MSCI EAFE SC (Net)	11.52	24.96	24.96	8.85	8.74
MSCI Emg Mkts (Net)	11.84	18.44	18.44	5.61	3.68
Bloomberg US Agg Bond	0.18	8.72	8.72	3.05	3.75
ICE BofAML 3 Mo US T-Bill	0.46	2.28	2.28	1.07	0.58
NCREIF ODCE (Gross)	1.52	5.35	5.35	8.97	11.42
FTSE NAREIT Eq REIT (TR)	-0.76	26.00	26.00	7.21	11.94
HFRI FOF Comp	3.04	8.34	8.34	2.36	2.83
Bloomberg Cmdbt (TR)	4.42	7.69	7.69	-3.92	-4.73

Fourth Quarter Review

Broad Market

US markets enjoyed a strong finish to the year amid de-escalation of the US-China trade war and stimulative monetary policy from the Fed. The quarter saw high single and low double digit returns for major indexes across all size segments and styles. The strong quarter pushed the S&P 500 Index to a 31.5% return on the year.

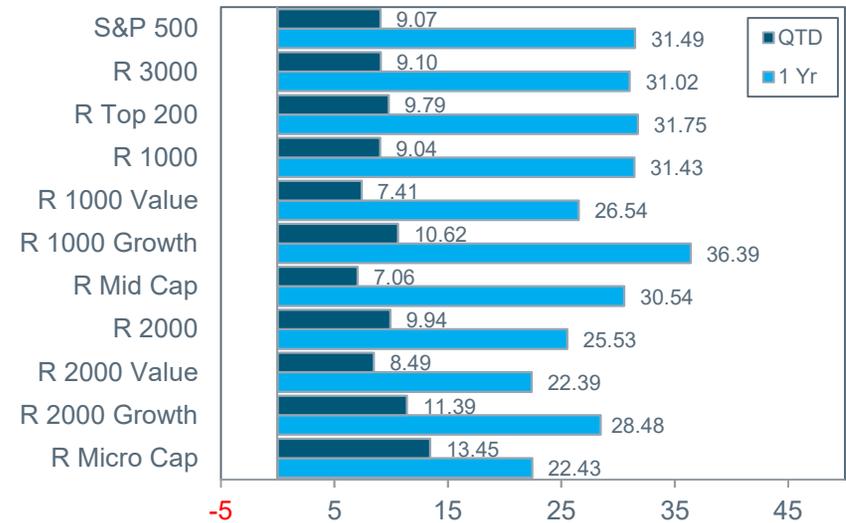
Market Cap

Large and mid-cap stocks lagged slightly behind small-cap stocks in Q4, with the Russell 2000 Index returning 9.9% and the S&P 500 and Russell MidCap Indexes returning 9.1% and 7.1%, respectively.

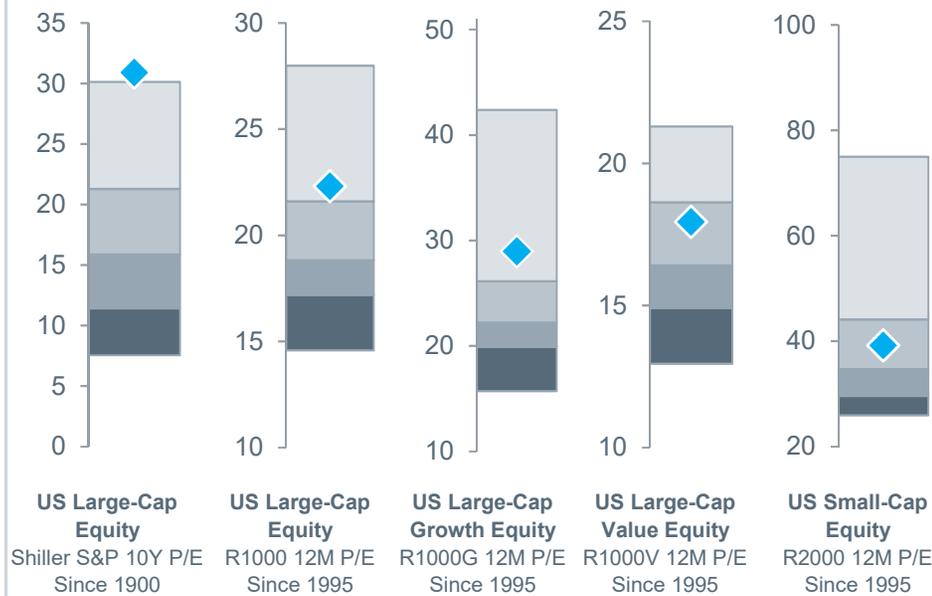
Style and Sector

Active managers struggled to keep up with strong benchmark returns in Q4. In addition, value-tilted managers performed notably better than growth and core managers in the quarter.

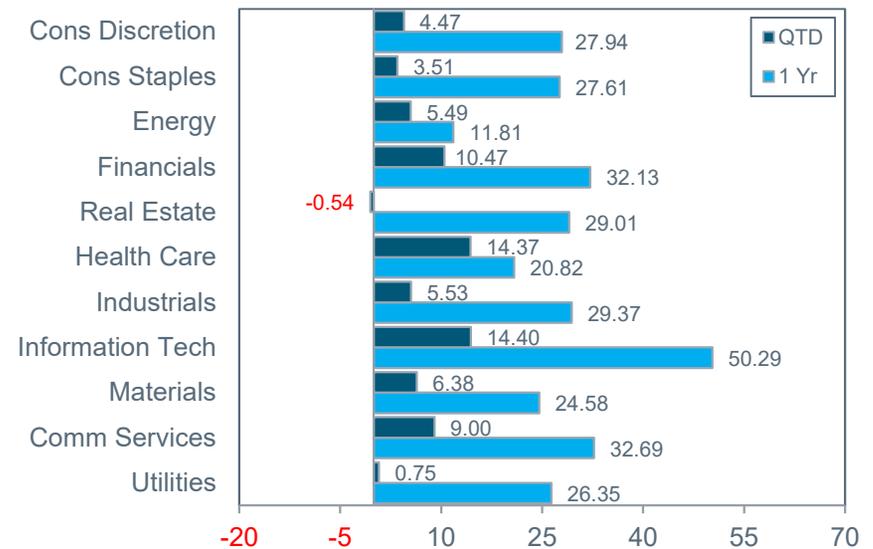
Style and Capitalization Market Performance (%)



Valuations



S&P 500 Index Sector Performance (%)



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

Developed international markets delivered strong absolute returns in Q4, but they still lagged both domestic and emerging markets. By country, returns for the quarter were positive almost across the board, with only Belgium ending in slightly negative territory. However, Q4 returns were largely driven by multiple expansion, as growth continues to be weak in developed international markets.

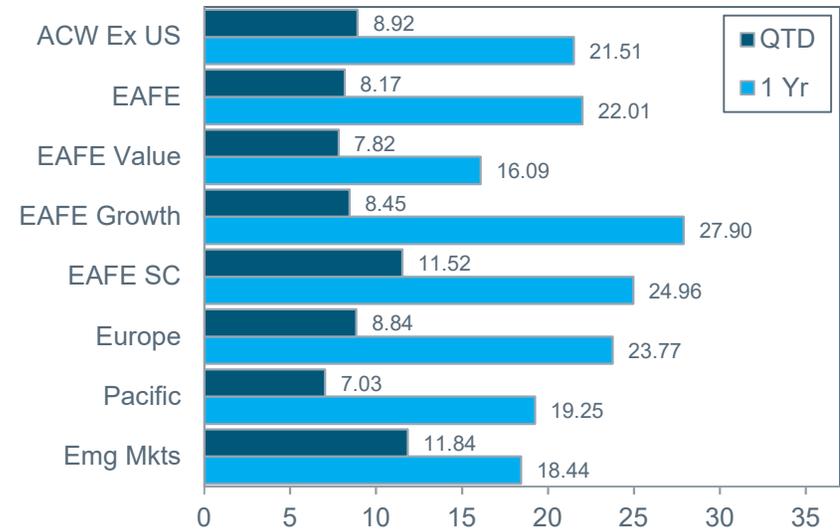
Emerging Markets

Emerging markets outperformed all other equity markets in Q4. Returns were largely lifted by the announcement of the initial phase of a trade deal between China and US, potentially indicating de-escalation in the ongoing trade war.

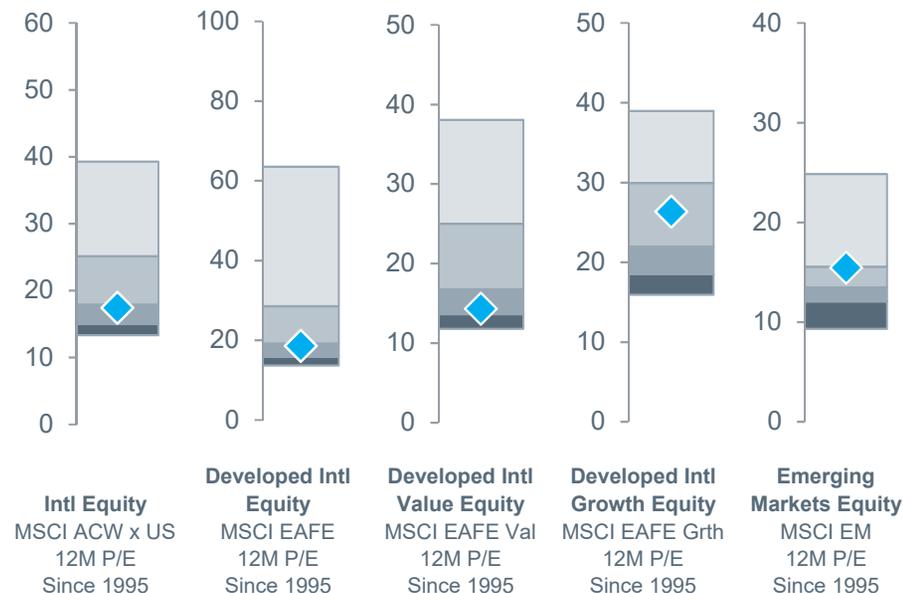
Market Cap & Style

In developed international markets, value stocks continued to underperform growth, while small-cap stocks outperformed large-cap for the quarter. In emerging markets, growth stocks outperformed value and large-cap outperformed small-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

After a solid first three quarters supported by declining rates, the Bloomberg US Aggregate Index finished the year more subdued, returning just 0.2% for the final quarter. The Bloomberg US Government Long Duration Index fell sharply, finishing the quarter with a -4.1% return, but the index still ended the year in positive territory with a return of 14.7%.

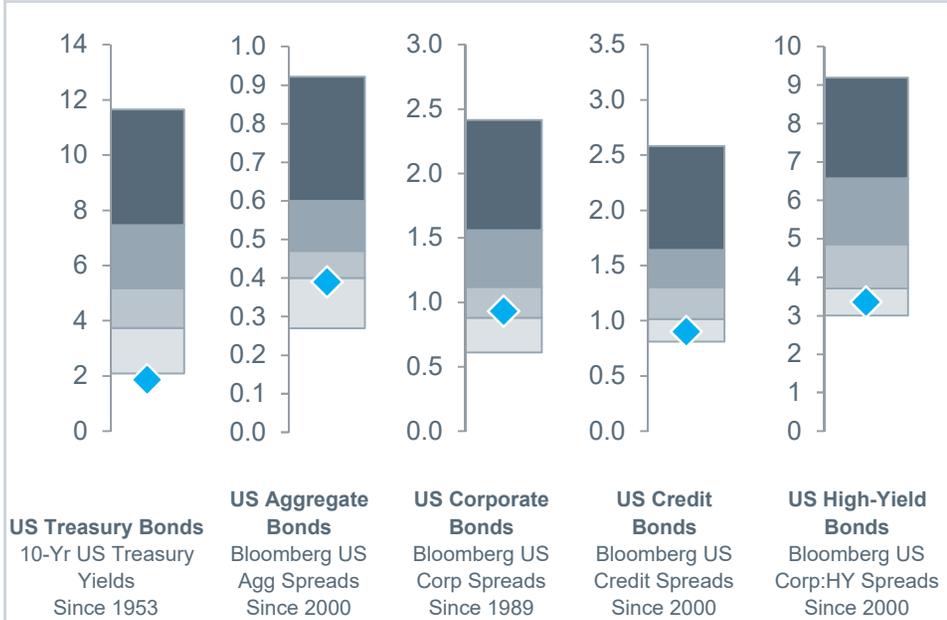
Credit Market

Corporate credit fared better than the broader index for the quarter, as strong economic data signaled optimism for the sector. Spreads tightened over the quarter, and the Bloomberg US Corporate Index returned 1.2%, contributing to an already-impressive annual return of 14.5%.

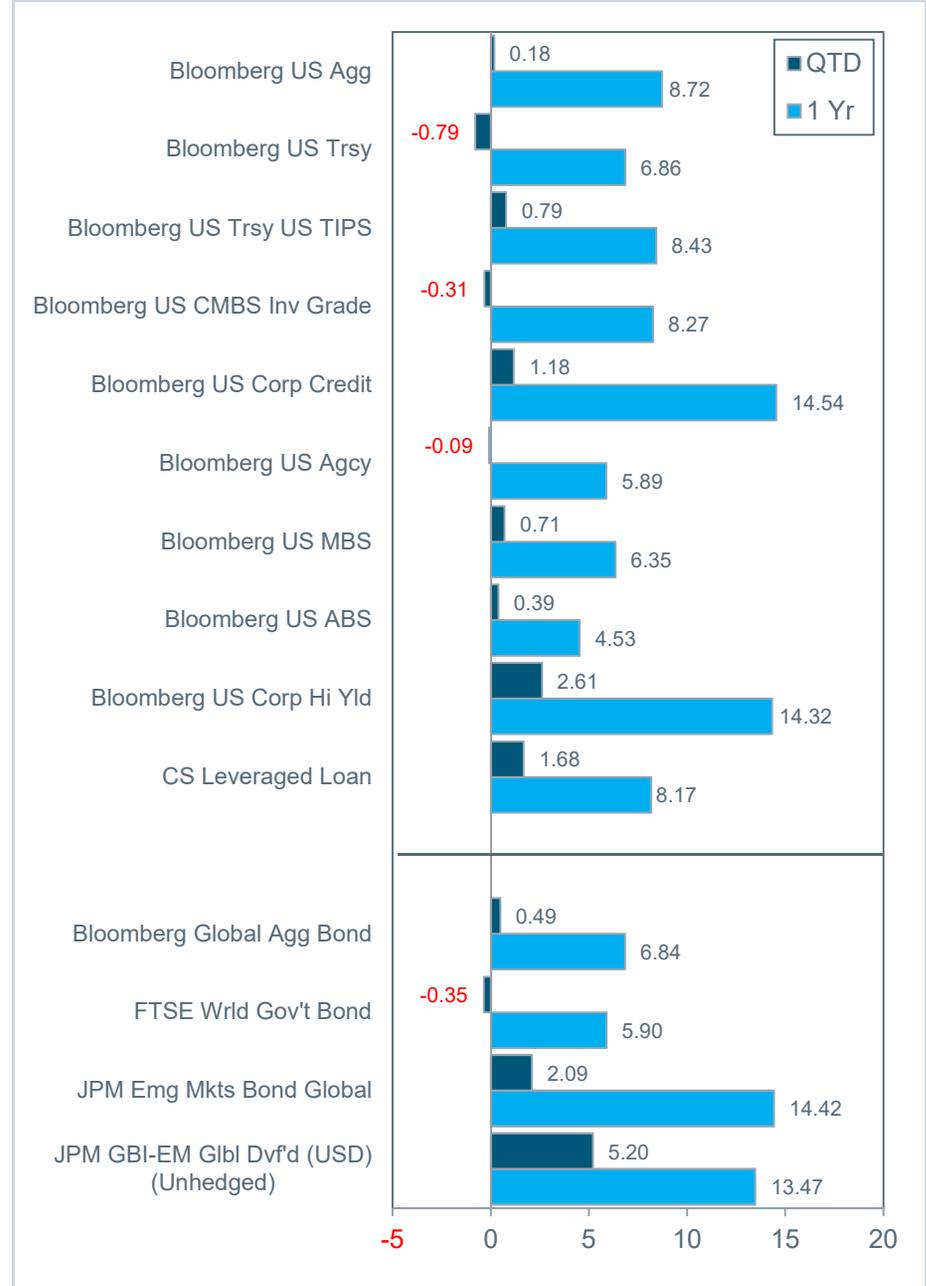
Emerging Market Debt

Hard currency emerging markets debt also added to a strong year. The JPM EMBI Global Diversified Index posted 1.8% in the final quarter to finish the year up 15.0%.

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.

Fourth Quarter Review - Absolute Return

General Market - Hedge Funds

Hedge funds finished the year on a positive note, as the vast majority of strategies in the space added to gains realized earlier in the year. The HFRI Equity Hedge Index return for 2019, at 13.7%, was the best returning year for the index since 2013. Fund of Hedge Funds that maintained significant strategic exposure to Long/Short Equity and Long/Short Credit outperformed funds that rotated towards diversifying, market neutral strategies.

General Market - Global Tactical Asset Allocation (GTAA)

Most GTAA managers showed positive absolute performance in 2019, though they generally underperformed a static and less diversified blend of 60% US equity and 40% US fixed income. Nearly all GTAA managers underperformed this measure due to the extraordinarily strong 2019 performance of US large-cap equities compared to most of the other diversifying global asset classes included within GTAA strategies. Generally, those with the strongest returns in 2019 held higher relative allocations to US equities as opposed to developed international or emerging market equities.

Fourth Quarter Review - Real Assets

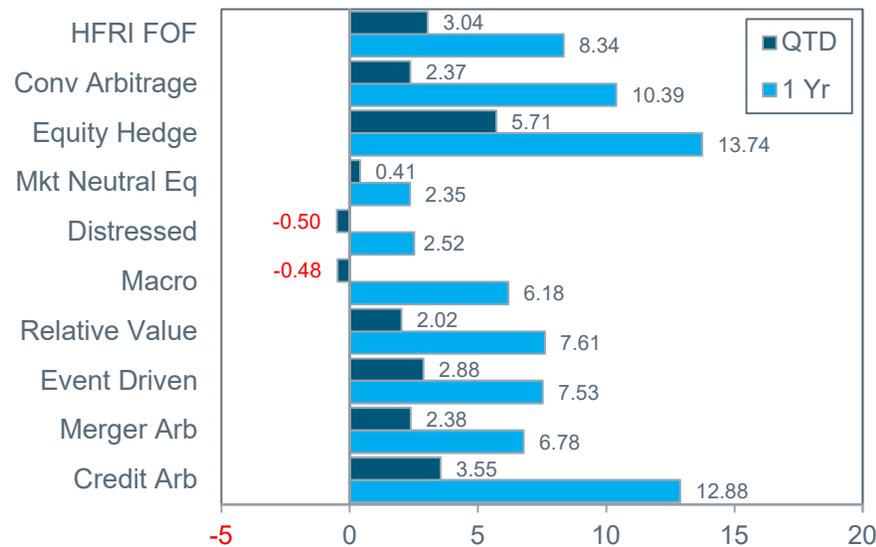
General Market - Diversified Inflation Strategies (DIS)

Performance of DIS managers ranged widely throughout both Q4 and the calendar year, though nearly all managers provided significantly stronger than typical positive absolute returns. Managers with larger TIPS allocations tended to underperform peers for the year, despite still achieving their own real return expectations. DIS managers that outperformed peers by the widest margins emphasized allocations to REITs, global listed infrastructure, and/or global natural resource equities.

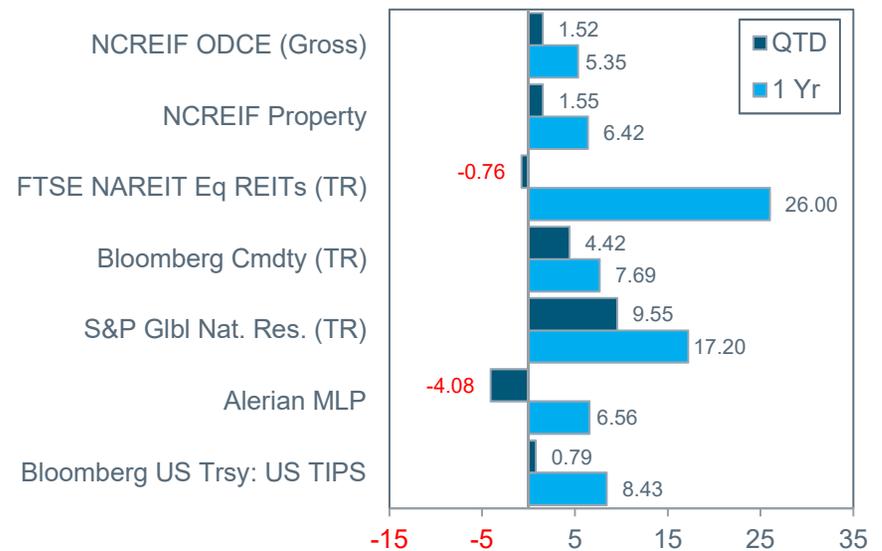
General Market - Real Estate

Core private real estate returned 1.5% during the quarter (on a preliminary basis), as reported by the NCREIF-ODCE Index, with the total return comprised of 1.0% income and 0.5% price appreciation. While the income component stayed in-line with historical levels, price appreciation experienced a modest increase of 0.2% compared to the relatively flat Q3 return. Investments in publicly traded real estate trailed their private market counterparts during Q4.

HFRI Hedge Fund Performance (%)



Real Asset Performance (%)



Annual Asset Class Performance

As of December 31, 2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	CYTD
Best	34.00	35.03	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
	26.19	32.18	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
	21.39	26.34	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
	21.36	19.31	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
	13.54	18.37	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
	12.17	16.32	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
	7.49	15.79	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
	5.34	11.86	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
	4.91	10.39	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
	4.55	4.85	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
	3.07	4.34	1.87	-37.74	5.93	6.54	-12.14	4.79	-2.60	-2.19	-4.41	2.18	3.54	-11.25	8.34
	2.84	2.72	1.45	-43.38	1.92	6.31	-13.32	4.21	-8.61	-4.90	-4.47	1.00	3.01	-13.79	7.69
	2.74	2.07	-1.57	-47.01	0.21	5.70	-15.94	0.11	-8.83	-4.95	-14.92	0.51	1.70	-14.58	5.35
Worst	2.43	0.49	-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
	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.





Quarterly Investment Performance Analysis

Montana Board of Investments

Period Ended: December 31, 2019



Montana Board of Investments
Comparative Performance
Retirement Plans

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Public Employees' Retirement - Net	4.79	5.76	16.77	9.28	7.37	8.84	8.97	5.90	-2.63	14.80	7.32	1.86	8.07	7.74	07/01/1994
Public Employees' Benchmark	6.33	7.00	21.23	9.71	7.88	9.46	N/A	N/A	-5.57	15.35	9.12	1.40	9.13	N/A	
Difference	-1.54	-1.24	-4.46	-0.43	-0.51	-0.62	N/A	N/A	2.94	-0.55	-1.80	0.46	-1.06	N/A	
Public Employees' Retirement - Gross	4.91	6.01	17.44	9.89	7.92	9.40	9.53	6.29	-2.03	15.34	7.78	2.31	8.61	8.05	07/01/1994
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	46	27	10	2	36	44	63	56	7	5	55	
Teachers' Retirement - Net	4.80	5.78	16.78	9.27	7.36	8.85	8.97	5.90	-2.64	14.76	7.33	1.86	8.09	7.76	07/01/1994
Teachers' Benchmark	6.32	7.00	21.21	9.69	7.87	9.46	N/A	N/A	-5.57	15.32	9.11	1.40	9.16	N/A	
Difference	-1.52	-1.22	-4.43	-0.42	-0.51	-0.61	N/A	N/A	2.93	-0.56	-1.78	0.46	-1.07	N/A	
Teachers' Retirement - Gross	4.92	6.03	17.45	9.88	7.91	9.40	9.54	6.29	-2.03	15.31	7.80	2.32	8.63	8.06	07/01/1994
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	47	27	10	2	36	44	64	56	7	5	54	
Police Retirement - Net	4.79	5.78	16.80	9.29	7.37	8.85	8.96	5.87	-2.63	14.79	7.32	1.86	8.07	7.61	07/01/1994
Police Benchmark	6.33	6.99	21.23	9.70	7.87	9.46	N/A	N/A	-5.57	15.33	9.11	1.40	9.15	N/A	
Difference	-1.54	-1.21	-4.43	-0.41	-0.50	-0.61	N/A	N/A	2.94	-0.54	-1.79	0.46	-1.08	N/A	
Police Retirement - Gross	4.92	6.03	17.47	9.90	7.92	9.40	9.52	6.25	-2.02	15.33	7.78	2.31	8.61	7.92	07/01/1994
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	44	44	27	10	3	42	44	63	56	7	5	65	

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



Montana Board of Investments
Comparative Performance
Retirement Plans

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Firefighters' Retirement - Net	4.79	5.77	16.79	9.29	7.37	8.85	8.95	5.87	-2.62	14.79	7.32	1.87	8.07	7.60	07/01/1994
Firefighters' Benchmark	6.33	6.99	21.23	9.71	7.88	9.46	N/A	N/A	-5.57	15.33	9.12	1.41	9.15	N/A	
Difference	-1.54	-1.22	-4.44	-0.42	-0.51	-0.61	N/A	N/A	2.95	-0.54	-1.80	0.46	-1.08	N/A	
Firefighters' Retirement - Gross	4.92	6.02	17.46	9.90	7.92	9.40	9.52	6.26	-2.01	15.34	7.78	2.32	8.61	7.91	07/01/1994
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	44	27	10	3	42	44	63	56	7	5	69	
Sheriffs' Retirement - Net	4.78	5.75	16.75	9.28	7.37	8.84	8.95	5.89	-2.62	14.80	7.33	1.86	8.05	7.64	07/01/1994
Sheriffs' Benchmark	6.32	7.00	21.22	9.71	7.88	9.46	N/A	N/A	-5.56	15.35	9.13	1.40	9.12	N/A	
Difference	-1.54	-1.25	-4.47	-0.43	-0.51	-0.62	N/A	N/A	2.94	-0.55	-1.80	0.46	-1.07	N/A	
Sheriffs' Retirement - Gross	4.91	6.00	17.42	9.89	7.92	9.39	9.51	6.27	-2.02	15.34	7.79	2.32	8.59	7.94	07/01/1994
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	46	45	46	27	10	3	38	44	63	56	7	5	63	
Highway Patrol Retirement - Net	4.78	5.75	16.78	9.29	7.37	8.85	8.97	5.89	-2.62	14.79	7.30	1.87	8.08	7.63	07/01/1994
Highway Patrol Benchmark	6.32	7.00	21.24	9.71	7.87	9.44	N/A	N/A	-5.56	15.34	9.09	1.41	9.10	N/A	
Difference	-1.54	-1.25	-4.46	-0.42	-0.50	-0.59	N/A	N/A	2.94	-0.55	-1.79	0.46	-1.02	N/A	
Highway Patrol Retirement - Gross	4.91	6.00	17.45	9.90	7.92	9.40	9.54	6.28	-2.01	15.33	7.77	2.32	8.62	7.94	07/01/1994
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	45	27	10	2	37	44	63	57	7	5	63	

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, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Game Wardens' Retirement - Net	4.79	5.75	16.77	9.29	7.37	8.84	8.95	5.87	-2.62	14.81	7.31	1.88	8.03	7.65	07/01/1994
Game Wardens' Benchmark	6.32	7.00	21.23	9.72	7.89	9.46	N/A	N/A	-5.56	15.36	9.14	1.40	9.11	N/A	
Difference	-1.53	-1.25	-4.46	-0.43	-0.52	-0.62	N/A	N/A	2.94	-0.55	-1.83	0.48	-1.08	N/A	
Game Wardens' Retirement - Gross	4.91	6.00	17.44	9.90	7.92	9.39	9.52	6.25	-2.01	15.35	7.78	2.33	8.57	7.96	07/01/1994
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	44	27	10	3	42	44	62	56	7	5	62	
Judges' Retirement - Net	4.79	5.76	16.78	9.29	7.37	8.84	8.96	5.89	-2.64	14.82	7.32	1.86	8.06	7.64	07/01/1994
Judges' Benchmark	6.33	7.01	21.26	9.72	7.88	9.43	N/A	N/A	-5.58	15.37	9.10	1.40	9.08	N/A	
Difference	-1.54	-1.25	-4.48	-0.43	-0.51	-0.59	N/A	N/A	2.94	-0.55	-1.78	0.46	-1.02	N/A	
Judges' Retirement - Gross	4.92	6.01	17.45	9.90	7.92	9.40	9.53	6.27	-2.03	15.36	7.79	2.32	8.60	7.95	07/01/1994
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	44	27	10	2	38	45	62	56	7	5	63	
Volunteer Firefighters' Retirement - Net	4.79	5.77	16.79	9.29	7.35	8.84	8.98	6.33	-2.64	14.79	7.16	1.91	8.09	7.44	07/01/1994
Volunteer Firefighters' Benchmark	6.34	7.02	21.26	9.71	7.88	9.47	N/A	N/A	-5.59	15.33	9.11	1.41	9.16	N/A	
Difference	-1.55	-1.25	-4.47	-0.42	-0.53	-0.63	N/A	N/A	2.95	-0.54	-1.95	0.50	-1.07	N/A	
Volunteer Firefighters' Retirement - Gross	4.92	6.02	17.46	9.89	7.89	9.39	9.54	6.71	-2.04	15.34	7.63	2.36	8.63	7.74	07/01/1994
All Public Plans > \$3B Total Fund Median	4.95	5.87	17.22	9.85	7.54	8.31	8.60	6.10	-2.72	16.05	7.95	0.58	6.81	8.11	
Rank	51	45	45	46	27	11	2	10	45	63	64	7	5	80	

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.

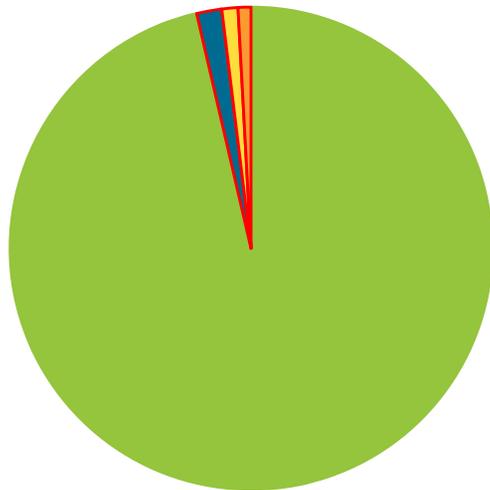


Montana Board of Investments
 Asset Allocation by Segment
 Retirement Plans

As of December 31, 2019

	Consolidated Asset Pension Pool (CAPP)		Short Term Investment Pool (STIP)		Total Fund	
	(\$)	%	(\$)	%	(\$)	%
Public Employees' Retirement	6,069,669,275	49.63	58,596,010	54.45	6,128,265,285	49.68
Teachers' Retirement	4,321,786,070	35.34	27,496,737	25.55	4,349,282,807	35.26
Firefighters' Retirement	475,083,398	3.89	5,265,539	4.89	480,348,937	3.89
Police Retirement	451,059,142	3.69	4,254,804	3.95	455,313,946	3.69
Sheriffs' Retirement	391,772,137	3.20	4,841,408	4.50	396,613,545	3.22
Game Wardens' Retirement	214,516,630	1.75	3,831,811	3.56	218,348,441	1.77
Highway Patrol Retirement	156,501,325	1.28	1,700,969	1.58	158,202,294	1.28
Judges' Retirement	108,193,452	0.88	1,466,796	1.36	109,660,248	0.89
Volunteer Firefighters' Retirement	40,027,689	0.33	167,354	0.16	40,195,042	0.33
Retirement Plans Total Fund Composite	12,228,609,119	99.13	107,621,427	0.87	12,336,230,546	100.00

December 31, 2019 : \$12,336,230,546

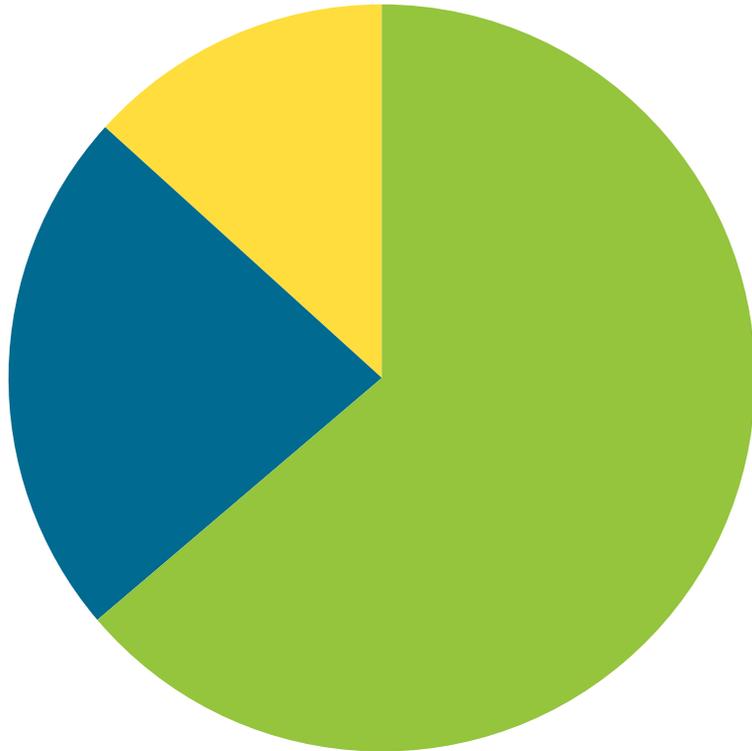


Segments	Market Value (\$)	Allocation (%)
CAPP Ex Cash	11,888,377,584	96.37
CAPP Cash Pension	207,398,632	1.68
CAPP Asset Class Cash	132,832,903	1.08
Short Term Investment Pool (STIP)	107,621,427	0.87
Total Cash	447,852,961	3.63

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, 2019 : \$19,181,363,456



	Market Value (\$)	Allocation (%)
Consolidated Asset Pension Pool (CAPP)	12,235,750,307	63.79
Short Term Investment Pool	4,396,502,354	22.92
Trust Funds Investment Pool	2,549,110,795	13.29

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, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Consolidated Asset Pension Pool (CAPP)	4.92	5.90	17.19	N/A	N/A	N/A	N/A	-2.74	N/A	N/A	N/A	N/A	8.76	04/01/2017
CAPP Custom Benchmark	6.42	7.09	21.68	N/A	N/A	N/A	N/A	-5.74	N/A	N/A	N/A	N/A	9.10	
Difference	-1.50	-1.19	-4.49	N/A	N/A	N/A	N/A	3.00	N/A	N/A	N/A	N/A	-0.34	
Trust Funds Investment Pool	0.45	2.45	8.98	4.42	3.82	3.67	4.92	0.45	4.01	4.02	1.83	6.96	6.10	10/01/1995
Bloomberg US Agg Bond Index	0.18	2.45	8.72	4.03	3.05	2.72	3.75	0.01	3.54	2.65	0.55	5.97	5.19	
Difference	0.27	0.00	0.26	0.39	0.77	0.95	1.17	0.44	0.47	1.37	1.28	0.99	0.91	
Short Term Investment Pool	0.46	1.03	2.28	1.79	1.23	0.92	0.73	1.98	1.11	0.61	0.22	0.10	2.46	04/01/1997
Short Term Custom Index	0.41	0.94	2.14	1.75	1.19	0.90	0.70	1.95	1.15	0.52	0.21	0.16	2.38	
Difference	0.05	0.09	0.14	0.04	0.04	0.02	0.03	0.03	-0.04	0.09	0.01	-0.06	0.08	
iMoney.net Money Fund (Gross) Median	0.50	1.10	2.45	1.93	1.33	1.01	0.79	2.15	1.21	0.61	0.25	0.17	2.44	
Difference	-0.04	-0.07	-0.17	-0.14	-0.10	-0.09	-0.06	-0.17	-0.10	0.00	-0.03	-0.07	0.02	

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, 2019

December 31, 2019 : \$12,228,609,237



	Market Value (\$)	Allocation (%)
Domestic Equity	3,765,997,546	30.80
Core Fixed Income	2,782,621,479	22.76
International Equity	2,196,606,625	17.96
Private Investments	1,534,353,809	12.55
Real Estate	973,788,583	7.96
Natural Resources	384,777,020	3.15
Non-Core Fixed Income	383,065,543	3.13
Cash Pension	207,398,632	1.70

Allocations shown may not sum up to 100% exactly due to rounding. During Q4 2019, Diversifying Strategies investments were liquidated and Investment Grade Credit, US Treasury & Agency, and TIPS were consolidated into the Core Fixed Income composite. Non-Core Fixed Income currently consists of High Yield. Private Investments currently consist of Private Equity, Private Credit, Venture Capital, and Passive ETFs.



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

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Domestic Equity	8.74	9.87	30.75	13.63	10.53	13.89	12.96	-7.09	20.80	11.46	0.86	12.28	9.45	05/01/2003
Domestic Equity Custom Index	9.07	10.42	31.14	14.60	11.43	14.50	13.51	-5.20	21.05	13.03	1.01	13.08	10.26	
Difference	-0.33	-0.55	-0.39	-0.97	-0.90	-0.61	-0.55	-1.89	-0.25	-1.57	-0.15	-0.80	-0.81	
International Equity	8.91	7.17	22.86	10.36	6.12	6.00	5.31	-14.99	28.67	3.87	-3.57	-4.00	4.92	04/01/1997
International Equity Custom Index	9.20	7.33	21.63	9.84	5.71	5.60	5.14	-14.76	27.81	4.41	-4.60	-4.03	5.22	
Difference	-0.29	-0.16	1.23	0.52	0.41	0.40	0.17	-0.23	0.86	-0.54	1.03	0.03	-0.30	
Core & Non-Core Fixed Income	0.58	1.92	7.52	3.70	3.10	2.94	4.56	0.51	3.20	3.98	0.48	6.18	N/A	04/01/1997
Core Fixed Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.03	12/01/2019
Bloomberg US Agg Bond Index	0.18	2.45	8.72	4.03	3.05	2.72	3.75	0.01	3.54	2.65	0.55	5.97	-0.07	
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	0.10	
Non-Core Fixed Income	2.34	4.23	13.98	N/A	N/A	N/A	N/A	-2.27	N/A	N/A	N/A	N/A	5.37	04/01/2017
Bloomberg US HY 2% Issuer Cap Index	2.61	3.98	14.32	6.36	6.14	5.79	7.55	-2.08	7.50	17.13	-4.43	2.46	5.93	
Difference	-0.27	0.25	-0.34	N/A	N/A	N/A	N/A	-0.19	N/A	N/A	N/A	N/A	-0.56	
Natural Resources	-0.20	-2.52	-2.18	N/A	N/A	N/A	N/A	5.55	N/A	N/A	N/A	N/A	3.37	04/01/2017
MSCI ACW Cmdty Producers Index (USD) (Net)	7.59	-0.37	13.06	4.29	2.19	-0.26	-0.01	-11.75	13.70	32.44	-25.83	-14.69	5.29	
Difference	-7.79	-2.15	-15.24	N/A	N/A	N/A	N/A	17.30	N/A	N/A	N/A	N/A	-1.92	
Real Estate	1.10	3.18	6.97	8.44	9.66	10.08	9.44	9.19	9.17	8.82	14.27	12.13	4.14	06/01/2006
Real Estate Custom Index	-0.78	6.85	25.84	8.37	9.59	10.18	10.46	-4.57	5.99	9.08	13.86	11.36	6.36	
Difference	1.88	-3.67	-18.87	0.07	0.07	-0.10	-1.02	13.76	3.18	-0.26	0.41	0.77	-2.22	
Cash Pension	0.48	0.92	2.28	N/A	N/A	N/A	N/A	2.00	N/A	N/A	N/A	N/A	1.86	05/01/2017
Short Term Custom Index	0.41	0.94	2.14	1.75	1.19	0.90	0.70	1.95	1.15	0.52	0.21	0.16	1.85	
Difference	0.07	-0.02	0.14	N/A	N/A	N/A	N/A	0.05	N/A	N/A	N/A	N/A	0.01	
Private Investments*	3.77	7.59	12.95	13.22	10.81	11.99	12.84	11.55	15.20	7.37	7.20	15.47	12.26	05/01/2002
Private Equity Custom Index	8.67	7.40	27.38	11.41	11.48	15.00	15.86	-9.99	20.59	20.11	3.68	23.31	11.31	
Difference	-4.90	0.19	-14.43	1.81	-0.67	-3.01	-3.02	21.54	-5.39	-12.74	3.52	-7.84	0.95	

For additional information on the Private Equity Custom Index, please see the Addendum. *Performance is based on the prior quarter's fair market value adjusted for cash flows during the most recent quarterly period.

Performance shown is net of all manager fees and expenses (Net-All). Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. Please see Addendum for custom index specification. Since inception performance may vary from State Street reported performance due to calculation methodology differences. During Q4 2019, Diversifying Strategies investments were liquidated and Investment Grade Credit, US Treasury & Agency, and TIPS were consolidated into the Core Fixed Income composite. Non-Core Fixed Income currently consists of High Yield. Private Investments currently consist of Private Equity, Private Credit, Venture Capital, and Passive ETFs.



Montana Board of Investments
Comparative Performance
Investment Pools

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Domestic Equity	8.78	9.99	31.09	13.97	10.85	14.22	13.32	-6.78	21.16	11.76	1.14	12.59	9.74	05/01/2003
All Public Plans-US Equity Segment Median	8.68	9.38	30.07	13.83	10.56	13.79	13.24	-5.83	20.32	12.87	0.28	11.41	9.88	
Rank	46	30	26	45	42	35	44	74	31	75	25	22	59	
Population	60	60	59	55	54	44	36	70	89	92	85	47	10	
International Equity	9.02	7.37	23.28	10.70	6.43	6.31	5.64	-14.72	29.05	4.15	-3.35	-3.77	5.32	04/01/1997
All Public Plans-Intl. Equity Segment Median	9.63	8.01	23.70	10.94	6.66	6.90	6.45	-13.67	28.75	4.00	-2.60	-2.97	N/A	
Rank	65	69	62	56	63	83	95	77	46	47	65	78	N/A	
Population	59	58	58	56	54	43	35	70	84	88	79	45	N/A	
Core & Non-Core Fixed Income	0.59	1.94	7.56	3.74	3.14	2.99	4.60	0.54	3.24	4.02	0.52	6.23	N/A	04/01/1997
All Public Plans-US Fixed Income Segment Median	0.50	2.45	9.06	4.44	3.57	3.03	4.55	-0.24	4.49	4.54	0.21	6.01	N/A	
Rank	40	80	77	78	69	59	50	21	77	61	37	39	N/A	
Population	63	63	63	61	60	52	39	75	85	92	79	48	N/A	
Core Fixed Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.03	12/01/2019
All Public Plans-US Fixed Income Segment Median	0.50	2.45	9.06	4.44	3.57	3.03	4.55	-0.24	4.49	4.54	0.21	6.01	0.15	
Rank	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	70	
Population	63	63	63	61	60	52	39	75	85	92	79	48	63	
Trust Funds Investment Pool	0.47	2.49	9.06	4.51	3.90	3.76	5.01	0.53	4.10	4.12	1.89	7.08	6.16	10/01/1995
All Public Plans-US Fixed Income Segment Median	0.50	2.45	9.06	4.44	3.57	3.03	4.55	-0.24	4.49	4.54	0.21	6.01	N/A	
Rank	56	46	50	43	37	24	35	22	61	59	5	25	N/A	
Population	63	63	63	61	60	52	39	75	85	92	79	48	N/A	
Real Estate	1.27	3.58	8.65	10.22	11.30	11.67	11.14	11.12	10.91	10.26	15.68	13.51	5.59	06/01/2006
All Public Plans-Real Estate Segment Median	2.05	3.78	7.60	8.83	10.03	11.41	10.74	8.78	8.84	9.91	13.42	14.67	N/A	
Rank	80	58	37	28	19	33	39	14	26	45	13	68	N/A	
Population	41	36	34	25	20	17	13	29	32	29	27	16	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. During Q4 2019, Investment Grade Credit, US Treasury & Agency, and TIPS were consolidated into the Core Fixed Income pool. Non-Core Fixed Income currently consists of High Yield.

Montana Board of Investments
Comparative Performance
Equity Composites

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Domestic Large Cap Equity - Net	9.19	10.69	31.06	14.96	11.47	14.67	13.42	-4.71	21.66	11.30	1.76	13.82	8.64	12/01/2006
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	8.87	
Difference	0.12	-0.23	-0.43	-0.31	-0.23	-0.06	-0.14	-0.33	-0.17	-0.66	0.38	0.13	-0.23	
Domestic Large Cap Equity - Gross	9.24	10.78	31.29	15.15	11.64	14.85	13.64	-4.52	21.82	11.45	1.91	13.99	8.86	12/01/2006
IM U.S. Large Cap Equity (SA+CF) Median	8.70	10.11	30.12	14.56	11.01	14.39	13.39	-5.12	21.70	11.01	0.94	12.90	8.94	
Rank	34	32	40	42	38	36	39	44	49	47	40	32	56	
Domestic Large Cap Active - Net	9.38	10.32	31.03	14.54	11.02	14.59	13.28	-5.88	21.85	9.63	2.40	14.01	8.13	07/01/2007
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	8.59	
Difference	0.31	-0.60	-0.46	-0.73	-0.68	-0.14	-0.28	-1.50	0.02	-2.33	1.02	0.32	-0.46	
Domestic Large Cap Active - Gross	9.54	10.66	31.82	15.16	11.59	15.17	13.83	-5.34	22.40	10.12	2.88	14.56	8.64	07/01/2007
IM U.S. Large Cap Equity (SA+CF) Median	8.71	10.11	30.12	14.56	11.01	14.39	13.39	-5.12	21.70	11.01	0.94	12.90	8.67	
Rank	29	35	34	42	39	29	32	55	43	57	32	25	52	
Domestic Mid Cap Equity - Net	6.99	6.89	28.03	10.93	8.19	11.71	11.72	-10.75	19.45	12.30	-3.29	6.44	8.63	01/01/2005
Russell Mid Cap Index	7.06	7.58	30.54	12.06	9.33	13.21	13.19	-9.06	18.52	13.80	-2.44	13.22	9.49	
Difference	-0.07	-0.69	-2.51	-1.13	-1.14	-1.50	-1.47	-1.69	0.93	-1.50	-0.85	-6.78	-0.86	
Domestic Mid Cap Equity - Gross	6.99	6.89	28.11	11.37	8.71	12.28	12.29	-10.28	20.18	12.97	-2.71	7.07	9.13	01/01/2005
IM U.S. Mid Cap Equity (SA+CF) Median	7.20	7.47	29.75	11.96	9.64	13.44	13.33	-9.10	19.89	12.67	-1.15	9.78	9.99	
Rank	61	68	64	53	68	74	77	59	49	49	69	74	82	
Domestic Small Cap Equity - Net	7.07	6.49	25.76	9.18	8.85	12.39	12.28	-10.51	15.65	19.31	-1.61	5.44	11.74	03/01/2003
Russell 2000 Index	9.94	7.30	25.53	8.59	8.23	11.65	11.83	-11.01	14.65	21.31	-4.41	4.89	11.00	
Difference	-2.87	-0.81	0.23	0.59	0.62	0.74	0.45	0.50	1.00	-2.00	2.80	0.55	0.74	
Domestic Small Cap Equity - Gross	7.17	6.68	26.25	9.69	9.42	13.03	12.96	-10.09	16.27	19.97	-0.93	6.16	12.29	03/01/2003
IM U.S. Small Cap Equity (SA+CF) Median	8.49	7.01	25.87	8.76	8.82	12.60	12.94	-10.65	15.16	20.88	-2.39	5.36	12.44	
Rank	73	56	47	43	43	43	50	48	44	57	35	43	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, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
International Large Cap Passive - Net	9.00	6.95	21.59	10.13	5.95	5.74	5.17	-14.04	27.79	4.87	-4.71	-3.70	6.96	06/01/2009
MSCI ACW Ex US Index (USD) (Net)	8.92	6.96	21.51	9.87	5.51	5.44	4.97	-14.20	27.19	4.50	-5.66	-3.87	6.74	
Difference	0.08	-0.01	0.08	0.26	0.44	0.30	0.20	0.16	0.60	0.37	0.95	0.17	0.22	
International Large Cap Passive - Gross	9.01	6.99	21.66	10.20	6.02	5.82	5.25	-13.98	27.88	4.96	-4.63	-3.62	7.04	06/01/2009
International Equity Active - Net	9.33	7.91	25.83	11.33	7.29	7.14	6.11	-16.18	30.82	2.63	0.41	-4.39	3.85	04/01/1997
MSCI ACW Ex US Index (USD) (Net)	8.92	6.96	21.51	9.87	5.51	5.44	4.97	-14.20	27.19	4.50	-5.66	-3.87	N/A	
Difference	0.41	0.95	4.32	1.46	1.78	1.70	1.14	-1.98	3.63	-1.87	6.07	-0.52	N/A	
International Equity Active - Gross	9.47	8.19	26.48	11.91	7.85	7.68	6.64	-15.73	31.50	3.17	0.90	-3.94	4.37	04/01/1997
IM International Large Cap Core Equity (SA+CF) Median	9.06	7.47	23.92	10.08	6.23	7.14	6.81	-14.63	26.49	1.60	0.25	-3.69	6.82	
Rank	33	38	28	24	17	29	57	66	13	30	42	53	100	
International Value - Net	7.45	5.64	20.76	10.74	6.17	6.53	5.30	-13.97	30.72	5.59	-5.94	-1.49	2.56	11/01/2006
MSCI ACW Ex US Val Index (USD) (Net)	8.21	5.17	15.72	6.88	3.65	3.89	3.64	-13.97	22.66	8.92	-10.06	-5.10	2.32	
Difference	-0.76	0.47	5.04	3.86	2.52	2.64	1.66	0.00	8.06	-3.33	4.12	3.61	0.24	
International Value - Gross	7.59	5.91	21.37	11.31	6.72	7.09	5.88	-13.52	31.39	6.17	-5.46	-0.94	3.15	11/01/2006
IM International Large Cap Value Equity (SA+CF) Median	9.60	7.79	21.09	9.08	5.68	6.54	6.61	-14.64	26.13	4.19	-1.97	-4.26	4.18	
Rank	91	83	44	18	31	38	63	40	12	29	82	15	89	
International Growth - Net	9.80	9.11	31.39	12.17	7.60	6.99	6.00	-16.09	28.01	0.51	1.69	-6.15	3.74	11/01/2006
MSCI ACW Ex US Grth Index (USD) (Net)	9.58	8.65	27.34	12.89	7.30	6.94	6.24	-14.43	32.01	0.12	-1.25	-2.65	4.48	
Difference	0.22	0.46	4.05	-0.72	0.30	0.05	-0.24	-1.66	-4.00	0.39	2.94	-3.50	-0.74	
International Growth - Gross	9.95	9.40	32.10	12.80	8.20	7.56	6.56	-15.61	28.74	1.12	2.21	-5.72	4.29	11/01/2006
IM International Large Cap Growth Equity (SA+CF) Median	9.88	8.22	28.29	13.15	7.64	7.91	7.77	-13.90	31.38	-0.07	2.28	-3.26	5.59	
Rank	49	33	20	56	44	61	78	66	68	34	51	79	76	
International Small Cap - Net	11.27	9.17	23.91	10.32	7.54	8.00	7.91	-18.90	33.61	1.84	5.16	-4.87	4.83	09/01/2006
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	11.01	9.69	22.42	9.65	7.04	7.09	6.92	-18.20	31.65	3.91	2.60	-4.03	5.36	
Difference	0.26	-0.52	1.49	0.67	0.50	0.91	0.99	-0.70	1.96	-2.07	2.56	-0.84	-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
Equity Sub Composites

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Domestic Large Cap Passive - Net	9.12	10.81	30.99	15.15	11.52	14.61	13.50	-3.94	21.34	12.01	0.83	13.73	6.19	05/01/2000
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	6.21	
Difference	0.05	-0.11	-0.50	-0.12	-0.18	-0.12	-0.06	0.44	-0.49	0.05	-0.55	0.04	-0.02	
Domestic Large Cap Passive - Gross	9.12	10.82	31.00	15.16	11.53	14.62	13.51	-3.93	21.35	12.03	0.84	13.74	6.22	05/01/2000
IM U.S. Large Cap Index Equity (SA+CF) Median	9.04	10.59	31.39	15.04	11.48	14.59	13.51	-4.78	21.70	12.03	0.96	13.27	6.42	
Rank	16	33	65	40	44	48	48	18	57	51	58	17	84	
Domestic Large Cap Enhanced - Net	9.31	11.04	32.81	16.48	12.34	15.19	14.15	-4.20	24.21	9.73	3.18	13.19	9.15	06/01/2006
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	9.39	
Difference	0.24	0.12	1.32	1.21	0.64	0.46	0.59	0.18	2.38	-2.23	1.80	-0.50	-0.24	
Domestic Large Cap Enhanced - Gross	9.40	11.18	33.17	16.78	12.65	15.52	14.49	-3.96	24.53	10.05	3.50	13.54	9.47	06/01/2006
IM U.S. Large Cap Core Equity (SA+CF) Median	8.16	10.04	29.73	14.15	11.07	14.52	13.40	-5.17	21.83	10.52	1.43	13.42	9.45	
Rank	23	16	14	13	11	17	12	29	20	57	25	48	49	
Domestic Large Cap 130/30 - Net	9.39	10.20	30.67	13.45	10.20	14.35	12.95	-7.10	20.28	9.54	1.61	14.84	9.88	03/01/2008
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	10.11	
Difference	0.32	-0.72	-0.82	-1.82	-1.50	-0.38	-0.61	-2.72	-1.55	-2.42	0.23	1.15	-0.23	
Domestic Large Cap 130/30 - Gross	9.57	10.57	31.57	14.28	10.96	15.12	13.72	-6.32	21.10	10.22	2.26	15.59	10.63	03/01/2008
IM U.S. Large Cap Core Equity (SA+CF) Median	8.16	10.04	29.73	14.15	11.07	14.52	13.40	-5.17	21.83	10.52	1.43	13.42	10.15	
Rank	19	33	31	50	53	22	33	70	62	55	38	21	27	

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, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Domestic Large Cap Equity														
BlackRock MSCI US Equity Index (SA) - Net	9.12	10.81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15.53	04/01/2019
MSCI US Index (USD) (Gross)	9.13	10.82	31.64	15.29	11.62	14.66	13.55	-4.50	21.90	11.61	1.32	13.36	15.56	
Difference	-0.01	-0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.03	
BlackRock MSCI US Equity Index (SA) - Gross	9.12	10.82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15.54	04/01/2019
SPDR S&P 500 ETF (SPY) - Net	9.42	11.34	31.49	N/A	N/A	N/A	N/A	-5.30	N/A	N/A	N/A	N/A	14.01	07/01/2017
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	14.43	
Difference	0.35	0.42	0.00	N/A	N/A	N/A	N/A	-0.92	N/A	N/A	N/A	N/A	-0.42	
Northern Trust MSCI US Index (SA) - Net	9.12	10.81	31.70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.71	11/01/2018
MSCI US Index (USD) (Gross)	9.13	10.82	31.64	15.29	11.62	14.66	13.55	-4.50	21.90	11.61	1.32	13.36	18.68	
Difference	-0.01	-0.01	0.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.03	
Northern Trust MSCI US Index (SA) - Gross	9.12	10.82	31.71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.72	11/01/2018
IM U.S. Large Cap Core Equity (SA+CF) Median	8.16	10.04	29.73	14.15	11.07	14.52	13.40	-5.17	21.83	10.52	1.43	13.42	17.60	
Rank	28	29	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34	
Domestic Equity Pool STIF - Net	0.45	1.01	2.27	1.77	N/A	N/A	N/A	2.01	1.03	0.51	N/A	N/A	1.25	04/01/2015
Short Term Custom Index	0.41	0.94	2.14	1.75	1.19	0.90	0.70	1.95	1.15	0.52	0.21	0.16	1.25	
Difference	0.04	0.07	0.13	0.02	N/A	N/A	N/A	0.06	-0.12	-0.01	N/A	N/A	0.00	
T. Rowe U.S. Structured Research (SA) - Net	9.31	11.04	32.81	16.39	12.51	15.27	13.81	-4.20	23.94	10.68	3.30	12.58	9.93	06/01/2006
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	9.39	
Difference	0.24	0.12	1.32	1.12	0.81	0.54	0.25	0.18	2.11	-1.28	1.92	-1.11	0.54	
T. Rowe U.S. Structured Research (SA) - Gross	9.40	11.18	33.17	16.69	12.81	15.59	14.13	-3.96	24.24	10.98	3.61	12.92	10.26	06/01/2006
IM U.S. Large Cap Core Equity (SA+CF) Median	8.16	10.04	29.73	14.15	11.07	14.52	13.40	-5.17	21.83	10.52	1.43	13.42	9.45	
Rank	23	16	14	13	9	16	19	29	24	46	25	59	20	
Jacobs Levy 130/30 (SA) - Net	8.98	9.70	31.63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12.09	04/01/2018
MSCI US Index (USD) (Gross)	9.13	10.82	31.64	15.29	11.62	14.66	13.55	-4.50	21.90	11.61	1.32	13.36	14.38	
Difference	-0.15	-1.12	-0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-2.29	
Jacobs Levy 130/30 (SA) - Gross	9.16	10.09	32.55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12.96	04/01/2018
IM U.S. Large Cap Core Equity (SA+CF) Median	8.16	10.04	29.73	14.15	11.07	14.52	13.40	-5.17	21.83	10.52	1.43	13.42	12.89	
Rank	27	49	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50	

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, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
J.P. Morgan 130/30 (SA) - Net	9.83	10.74	30.55	14.29	10.49	14.71	13.14	-6.93	22.86	10.30	0.01	15.38	10.82	03/01/2008
S&P 500 Index (Cap Wtd)	9.07	10.92	31.49	15.27	11.70	14.73	13.56	-4.38	21.83	11.96	1.38	13.69	10.11	
Difference	0.76	-0.18	-0.94	-0.98	-1.21	-0.02	-0.42	-2.55	1.03	-1.66	-1.37	1.69	0.71	
J.P. Morgan 130/30 (SA) - Gross	10.02	11.10	31.42	15.16	11.31	15.55	13.97	-6.13	23.79	11.09	0.72	16.21	11.63	03/01/2008
IM U.S. Large Cap Core Equity (SA+CF) Median	8.16	10.04	29.73	14.15	11.07	14.52	13.40	-5.17	21.83	10.52	1.43	13.42	10.15	
Rank	14	18	35	36	42	17	23	67	27	45	59	15	9	
Domestic Mid Cap Equity														
iShares:Core S&P Md-Cp (IJH) - Net	6.99	6.89	26.24	N/A	N/A	N/A	N/A	-13.95	N/A	N/A	N/A	N/A	7.29	07/01/2017
S&P Mid Cap 400 Index (Cap Wtd)	7.06	6.97	26.20	9.26	9.03	12.34	12.72	-11.08	16.24	20.74	-2.18	9.77	8.66	
Difference	-0.07	-0.08	0.04	N/A	N/A	N/A	N/A	-2.87	N/A	N/A	N/A	N/A	-1.37	

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, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Domestic Small Cap Equity														
Vaughan Nelson Management (SA) - Net	3.87	5.65	25.34	4.91	6.86	11.31	11.33	-13.78	6.83	20.50	0.16	9.09	9.11	03/01/2007
Russell 2000 Val Index	8.49	7.87	22.39	4.77	6.99	10.13	10.56	-12.86	7.84	31.74	-7.47	4.22	5.97	
Difference	-4.62	-2.22	2.95	0.14	-0.13	1.18	0.77	-0.92	-1.01	-11.24	7.63	4.87	3.14	
Vaughan Nelson Management (SA) - Gross	4.06	6.04	26.25	5.69	7.69	12.20	12.23	-13.13	7.66	21.49	0.98	10.00	10.02	03/01/2007
IM U.S. Small Cap Value Equity (SA+CF) Median	7.95	7.59	25.01	5.51	7.66	11.41	12.09	-14.30	11.58	26.11	-4.30	5.71	8.11	
Rank	98	76	36	49	49	28	47	38	76	76	9	10	12	
BlackRock MSCI US Sm Cap Equity Index (CF) - Net	8.64	7.37	27.30	N/A	N/A	N/A	N/A	-9.96	N/A	N/A	N/A	N/A	9.97	07/01/2017
MSCI US Sm Cap Index (USD) (Net)	8.52	7.12	26.74	9.86	8.66	12.16	12.44	-10.40	16.75	19.15	-4.11	7.07	9.47	
Difference	0.12	0.25	0.56	N/A	N/A	N/A	N/A	0.44	N/A	N/A	N/A	N/A	0.50	
BlackRock MSCI US Sm Cap Equity Index (CF) - Gross	8.65	7.39	27.34	N/A	N/A	N/A	N/A	-9.93	N/A	N/A	N/A	N/A	10.02	07/01/2017
DFA US Small Cap Trust (CF) - Net	8.09	6.42	21.66	6.08	7.66	11.61	12.47	-12.27	11.86	24.42	-2.64	4.75	11.73	03/01/2003
Russell 2000 Index	9.94	7.30	25.53	8.59	8.23	11.65	11.83	-11.01	14.65	21.31	-4.41	4.89	11.00	
Difference	-1.85	-0.88	-3.87	-2.51	-0.57	-0.04	0.64	-1.26	-2.79	3.11	1.77	-0.14	0.73	
DFA US Small Cap Trust (CF) - Gross	8.18	6.60	22.07	6.46	8.04	12.00	12.87	-11.95	12.25	24.85	-2.29	5.12	12.05	03/01/2003
IM U.S. Small Cap Core Equity (SA+CF) Median	8.63	7.22	25.78	8.75	9.19	12.95	13.03	-10.73	15.18	20.77	-1.35	6.72	12.24	
Rank	60	58	70	79	71	66	57	63	72	21	62	65	56	
iShares:Russ 2000 ETF (IWM) - Net	9.86	7.31	25.52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.29	05/01/2018
Russell 2000 Index	9.94	7.30	25.53	8.59	8.23	11.65	11.83	-11.01	14.65	21.31	-4.41	4.89	6.37	
Difference	-0.08	0.01	-0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.08	

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

The current annual expense ratios for the SPDR S&P 500 ETF (SPY), iShares:Core S&P Md-Cp (IJH), and iShares:Russ 2000 ETF (IWM) are 0.09%, 0.06%, and 0.19%, respectively.

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

Montana Board of Investments
Comparative Performance
International Equity Managers

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
International Developed Large Cap Equity														
Acadian Asset Non-US Equity (SA) - Net	7.94	6.22	19.38	11.67	7.62	7.86	7.45	-13.44	34.76	12.40	-7.75	0.00	3.53	11/01/2006
MSCI ACW Ex US Val Index (USD) (Net)	8.21	5.17	15.72	6.88	3.65	3.89	3.64	-13.97	22.66	8.92	-10.06	-5.10	2.32	
Difference	-0.27	1.05	3.66	4.79	3.97	3.97	3.81	0.53	12.10	3.48	2.31	5.10	1.21	
Acadian Asset Non-US Equity (SA) - Gross	8.07	6.49	19.98	12.24	8.18	8.42	8.03	-12.99	35.45	13.01	-7.26	0.52	4.11	11/01/2006
IM ACWI Ex US Value (SA+CF) Median	9.93	7.52	21.34	9.68	5.74	6.23	6.48	-14.78	26.02	4.87	-3.25	-3.87	4.18	
Rank	88	71	60	15	14	22	24	26	8	10	85	15	52	
Lazard Asset Management (SA) - Net	7.14	5.25	21.70	9.81	N/A	N/A	N/A	-14.32	27.00	0.22	N/A	N/A	4.22	06/01/2015
Lazard Custom Index	8.92	6.96	21.51	7.97	4.28	4.34	3.96	-15.55	22.66	8.92	-10.06	-5.10	3.41	
Difference	-1.78	-1.71	0.19	1.84	N/A	N/A	N/A	1.23	4.34	-8.70	N/A	N/A	0.81	
Lazard Asset Management (SA) - Gross	7.27	5.52	22.31	10.37	N/A	N/A	N/A	-13.88	27.65	0.77	N/A	N/A	4.77	06/01/2015
IM ACWI Ex US Value (SA+CF) Median	9.93	7.52	21.34	9.68	5.74	6.23	6.48	-14.78	26.02	4.87	-3.25	-3.87	4.57	
Rank	97	88	44	36	N/A	N/A	N/A	35	38	86	N/A	N/A	45	
BlackRock ACWI Ex-US SuperFund A (CF) - Net	8.93	6.98	21.77	10.12	5.74	5.66	5.18	-13.99	27.49	4.77	-5.49	-3.73	6.95	06/01/2009
MSCI ACW Ex US Index (USD) (Net)	8.92	6.96	21.51	9.87	5.51	5.44	4.97	-14.20	27.19	4.50	-5.66	-3.87	6.74	
Difference	0.01	0.02	0.26	0.25	0.23	0.22	0.21	0.21	0.30	0.27	0.17	0.14	0.21	
BlackRock ACWI Ex-US SuperFund A (CF) - Gross	8.95	7.02	21.85	10.19	5.82	5.74	5.26	-13.93	27.58	4.86	-5.42	-3.65	7.03	06/01/2009
IM All ACWI Ex US (SA+CF) Median	9.76	7.91	24.77	11.11	6.69	7.44	7.02	-14.64	28.74	2.11	-0.59	-3.40	8.56	
Rank	67	66	66	59	66	84	88	43	62	25	84	54	86	
iShares:MSCI EAFE ETF (EFA) - Net	7.73	6.87	22.03	N/A	N/A	N/A	N/A	-12.88	N/A	N/A	N/A	N/A	6.08	07/01/2017
MSCI EAFE Index (USD) (Net)	8.17	7.01	22.01	9.56	5.67	6.35	5.50	-13.79	25.03	1.00	-0.81	-4.90	5.96	
Difference	-0.44	-0.14	0.02	N/A	N/A	N/A	N/A	0.91	N/A	N/A	N/A	N/A	0.12	
Baillie Gifford (SA) - Net	12.99	11.51	34.34	13.59	N/A	N/A	N/A	-17.35	31.99	0.73	N/A	N/A	7.12	06/01/2015
MSCI ACW Ex US Grth Index (USD) (Net)	9.58	8.65	27.34	12.89	7.30	6.94	6.24	-14.43	32.01	0.12	-1.25	-2.65	6.14	
Difference	3.41	2.86	7.00	0.70	N/A	N/A	N/A	-2.92	-0.02	0.61	N/A	N/A	0.98	
Baillie Gifford (SA) - Gross	13.13	11.78	34.99	14.15	N/A	N/A	N/A	-16.93	32.66	1.28	N/A	N/A	7.67	06/01/2015
IM ACWI Ex US Growth (SA+CF) Median	10.32	8.67	29.58	13.81	8.00	8.37	8.14	-13.78	32.56	-0.76	1.29	-1.66	6.94	
Rank	2	2	10	41	N/A	N/A	N/A	85	49	33	N/A	N/A	31	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. A peer group of similar managers may not exist for all 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, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Invesco (SA) - Net	7.55	7.40	29.29	11.07	N/A	N/A	N/A	-15.17	24.92	0.32	N/A	N/A	5.15	06/01/2015
MSCI ACW Ex US Grth Index (USD) (Net)	9.58	8.65	27.34	12.89	7.30	6.94	6.24	-14.43	32.01	0.12	-1.25	-2.65	6.14	
Difference	-2.03	-1.25	1.95	-1.82	N/A	N/A	N/A	-0.74	-7.09	0.20	N/A	N/A	-0.99	
Invesco (SA) - Gross	7.71	7.71	30.05	11.74	N/A	N/A	N/A	-14.64	25.70	1.01	N/A	N/A	5.82	06/01/2015
IM ACWI Ex US Growth (SA+CF) Median	10.32	8.67	29.58	13.81	8.00	8.37	8.14	-13.78	32.56	-0.76	1.29	-1.66	6.94	
Rank	91	77	45	82	N/A	N/A	N/A	56	91	36	N/A	N/A	67	
International Equity Pool STIF - Net	0.45	1.01	2.24	1.70	N/A	N/A	N/A	1.94	0.92	0.47	N/A	N/A	1.19	04/01/2015
Short Term Custom Index	0.41	0.94	2.14	1.75	1.19	0.90	0.70	1.95	1.15	0.52	0.21	0.16	1.25	
Difference	0.04	0.07	0.10	-0.05	N/A	N/A	N/A	-0.01	-0.23	-0.05	N/A	N/A	-0.06	
International Developed Small Cap Equity														
American Century Investment Mgmt (SA) - Net	12.34	10.17	29.44	13.83	9.23	N/A	N/A	-20.76	43.80	-5.31	11.32	N/A	5.91	03/01/2014
MSCI ACW Ex US Sm Cap Grth Index (USD) (Net)	11.19	9.70	24.61	10.82	7.64	7.43	7.28	-18.27	33.64	-0.28	6.50	-3.59	5.22	
Difference	1.15	0.47	4.83	3.01	1.59	N/A	N/A	-2.49	10.16	-5.03	4.82	N/A	0.69	
American Century Investment Mgmt (SA) - Gross	12.57	10.62	30.50	14.78	10.14	N/A	N/A	-20.09	44.99	-4.49	12.25	N/A	6.80	03/01/2014
IM ACWI Ex US Growth (SA+CF) Median	10.32	8.67	29.58	13.81	8.00	8.37	8.14	-13.78	32.56	-0.76	1.29	-1.66	6.52	
Rank	6	15	42	36	16	N/A	N/A	100	6	79	1	N/A	39	
BlackRock ACWI Ex-US Small Cap (CF) - Net	10.92	9.75	22.68	9.97	7.36	7.36	N/A	-17.85	31.96	4.26	2.87	-3.84	7.65	02/01/2012
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	11.01	9.69	22.42	9.65	7.04	7.09	6.92	-18.20	31.65	3.91	2.60	-4.03	7.39	
Difference	-0.09	0.06	0.26	0.32	0.32	0.27	N/A	0.35	0.31	0.35	0.27	0.19	0.26	
BlackRock ACWI Ex-US Small Cap (CF) - Gross	11.03	9.89	22.90	10.14	7.53	7.54	N/A	-17.74	32.15	4.44	3.04	-3.67	7.82	02/01/2012
DFA Intl Sm Co;l (DFISX) - Net	12.26	10.59	24.21	9.24	7.86	8.27	8.06	-19.41	30.24	5.74	5.89	-6.29	7.81	11/01/2004
MSCI Wrld Ex US Sm Cap Index (USD) (Net)	11.40	11.10	25.41	10.42	8.17	8.41	8.04	-18.07	31.04	4.32	5.46	-5.35	7.42	
Difference	0.86	-0.51	-1.20	-1.18	-0.31	-0.14	0.02	-1.34	-0.80	1.42	0.43	-0.94	0.39	
Templeton Investment Counsel (SA) - Net	9.90	7.85	24.17	10.44	6.28	N/A	N/A	-18.48	33.07	-1.13	1.81	N/A	4.61	03/01/2014
Templeton Custom Index	11.01	9.69	22.42	8.42	6.38	6.69	6.53	-19.75	29.72	8.24	-1.25	-4.49	4.06	
Difference	-1.11	-1.84	1.75	2.02	-0.10	N/A	N/A	1.27	3.35	-9.37	3.06	N/A	0.55	
Templeton Investment Counsel (SA) - Gross	10.13	8.30	25.20	11.38	7.21	N/A	N/A	-17.78	34.21	-0.23	2.73	N/A	5.53	03/01/2014
IM ACWI Ex US Value (SA+CF) Median	9.93	7.52	21.34	9.68	5.74	6.23	6.48	-14.78	26.02	4.87	-3.25	-3.87	4.26	
Rank	48	35	26	20	27	N/A	N/A	84	8	89	9	N/A	25	

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, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
International Emerging Equity														
BlackRock Emerging Mkts (CF) - Net	11.74	6.96	18.12	11.36	5.37	3.02	N/A	-14.69	37.05	10.85	-15.15	-2.49	3.42	02/01/2012
MSCI Emg Mkts Index (USD) (Net)	11.84	7.09	18.44	11.57	5.61	3.26	3.68	-14.58	37.28	11.19	-14.92	-2.19	3.66	
Difference	-0.10	-0.13	-0.32	-0.21	-0.24	-0.24	N/A	-0.11	-0.23	-0.34	-0.23	-0.30	-0.24	
BlackRock Emerging Mkts (CF) - Gross	11.77	7.02	18.25	11.47	5.52	3.18	N/A	-14.60	37.16	11.08	-14.99	-2.30	3.59	02/01/2012
iShares:MSCI Em Mkts (EEM) - Net	12.07	6.75	18.12	10.54	N/A	N/A	N/A	-16.45	36.86	N/A	N/A	N/A	10.54	01/01/2017
MSCI Emg Mkts Index (USD) (Net)	11.84	7.09	18.44	11.57	5.61	3.26	3.68	-14.58	37.28	11.19	-14.92	-2.19	11.57	
Difference	0.23	-0.34	-0.32	-1.03	N/A	N/A	N/A	-1.87	-0.42	N/A	N/A	N/A	-1.03	
DFA Emg Mkts Sm Cap;I (DEMSX) - Net	10.01	4.79	14.88	N/A	N/A	N/A	N/A	-17.56	N/A	N/A	N/A	N/A	6.77	02/01/2017
MSCI Emg Mkts Sm Cap Index (USD) (Net)	9.52	4.50	11.51	6.70	2.97	2.41	2.95	-18.59	33.84	2.28	-6.85	1.01	5.24	
Difference	0.49	0.29	3.37	N/A	N/A	N/A	N/A	1.03	N/A	N/A	N/A	N/A	1.53	

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

The current annual expense ratios for the iShares:MSCI EAFE ETF (EFA), DFA Intl Sm Co;I (DFISX), iShares:MSCI Em Mkts (EEM), and DFA Emg Mkts Sm Cap;I (DEMSX) are 0.32%, 0.53%, 0.68%, and 0.70%, 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, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
US Fixed Income Aggregate - 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	-0.07	12/01/2019
Bloomberg US Agg Bond Index	0.18	2.45	8.72	4.03	3.05	2.72	3.75	0.01	3.54	2.65	0.55	5.97	-0.07	
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	
TIPS Portfolio (Internal) - Net	0.98	1.65	6.96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.96	01/01/2019
Bloomberg US Trsy Infl Notes 1-10 Yr Index	1.00	1.61	6.85	2.79	2.36	0.98	2.57	-0.25	1.90	4.01	-0.52	0.91	6.85	
Difference	-0.02	0.04	0.11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.11	
Reams Asset Core Plus (SA) - Net	0.00	2.32	8.08	4.16	3.33	2.88	4.53	1.31	3.21	4.18	0.07	4.47	5.51	10/01/2008
Reams Custom Index	0.18	2.45	8.72	4.12	3.33	2.96	4.07	0.01	3.83	3.91	0.43	5.56	4.62	
Difference	-0.18	-0.13	-0.64	0.04	0.00	-0.08	0.46	1.30	-0.62	0.27	-0.36	-1.09	0.89	
Reams Asset Core Plus (SA) - Gross	0.05	2.41	8.28	4.35	3.51	3.06	4.71	1.49	3.38	4.35	0.24	4.65	5.70	10/01/2008
IM U.S. Broad Market Core+ FI (SA+CF) Median	0.52	2.76	9.99	4.77	3.84	3.52	4.97	-0.36	4.81	4.68	0.31	6.19	5.90	
Rank	95	81	93	81	72	84	68	4	95	57	53	90	60	
Core Fixed Income STIF - 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	0.13	12/01/2019
Short Term Custom Index	0.41	0.94	2.14	1.75	1.19	0.90	0.70	1.95	1.15	0.52	0.21	0.16	0.13	
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	

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, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Neuberger Berman High Yield (SA) - Net	2.40	4.16	13.75	5.66	5.35	5.20	7.17	-1.99	5.80	14.98	-4.32	1.93	7.17	01/01/2010
Bloomberg US HY 2% Issuer Cap Index	2.61	3.98	14.32	6.36	6.14	5.79	7.55	-2.08	7.50	17.13	-4.43	2.46	7.55	
Difference	-0.21	0.18	-0.57	-0.70	-0.79	-0.59	-0.38	0.09	-1.70	-2.15	0.11	-0.53	-0.38	
Neuberger Berman High Yield (SA) - Gross	2.51	4.39	14.26	6.13	5.82	5.66	7.66	-1.56	6.27	15.50	-3.89	2.38	7.66	01/01/2010
IM U.S. High Yield Bonds (SA+CF) Median	2.55	3.92	14.23	6.38	5.97	5.82	7.60	-1.69	7.52	14.09	-2.11	2.61	7.60	
Rank	52	36	50	64	56	58	46	48	78	33	75	55	46	
Oaktree US High Yield (SA) (CAPP) - Net	2.47	4.52	15.44	N/A	N/A	N/A	N/A	-3.99	N/A	N/A	N/A	N/A	5.28	01/01/2018
Bloomberg US HY 2% Issuer Cap Index	2.61	3.98	14.32	6.36	6.14	5.79	7.55	-2.08	7.50	17.13	-4.43	2.46	5.80	
Difference	-0.14	0.54	1.12	N/A	N/A	N/A	N/A	-1.91	N/A	N/A	N/A	N/A	-0.52	
Oaktree US High Yield (SA) (CAPP) - Gross	2.61	4.79	16.01	N/A	N/A	N/A	N/A	-3.47	N/A	N/A	N/A	N/A	5.82	01/01/2018
IM U.S. High Yield Bonds (SA+CF) Median	2.55	3.92	14.23	6.38	5.97	5.82	7.60	-1.69	7.52	14.09	-2.11	2.61	5.85	
Rank	44	16	16	N/A	N/A	N/A	N/A	92	N/A	N/A	N/A	N/A	52	
Shenkman High Yield Fixed Income (SA) (CAPP) - Net	2.27	4.23	13.65	N/A	N/A	N/A	N/A	-1.96	N/A	N/A	N/A	N/A	5.13	12/01/2017
Bloomberg US HY 2% Issuer Cap Index	2.61	3.98	14.32	6.36	6.14	5.79	7.55	-2.08	7.50	17.13	-4.43	2.46	5.71	
Difference	-0.34	0.25	-0.67	N/A	N/A	N/A	N/A	0.12	N/A	N/A	N/A	N/A	-0.58	
Shenkman High Yield Fixed Income (SA) (CAPP) - Gross	2.41	4.49	14.18	N/A	N/A	N/A	N/A	-1.46	N/A	N/A	N/A	N/A	5.64	12/01/2017
IM U.S. High Yield Bonds (SA+CF) Median	2.55	3.92	14.23	6.38	5.97	5.82	7.60	-1.69	7.52	14.09	-2.11	2.61	5.80	
Rank	59	30	51	N/A	N/A	N/A	N/A	45	N/A	N/A	N/A	N/A	55	
Non-Core Fixed Income STIF - Net	0.45	1.01	2.23	N/A	N/A	N/A	N/A	1.91	N/A	N/A	N/A	N/A	3.49	05/01/2017
Short Term Custom Index	0.41	0.94	2.14	1.75	1.19	0.90	0.70	1.95	1.15	0.52	0.21	0.16	1.85	
Difference	0.04	0.07	0.09	N/A	N/A	N/A	N/A	-0.04	N/A	N/A	N/A	N/A	1.64	

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Montana Board of Investments
Comparative Performance
TFIP Fixed Income Managers

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Trust Funds Investment Pool Internally Managed	0.27	2.41	8.99	4.29	3.45	3.21	4.47	0.30	3.78	3.41	1.03	6.79	5.90	10/01/1995
Bloomberg US Agg Bond Index	0.18	2.45	8.72	4.03	3.05	2.72	3.75	0.01	3.54	2.65	0.55	5.97	5.19	
Difference	0.09	-0.04	0.27	0.26	0.40	0.49	0.72	0.29	0.24	0.76	0.48	0.82	0.71	
Trust Funds Investment Pool Internally Managed	0.27	2.41	8.99	4.29	3.45	3.21	4.47	0.30	3.78	3.41	1.03	6.79	5.90	10/01/1995
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	0.22	2.56	9.24	4.41	3.46	3.07	4.28	0.07	4.04	3.10	0.82	6.16	5.57	
Rank	40	76	66	61	51	38	32	30	64	43	29	25	12	
Shenkman High Yield Fixed Income (SA) (TFIP) - Net	2.37	3.98	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.98	07/01/2019
Bloomberg US HY 2% Issuer Cap Index	2.61	3.98	14.32	6.36	6.14	5.79	7.55	-2.08	7.50	17.13	-4.43	2.46	3.98	
Difference	-0.24	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	
Shenkman High Yield Fixed Income (SA) (TFIP) - Gross	2.53	4.22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.22	07/01/2019
IM U.S. High Yield Bonds (SA+CF) Median	2.55	3.92	14.23	6.38	5.97	5.82	7.60	-1.69	7.52	14.09	-2.11	2.61	3.92	
Rank	51	42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	42	
Oaktree US High Yield (SA) (TFIP) - Net	2.44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.17	08/01/2019
Bloomberg US HY 2% Issuer Cap Index	2.61	3.98	14.32	6.36	6.14	5.79	7.55	-2.08	7.50	17.13	-4.43	2.46	3.40	
Difference	-0.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.77	
Oaktree US High Yield (SA) (TFIP) - Gross	2.61	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.38	08/01/2019
IM U.S. High Yield Bonds (SA+CF) Median	2.55	3.92	14.23	6.38	5.97	5.82	7.60	-1.69	7.52	14.09	-2.11	2.61	3.44	
Rank	43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8	

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Montana Board of Investments
Comparative Performance
Trust Accounts

As of December 31, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Abandoned Mine Trust	0.47	1.06	2.41	1.77	1.46	1.34	1.70	1.85	1.04	1.10	0.90	1.49	4.00	12/01/1993
Belt Water Treatment Plant Fund	0.41	2.30	8.56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.76	03/01/2018
Big Sky Economic Development Fund	0.42	2.34	8.67	4.32	3.75	3.60	4.83	0.48	3.97	3.98	1.82	6.77	4.97	07/01/2005
Butte Area One Restoration	0.42	1.95	6.76	3.61	2.92	2.58	3.14	1.24	2.92	2.60	1.20	3.57	3.39	11/01/2008
Clark Fork River Restoration	0.43	2.05	7.04	3.58	2.97	2.70	3.43	0.96	2.85	2.72	1.37	4.26	3.73	11/01/2008
Coal Tax Cultural Trust Fund	0.42	2.33	8.64	4.30	3.73	3.58	4.82	0.47	3.96	3.95	1.79	6.79	6.06	12/01/1993
Coal Tax Park Acquisition	0.42	2.32	8.63	4.30	3.71	3.55	4.80	0.48	3.96	3.90	1.78	6.66	6.03	12/01/1993
East Helena Compensation Fund	0.44	1.71	5.52	3.08	2.45	2.16	N/A	1.20	2.56	2.12	0.91	3.01	2.16	01/01/2013
Endowment for Children	0.42	2.30	8.54	4.25	3.62	3.48	4.71	0.46	3.89	3.66	1.70	6.66	5.02	08/01/2007
FWP License Account	0.46	1.22	3.33	1.98	1.47	1.20	1.31	1.50	1.11	0.84	0.61	0.59	2.98	11/01/1997
FWP Mitigation Trust Fund	0.47	1.68	5.46	2.56	1.84	1.60	1.87	1.14	1.15	0.67	0.87	1.37	3.93	12/01/1993
FWP Real Property Trust	0.42	2.33	8.62	4.26	3.66	3.49	4.66	0.51	3.80	3.82	1.73	6.47	5.41	12/01/1993
Group Benefits	0.46	1.35	4.01	2.22	1.77	1.48	1.71	1.37	1.30	1.16	1.06	1.17	3.92	12/01/1993
Harold Hamm Endowment	0.42	2.29	8.45	3.31	N/A	N/A	N/A	0.57	1.11	N/A	N/A	N/A	2.93	07/01/2016
Montana Pole	0.43	2.11	7.48	3.83	3.25	3.07	4.05	0.74	3.38	3.23	1.56	5.44	5.15	09/01/1996
Montana State University	0.46	1.16	2.87	2.04	1.49	1.20	1.21	1.87	1.39	0.95	0.39	0.85	2.06	08/01/2004
Montana Tech-UM Agency Funds	0.46	1.09	2.56	1.90	1.33	1.02	0.92	1.91	1.22	0.72	0.27	0.35	1.85	03/01/2003
MT BOI - Clark Fork Site	0.42	2.22	8.00	4.06	3.47	3.22	4.06	0.67	3.64	3.63	1.56	5.37	4.37	11/01/2008
MT BOI UOFM Other	0.45	1.60	4.54	2.70	2.31	2.00	2.15	1.42	2.15	2.34	1.13	2.57	3.00	08/01/2002
MUS Group Insurance	0.46	1.25	3.39	2.14	1.80	1.50	N/A	1.96	1.09	1.33	1.26	1.30	1.48	10/01/2011
MUS Workers Compensation	0.44	1.51	4.43	2.61	N/A	N/A	N/A	1.62	1.80	N/A	N/A	N/A	2.16	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, 2019

	QTD	FYTD	CYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Older Montanans Trust	0.42	2.34	8.62	4.27	3.68	3.52	4.48	0.49	3.87	3.86	1.72	6.57	4.84	08/01/2007
Permanent Coal Trust Excl Crp	0.50	1.96	6.81	3.83	3.50	3.51	4.50	1.28	3.49	3.79	2.23	6.14	5.75	12/01/1993
PERS Defined Cont Disability	5.97	6.86	20.77	9.59	N/A	N/A	N/A	-4.88	14.57	3.42	N/A	N/A	7.40	09/01/2015
Potter Trust Fund	0.42	2.30	8.47	4.23	N/A	N/A	N/A	0.51	3.87	N/A	N/A	N/A	3.57	06/01/2016
Resource Indemnity Trust	0.42	2.39	8.88	4.39	3.80	3.65	4.85	0.44	4.01	4.02	1.82	6.94	6.13	12/01/1993
School Facilities Fund	0.40	2.26	7.88	N/A	N/A	N/A	N/A	-0.13	N/A	N/A	N/A	N/A	3.80	01/01/2018
Smelter Hill Up Restorative	0.44	1.73	5.64	3.01	2.34	2.03	2.23	1.57	1.85	1.79	0.92	2.49	2.32	11/01/2008
State Fund Insurance	1.63	2.87	9.65	4.96	4.11	4.09	4.97	0.38	5.05	3.50	2.21	5.00	5.62	12/01/1993
Streamside Tailings Operable Unit	0.42	2.21	7.92	4.02	3.46	3.32	4.38	0.57	3.69	3.58	1.69	6.22	5.37	02/01/1999
Subsequent Injury Fund	0.46	1.03	2.28	1.79	1.23	0.91	0.91	1.98	1.11	0.61	0.22	0.11	3.08	12/01/1993
Tobacco Trust Fund	0.42	2.34	8.67	4.31	3.74	3.60	4.84	0.46	3.96	3.99	1.82	6.89	5.65	01/01/2001
Treasurers	0.46	1.03	2.28	1.77	1.25	0.95	0.76	1.97	1.07	0.68	0.27	0.19	2.91	12/01/1993
Treasure State Endowment	0.42	2.37	8.81	4.36	3.77	3.63	4.86	0.46	4.00	3.98	1.82	6.84	6.00	12/01/1993
Treasure State Reg. Water System	0.42	2.37	8.80	4.36	3.77	3.61	4.85	0.45	4.00	3.96	1.82	6.80	5.81	06/01/2000
Trust and Legacy Account	0.42	2.37	8.84	4.37	3.78	3.64	4.85	0.43	4.00	4.01	1.82	6.92	6.72	07/01/1991
UCFRB Assess/Litig Cost Rec	0.42	2.30	8.50	4.20	3.61	3.45	4.48	0.49	3.77	3.84	1.65	6.40	5.73	07/01/1999
UCFRB Restoration Fund	0.43	2.35	8.52	4.26	3.59	3.42	4.61	0.67	3.73	3.52	1.70	6.28	5.63	06/01/1999
Upper Blackfoot Response	0.46	1.42	4.24	2.54	2.03	1.70	N/A	1.49	1.90	1.74	0.84	1.59	1.69	09/01/2010
Weed Control Trust	0.42	2.39	8.88	4.39	3.80	3.65	4.72	0.44	4.01	4.02	1.82	6.94	5.27	12/01/1993
Wildlife Habitat Trust	0.42	2.30	8.54	4.23	3.63	3.47	4.64	0.51	3.78	3.79	1.73	6.49	5.42	12/01/1993
Zortman/Landusky LT H2O	0.46	1.03	2.28	1.75	1.49	1.24	3.72	1.98	1.01	1.36	0.84	1.78	6.57	09/01/1999
Z/L Long Term H2O Trust Fund	0.46	1.03	2.28	1.78	1.57	1.24	3.43	1.98	1.08	1.39	1.15	1.76	4.40	09/01/2005

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

Performance Notes

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

Index Notes

- Retirement plan custom benchmarks are provided by State Street Bank and are calculated daily using actual allocations.
- The CAPP Custom Benchmark consists of the portfolio weighted average of the primary benchmark for each CAPP asset class.
- The Short Term Custom Benchmark consists of 100% ICE 1 Mo LIBOR Index (USD) through 4/30/2018, and 100% Federal Reserve US Treasury 1 Mo Constant Maturity Index thereafter.
- The Domestic Equity Custom Index consists of 100% S&P 1500 Comp Index through 04/30/2017 and 100% MSCI USA IM Index (USD) (Gross) thereafter.
- The International Equity Custom Index consists of 100% MSCI EAFE Index (USD) (Net) through 10/31/2006, 100% MSCI ACW Ex US Index (USD) (Net) through 06/30/2007, 92.5% MSCI ACW Ex US Index (USD) (Net) and 7.5% MSCI ACW Ex US SC IM Index (USD) (Net) through 02/28/2014, and 100% MSCI ACW Ex-US IM Index thereafter.
- The Real Estate Custom Index consists of 100% NCREIF ODCE Index (AWA) (Net) (1 Qtr Lag) through 03/31/2017 and 100% MSCI US REIT Index (USD) (Gross) thereafter.
- The Private Equity Custom Index consists of 100% S&P 1500 Comp Index+4% (1 Qtr Lag) through 04/30/2017 and 100% MSCI US Small Cap Index (USD) (Gross) thereafter.
- The Lazard Custom Index consists of 100% MSCI ACW Ex US Value Index (USD) (Net) through 6/30/2018 and 100% MSCI ACW Ex US Index (USD) (Net) thereafter.
- The Templeton Custom Index consists of 100% MSCI ACW Ex US Small Cap Value Index (USD) (Net) through 5/31/2018, and 100% MSCI ACW Ex US Small Cap Index (USD) (Net) thereafter.
- The Reams Custom Index consists of 100% Bloomberg US Unv Bond Index through 03/31/2017 and 100% Bloomberg US Agg Bond Index thereafter.

Trust Accounts Comments

- The Belt Water Treatment Plant Fund was added in 03/2018.
- The School Facilities Fund was added in 01/2018.
- The Potter Trust Fund and the Harold Hamm Endowment were added in 06/2016.
- MUS Workers Compensation was added in 04/2016.

Manager Transition Comments

- Post High Yield Plus (SA), GMO:Bchmk-Fr All;III (GBMFX), and PIMCO:All Asset;Inst (PAAIX) were liquidated during Q3 2019.
- Oaktree US High Yield Fixed Income (SA) and Shenkman High Yield Fixed Income (SA) were funded in the Trust Fund Investment Pool during Q3 2019.
- Artisan Partners (SA), Iridian Asset Management (SA), Congress Mid Cap Growth (SA), TimeSquare Capital Management (SA), and Alliance Bernstein (SA) were liquidated in Q2 2019.
- BlackRock MSCI US Equity Index (CF) was transitioned into a separately managed account during Q1 2019.
- Northern Trust MSCI US Equity Index (SA), GMO:Bchmk-Fr All;III (GBMFX), and PIMCO:All Asset;Inst (PAAIX) were funded during Q4 2018.
- Voya Investment Management (SA) was liquidated in 07/2018.
- iShares:Russ 2000 ETF (IWM) was funded in 04/2018.
- Jacobs Levy 130/30 Large Cap (SA) was funded in 03/2018.
- Congress Mid Cap Growth (SA) was funded in 02/2018.
- Oaktree US High Yield (SA) and Shenkman High Yield Fixed Income (SA) were funded in 12/2017.
- Analytic Investors 130/30 (SA) was liquidated in 09/2017.
- BlackRock MSCI US Equity Index (CF), BlackRock MSCI US Sm Cap Equity Index (CF), and iShares:Core S&P Md-Cp (IJH) were funded in 06/2017.
- SPDR S&P 500 ETF (SPY) and iShares:MSCI EAFE ETF (EFA) were re-funded in 06/2017.
- INTECH Enhanced Plus was liquidated in 06/2017.
- Residual assets from the liquidation of AllianceBernstein Int'l Value (SA), Martin Currie (SA), Hansberger Global Investors (SA), and Aberdeen Total Return Bond Strategy (SA) were distributed in 06/2017.
- BlackRock Equity Index Fund A (CF) and BlackRock Mid Cap Equity Index A (CF) were liquidated in 05/2017.
- 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.

Manager Transition Comments (cont.)

- SPDR S&P 500 ETF (SPY) was initially funded in 09/2015, was then liquidated in 12/2015, and was re-funded in 10/2016.
- Wells Capital Management (SA), Domestic Equity Pool SPIF, and International Equity Pool SPIF were liquidated in 10/2016. Wells Capital Management (SA) residual assets from liquidation were distributed in 03/2017.
- Nicholas Investment Partners was liquidated in 07/2016. Residual assets from liquidation were distributed in 03/2017.
- Effective 07/2016, the Metropolitan West Capital Management legal entity merged into the Wells Capital Management Incorporated legal entity. The Metropolitan West Capital Mgmt (SA) has been updated to Wells Capital Management (SA) to reflect the change.
- iShares S&P SmallCap 600 Index ETF (IJR) was liquidated in 01/2016.
- Effective 05/2014, ING rebranded to Voya. The ING Investment Management (SA) has been updated to Voya Investment Management (SA) to reflect the change.

Miscellaneous Comments

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

**Montana Board of Investments
Fee Schedule**

As of December 31, 2019

	Fee Schedule	Market Value As of 12/31/2019 (\$)
SPDR S&P 500 ETF (SPY)	0.09 % of Assets	19,662,280
iShares:Core S&P Md-Cp (IJH)	0.06 % of Assets	29,931,785
iShares:Russ 2000 ETF (IWM)	0.19 % of Assets	84,823,868
iShares:MSCI EAFE ETF (EFA)	0.32 % of Assets	89,577,600
DFA Intl Sm Co;I (DFISX)	0.53 % of Assets	96,561,832
iShares:MSCI Em Mkts (EEM)	0.68 % of Assets	50,927,450
DFA Emg Mkts Sm Cap;I (DEMSX)	0.70 % of Assets	29,021,788

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

January 27, 2020

Illiquid Asset Allocation Risk Analysis

Montana Board of Investments



Background

- ❑ **MBOI Has Increased its Allocation to Illiquid Asset Classes** – Over the past 20 years, the MBOI steadily increased the allocation of pension plan assets to illiquid investments from approximately 1% in 1998 to approximately 27% in 2020.¹ The allocation to illiquid investments primarily consists of private equity, private credit, and private real estate.
- ❑ **Illiquid Asset Classes Provide Both Benefits and Risks** – Benefits from illiquid investments include return enhancement and diversification. However, potential risks include reduced portfolio liquidity, increased underlying security volatility, and increased risks associated with adverse manager selection.
- ❑ **Key Issues Related to Risks** – In light of the higher allocation to illiquid assets, the MBOI Board Members asked RVK to evaluate the current risks that the plans face with respect to the allocation to illiquid assets, as well as identify the level of allocation at which the Board may be uncomfortable with these risks. While the initial inquiry was focused primarily on forced selling, our analysis also explores risks related to underlying security volatility and the risks associated with adverse manager selection.

¹ The allocation to illiquid asset classes was approximately 23% as of December 31, 2019, but with a target of 27%.

Key Risks Related to Illiquid Investments

Risk #1: Forced Selling at Discounted Prices

The initial concern expressed by Board Members was the risk that major market movements could force the investment staff to sell illiquid investments at discounted prices in order to remain in compliance with asset class target ranges while meeting benefit payment and capital call needs.

Question: *At what allocation level does the probability of experiencing a forced sale of illiquid securities become undesirable?*

Risk #2: Portfolio Volatility

Investments in many illiquid assets, such as private equity, can exhibit higher levels of return volatility even though this volatility is often masked by less frequent valuations and delayed appraisals.

Question: *At what allocation level does the expected underlying return volatility of illiquid investments become undesirable?*

Risk #3: Adverse Manager Selection

Relative to public markets, the difference in the return generated by top quartile and bottom quartile managers of illiquid investments is substantially greater. All else being equal, higher allocations to illiquid assets (which for MBOI consist primarily of private equity and private real estate), substantially increases the impact of adverse manager selection.

Question: *At what allocation level does the risk of adverse manager selection become undesirable?*

Risk #1: Forced Selling at Discounted Prices

Definition

For the purpose of our analysis, we define a “forced sale” as a market event that forces the MBOI to sell illiquid investments in order to remain in compliance with asset class range limits specified in the investment policy.

Analytical Challenges

Testing the MBOI portfolio to quantify forced sale probabilities is difficult. In addition to considerable uncertainty with respect to forecasting the frequency and magnitude of major market events, there is also uncertainty with respect to how the Board would react. For example, it is conceivable that the Board would tolerate temporary breaches of range limits, thus avoiding forced sales despite the apparent need for them. Recognizing the many uncertainties involved in this analysis, we designed a relatively simple analytical model in which we focused on the most important driver of major market dislocations – public equity declines. Considering the substantial allocation to public equities and its disproportionate contribution to overall portfolio volatility, we believe that these types of events are by far the most likely to produce potential “forced sale” decisions.

Methodology

Using RVK’s long term asset class assumptions, we ran Monte Carlo simulations to test the impact of public equity sell-offs of varying levels of severity. Embedded in our assumptions are historical returns of the MSCI All Country World IMI Index during severe sell-offs, such as the 2008/2009 global financial crisis. Using assumed allocation midpoint targets, we then pressure tested the current MBOI portfolio, as well as several portfolios with higher allocations to illiquid assets. A few additional assumptions that we made when constructing this scenario analysis include:

- 1. Constant Values for Non-Public Equity Asset Classes** – It is difficult to predict how other asset classes will react to a major equity market decline. Some asset classes may increase in value, while others may mirror the decline. Given the considerable uncertainty, we held values constant in the simulation for all asset classes outside of public equity.
- 2. Pro Rata Allocations for Hypothetical Portfolios** – As we increased illiquid allocations in hypothetical portfolios, we reduced the allocation to liquid asset classes proportionately to their current allocation.
- 3. Allocation Minimum and Maximums** – As allocations changed, we set the minimum and maximum as a constant percentage of the total fund (e.g. the domestic equity minimum and maximum remains +/- 6% from midpoint for all portfolios).

Scenario #1: Current Midpoint Allocation

Figure 1: Current Target Allocation
Midpoints and Allowable Ranges

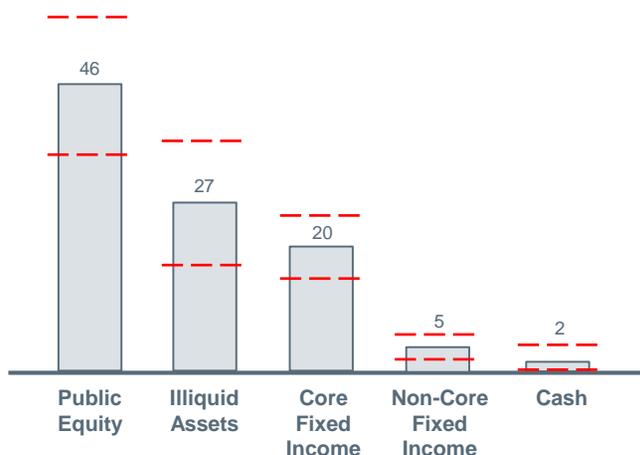


Figure 2: Extreme Equity Decline
Public Equities generate 1 year return of **-27.4%**
Probability = **3%**

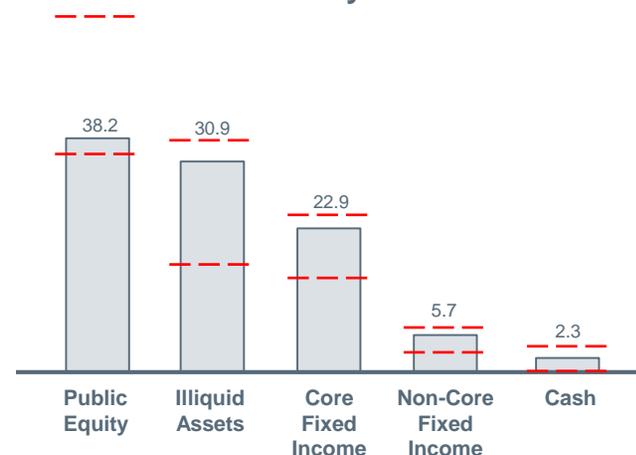
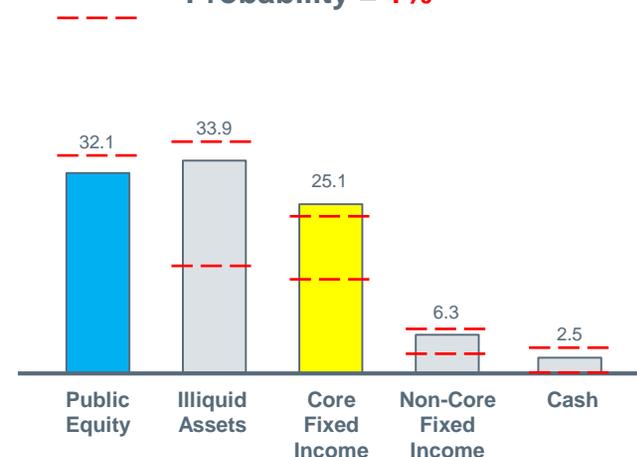


Figure 3: Crisis-Level Equity Decline
Public Equities generate 1 year return of **-44.5%**
Probability = **1%**



Highlights

1. The current allocation has a low probability of forcing an asset sale of any form even in the most extreme equity markets.
2. Even if a hypothetical “forced sale” decision were to occur, the optimal source of capital would come from core fixed income, which we would consider to be a **rebalancing decision** as opposed to a forced sale.

- Indicates asset class allocation has fallen below the minimum of the allowable range
- Indicates asset class allocation has risen above the maximum of the allowable range
- Indicates maximum and minimum allowable allocation for each asset class

Scenario #2: 40% Allocation to Illiquid Assets

Figure 4: Current Target Allocation Midpoints and Allowable Ranges

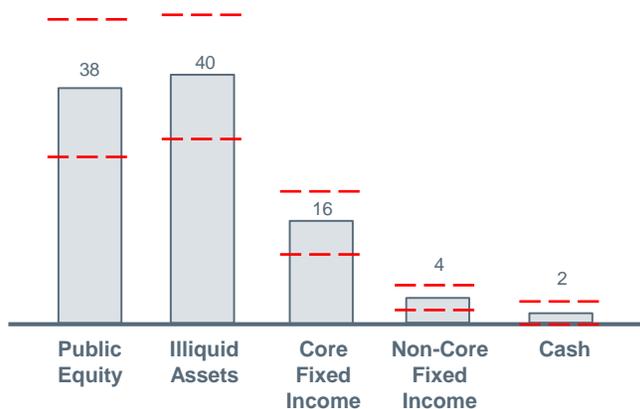


Figure 5: Extreme Equity Decline

Public Equities generate 1 year return of **-27.4%**
Probability = **3%**

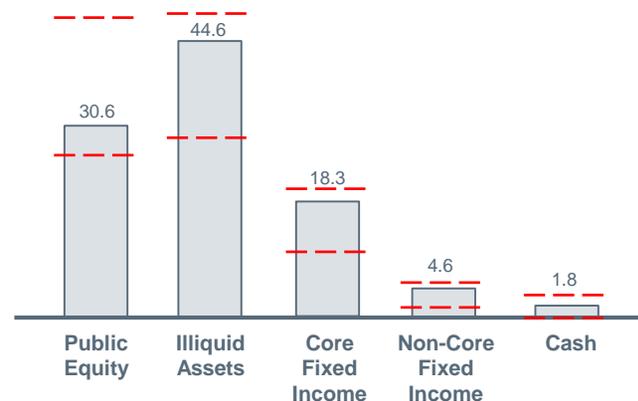
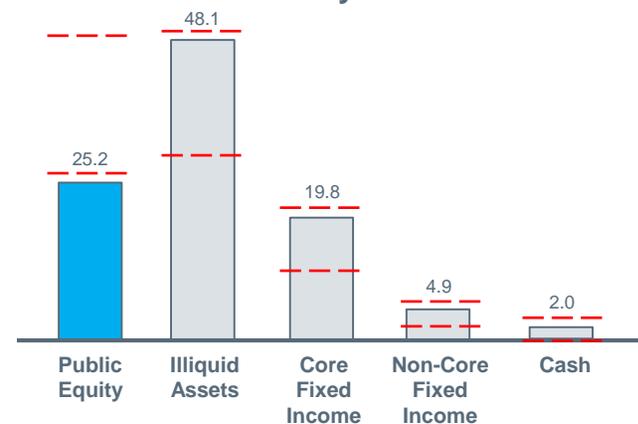


Figure 6: Crisis-Level Equity Decline

Public Equities generate 1 year return of **-44.5%**
Probability = **1%**



Highlights

1. Increasing the allocation to illiquid asset classes does not meaningfully impact the probability of a forced sale. In fact, with less capital allocated to public equities, the portfolio is less sensitive to major equity market declines.
2. Similar to **Scenario #1**, even in the most extreme markets, we would characterize the “forced sale” as rebalancing activity.

■ Indicates asset class allocation has fallen below the minimum of the allowable range

■ Indicates asset class allocation has risen above the maximum of the allowable range

- - - Indicates maximum and minimum allowable allocation for each asset class

Scenario #3: 60% Allocation to Illiquid Assets

Figure 7: Current Target Allocation Midpoints and Allowable Ranges

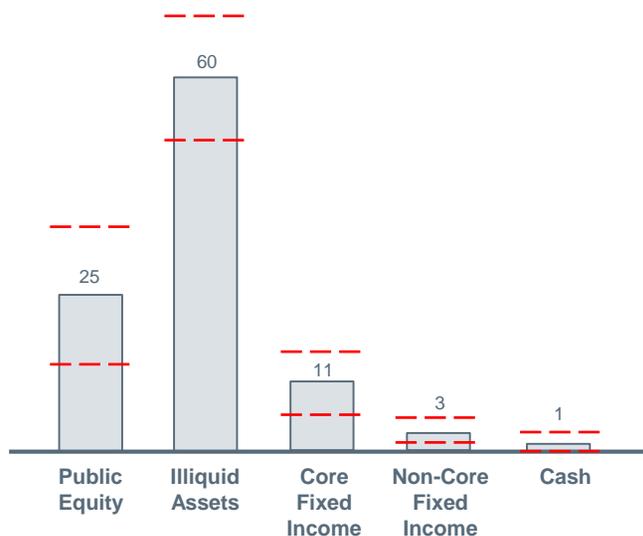


Figure 8: Extreme Equity Decline
Public Equities generate 1 year return of **-27.4%**
Probability = **3%**

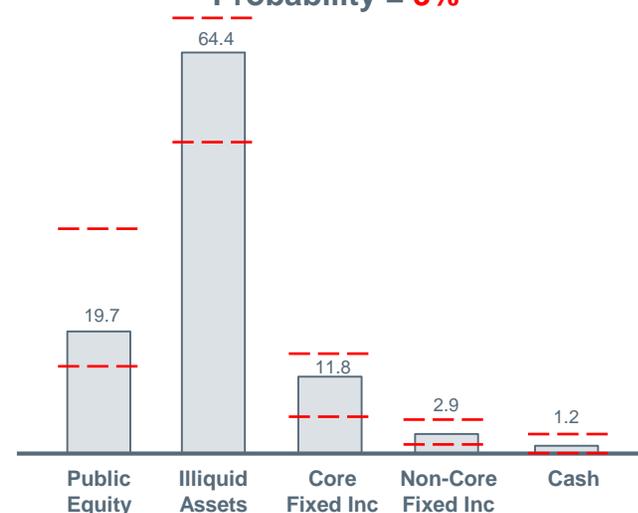
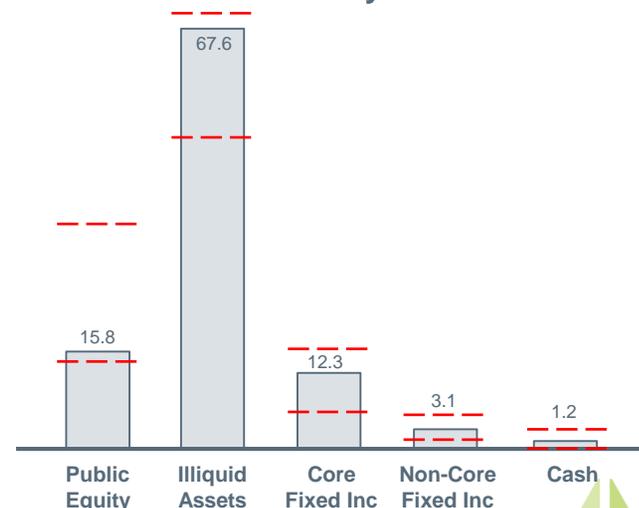


Figure 9: Crisis-Level Equity Decline
Public Equities generate 1 year return of **-44.5%**
Probability = **1%**



Highlights

1. At a 60% allocation to illiquid asset classes, the sensitivity to major public equity markets continues to decline simply due to the lower allocation.
2. In summary, even at considerably higher allocation levels to illiquid assets, this analysis suggests that forced selling is not the primary risk to the portfolio.

- Indicates asset class allocation has fallen below the minimum of the allowable range
- Indicates asset class allocation has risen above the maximum of the allowable range
- - - Indicates maximum and minimum allowable allocation for each asset class

Risk #2: Portfolio Volatility

Overview

Portfolio volatility, which is measured by standard deviation, is difficult to quantify precisely for illiquid asset classes because the underlying portfolios values are often reported in a manner that understates volatility. This is due to the fact that securities are often not marked to market and may be appraised infrequently. As a result, the reported volatility is likely far lower than the actual volatility if the manager was actually forced to sell securities at any given moment in time.

Methodology

When creating asset class return and volatility assumptions, RVK seeks to estimate the actual return volatility of illiquid asset classes under the assumption that these securities are marked to market. Using this methodology, we assume volatility metrics that are far in excess of the actual volatility observed with these investments. Our objective is to quantify the actual return volatility that investors experience if they sought to trade in these securities using their actual mark to market values.

Insights

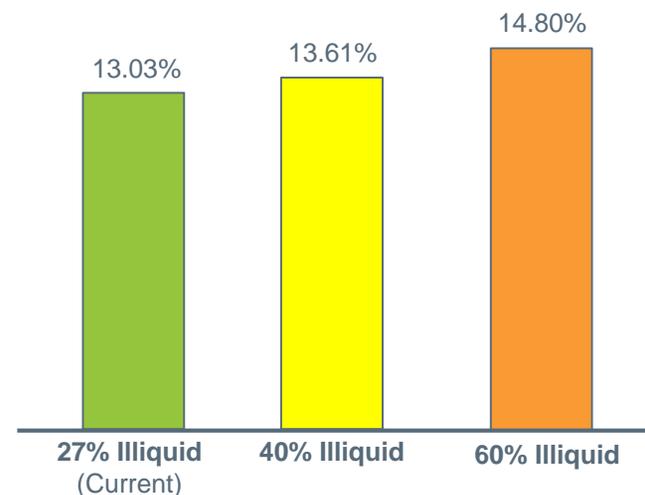
Our analysis shows that the MBOI portfolio volatility would increase modestly with higher allocation levels to illiquid securities. However, for the reason explained above, it is probable that this increased volatility would not be immediately observed in performance reports, as the valuations on these types of securities are lagged. Nevertheless, we do believe that the analysis demonstrates an important point that the volatility related risk associated with illiquid securities is higher relative to public markets.

Asset Allocation Analysis for Sample Portfolios

Figure 10: Expected Return and Risk for Portfolios with Various Allocation Levels to Illiquid Assets

	Min	Max	27% (Current)	40%	60%
Domestic Equity	24	36	30.0	24.7	16.4
International Equity	11	21	16.0	13.2	8.8
Private Investments	11	17	14.0	20.7	31.1
Natural Resources	1	7	4.0	5.9	8.9
Real Estate	5	13	9.0	13.3	20.0
Core Fixed Income	15	25	20.0	16.4	11.0
Non-Core Fixed Income	3	7	5.0	4.1	2.7
Cash Equivalents	0	4	2.0	1.6	1.1
Total			100	100	100
Capital Appreciation			69	69	68
Capital Preservation			22	18	12
Alpha			0	0	0
Inflation			9	13	20
Expected Arithmetic Return			6.79	7.05	7.44
Expected Risk (Standard Deviation)			13.03	13.61	14.80
Realized Risk (15 Yr. Annualized Std. Dev.)*			8.61	7.96	7.29
Expected Return (Arithmetic)/Risk Ratio			0.52	0.52	0.50
Expected Compound Return			6.00	6.20	6.43
RVK Expected Eq Beta (LCUS Eq = 1)			0.69	0.70	0.71
RVK Liquidity Metric (T-Bills = 100)			71	62	49

Figure 11: Expected Standard Deviation for Sample Portfolios



Highlights

1. Underlying volatility increases modestly with higher allocation levels to illiquid securities.
2. However, given the modest level of increased volatility coupled with the fact that the increase is unlikely to be observable, changes in portfolio volatility are probably not the primary concern when determining allocation limits to illiquid assets.

*Representative benchmark returns reflected are: Domestic Equity – Russell 3000 Index; International Equity – MSCI ACW ex US IMI; Private Investment – Cambridge US Private Equity Index (1 Qtr. Lag); Natural Resources – S&P Global Natural Resources Index; Real Estate – NCREIF ODCE Index (AWA); Core Fixed Income – Bloomberg Barclays US Agg Bond Index; Non-Core Fixed Income – Bloomberg Barclays US Corporate High Yield Index; Cash Equivalents – ICE BofAML 3 Month T-Bill Index.

Risk #3: Adverse Manager Selection

Description

The dispersion of returns between over and under performing managers tends to be considerably higher in illiquid asset classes than it is in traditional asset classes, such as public equities and fixed income. Therefore, all else being equal, the consequences of poor investment manager selection is substantially higher in illiquid asset classes. This risk is further amplified by the fact that passive index funds are unavailable in these asset classes.

Risk Measurement

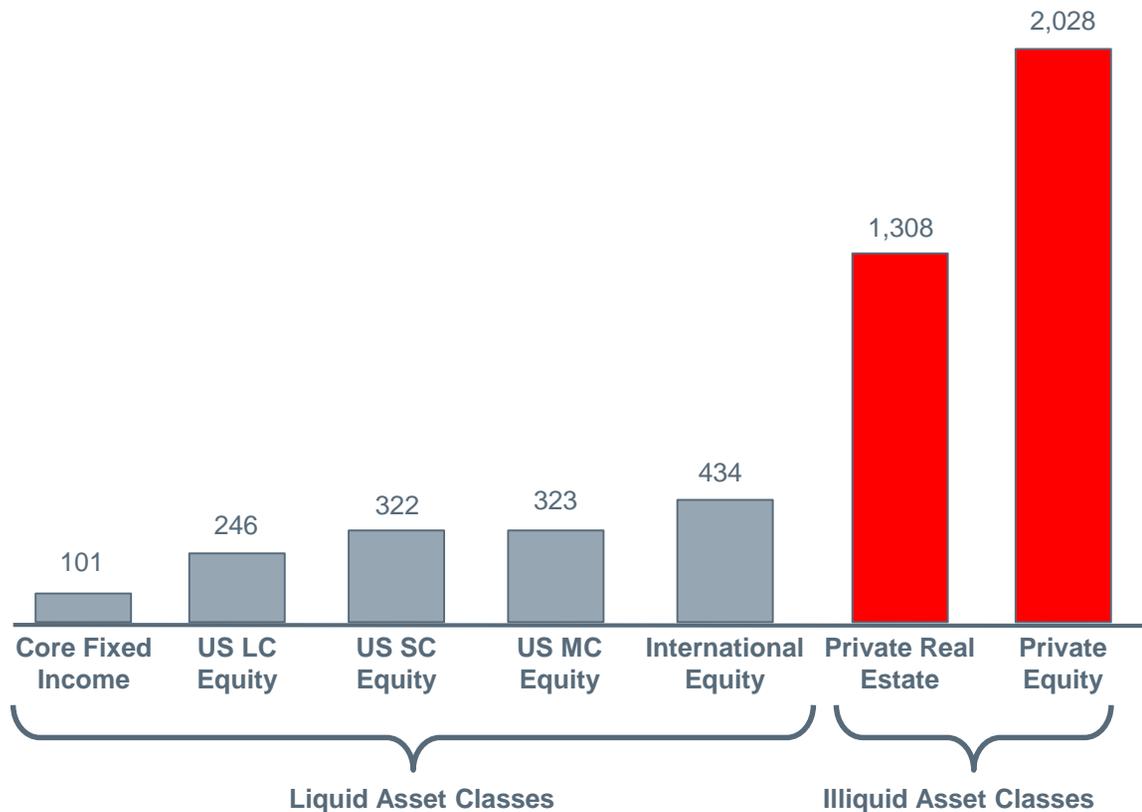
In order to quantify the risk of adverse manager selection, we compared the returns for top quartile and bottom quartile investment managers for a variety of liquid and illiquid asset classes over a trailing 15-year period. The results confirm the existence of substantially greater return dispersion in illiquid asset classes. The results are presented in **Figure 12** on the following page.

Conclusion

All else being equal, the impact of adverse manager selection is much higher in illiquid asset classes than it is in traditional asset classes. Therefore, the higher the allocation to illiquid assets, the greater the potential impact at the total portfolio level. While this risk does not appear quantitatively in an asset allocation review, it is one that must be considered when establishing an overall target to illiquid investments.

Return Dispersion by Asset Class

Figure 12: 16-Year Average Annual Difference Between Top and Bottom Quartile Managers by Asset Class (Basis Points)



Highlights

- The difference between top and bottom performing managers is substantially higher in illiquid asset classes, as represented by private equity and private real estate.
 - For example, in vintage year 2009, top quartile private equity managers returned 25%*, while the bottom quartile only returned 9%*.
 - In contrast, top quartile US large cap equity managers returned 14%* while bottom quartile managers returned 11%*.
- All else being equal, the potential impact on the total portfolio of adverse manager selection rises substantially as the allocation to illiquid asset classes increases.

*Liquid asset classes' returns are represented by 10-year rolling returns, while illiquid asset classes' returns are represented by IRRs by Fund vintage year. For comparison purposes, liquid asset classes' 10-year return period begins during the respective illiquid asset classes' vintage years.
Sources: Core Fixed Income, US Equity, and International Equity: Investment Metrics peer group data; Private Real Estate and Private Equity: Preqin.

Summary of Observations

- ❑ **It is prudent for the MBOI to Evaluate the Risks Associated with Higher Allocations to Illiquid Asset Classes.**

- ❑ **In order to assist the MBOI, we specifically evaluated three risks – forced selling, volatility, and adverse manager selection. Our observations related to each risk are listed below in order of our perceived importance:**
 1. **Adverse Manager Selection** – We believe that the risk of adverse manager selection is the most important risk to take into account when the Board considers higher allocations to illiquid asset classes, as the lack of passive options coupled with considerably higher return dispersion raises the stakes of such decisions. If manager selection is successful, the plans stand to benefit from substantial value added from managers, but if manager selection falls short, the impact on overall return would be just as substantial in the opposite direction.

 2. **Portfolio Volatility** – Given the increased volatility of the underlying securities within private assets such as private equity and private real estate, a higher allocation to illiquid assets is likely to increase overall portfolio volatility despite the fact that this volatility may not be observed in performance reports as a result of lagged valuations.

 3. **Forced Selling** – MBOI maintains substantial and continuous liquidity that is derived from recurring participant contributions, steady portfolio income, robust cash reserves, and a substantial allocation to high quality fixed income. At the current midpoint targets, we do not believe that forced selling is a high risk, nor do we believe this would meaningfully increase at higher levels of illiquid assets. **Therefore, risks such as adverse manager selection and, to a lesser degree, potential increases to underlying portfolio volatility are likely the more important factors to consider.**

Investment Update

Board Meeting: February 11-12, 2020

Information as of December 31, 2019



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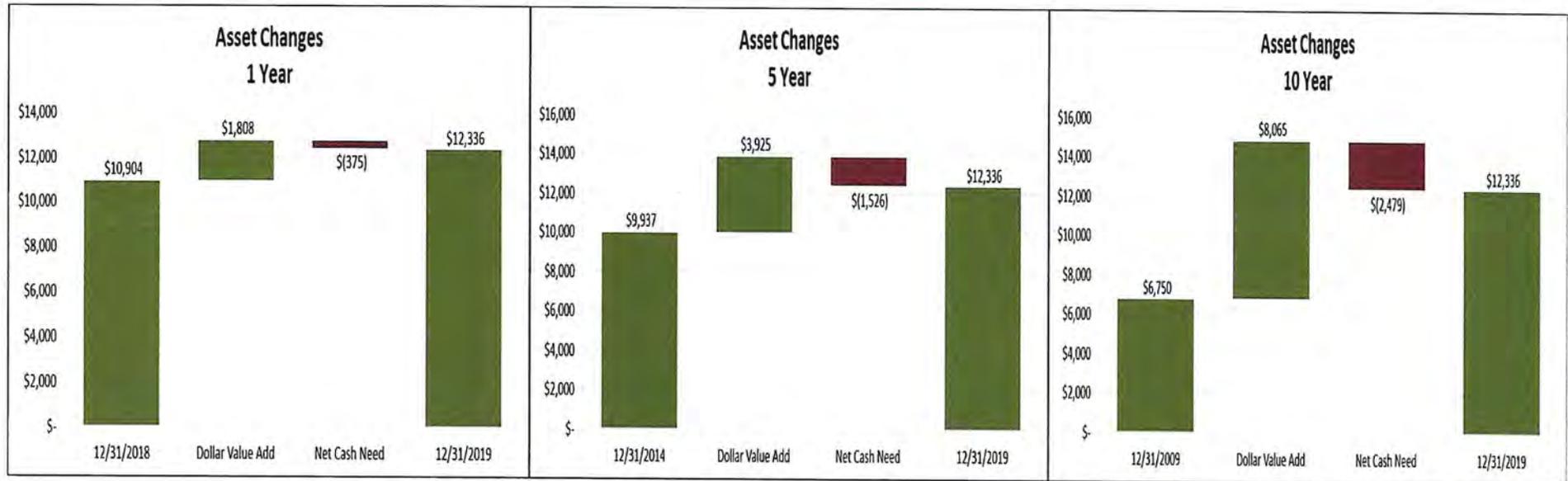
CIO Update – Size of Pension Plans and Change During Previous Year

	12/31/2019	12/31/2018	Dollar Change	Net Cash Flow	Dollar Value Add
PUBLIC EMPLOYEES RETIREMENT	\$ 6,128.27	\$ 5,434.33	\$ 693.93	-\$205.94	\$ 899.87
TEACHERS RETIREMENT	\$ 4,349.28	\$ 3,870.87	\$ 478.41	-\$161.75	\$ 640.16
FIREFIGHTERS RETIREMENT	\$ 480.35	\$ 408.16	\$ 72.19	\$3.63	\$ 68.57
POLICE OFFICERS RETIREMENT	\$ 455.31	\$ 391.32	\$ 63.99	-\$1.44	\$ 65.43
SHERIFFS RETIREMENT	\$ 396.61	\$ 341.88	\$ 54.73	-\$2.52	\$ 57.25
GAME WARDENS RETIREMENT	\$ 218.35	\$ 185.68	\$ 32.67	\$1.41	\$ 31.26
HIGHWAY PATROL RETIREMENT	\$ 158.20	\$ 139.97	\$ 18.23	-\$4.95	\$ 23.19
JUDGES RETIREMENT	\$ 109.66	\$ 96.26	\$ 13.40	-\$2.58	\$ 15.98
VOL FIREFIGHTERS RETIREMENT	\$ 40.20	\$ 35.26	\$ 4.93	-\$0.94	\$ 5.87
Total	\$ 12,336.23	\$ 10,903.74	\$ 1,432.49	-\$375.09	\$ 1,807.58

Dollar values are in \$1,000,000

December 31, 2019

CIO Update - Retirement Plans Performance



- 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.

Dollar values are in \$1,000,000

December 31, 2019

CIO Update – Retirement Plans Performance

Name	1 Year	3 Year	5 Year	10 Year	20 Year	Since Inception
PUBLIC EMPLOYEES RETIREMENT	16.77%	9.28%	7.37%	8.97%	5.90%	7.74%
TEACHERS RETIREMENT	16.78%	9.27%	7.36%	8.97%	5.90%	7.75%
FIREFIGHTERS RETIREMENT	16.79%	9.29%	7.37%	8.95%	5.87%	7.60%
POLICE OFFICERS RETIREMENT	16.80%	9.29%	7.37%	8.96%	5.87%	7.61%
SHERIFFS RETIREMENT	16.75%	9.28%	7.37%	8.95%	5.89%	7.63%
GAME WARDENS RETIREMENT	16.77%	9.29%	7.37%	8.95%	5.87%	7.65%
HIGHWAY PATROL RETIREMENT	16.78%	9.29%	7.37%	8.97%	5.89%	7.63%
JUDGES RETIREMENT	16.78%	9.29%	7.37%	8.96%	5.89%	7.64%
VOL FIREFIGHTERS RETIREMENT	16.79%	9.29%	7.35%	8.98%	6.33%	7.44%

December 31, 2019

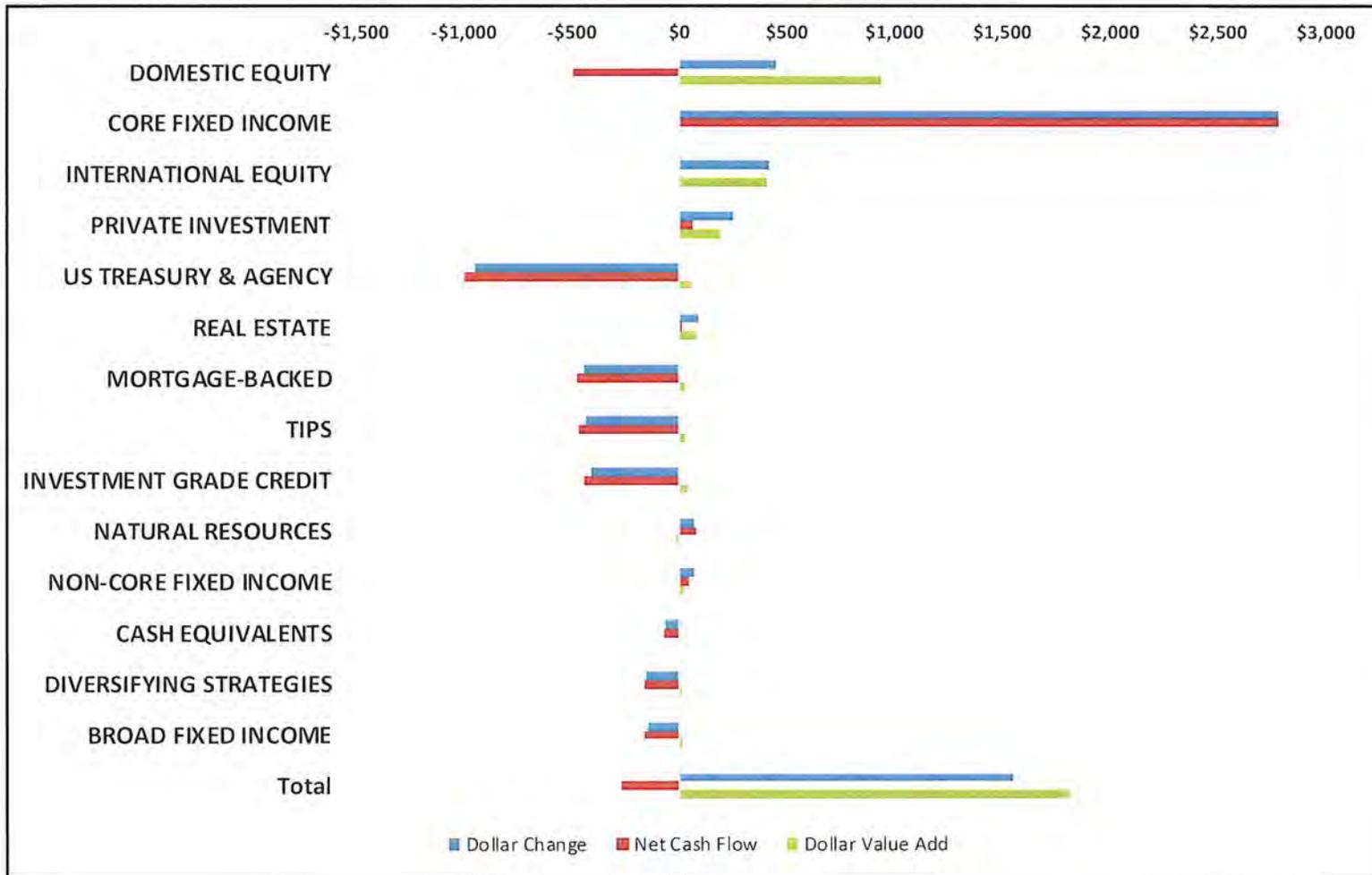
CIO Update – CAPP Asset Class Allocation Changes During Previous Year

Asset Class	12/31/2018 NAV	12/31/2019 NAV	Dollar Change	Net Cash Flow	Dollar Value Add
DOMESTIC EQUITY	\$ 3,313.06	\$ 3,766.00	\$ 452.94	-\$487.06	\$ 940.00
CORE FIXED INCOME	\$ -	\$ 2,782.62	\$ 2,782.62	\$2,781.74	\$ 0.88
INTERNATIONAL EQUITY	\$ 1,778.74	\$ 2,196.61	\$ 417.87	\$8.22	\$ 409.66
PRIVATE INVESTMENT	\$ 1,279.02	\$ 1,534.35	\$ 255.33	\$59.09	\$ 196.24
US TREASURY & AGENCY	\$ 946.59	\$ -	\$ (946.59)	-\$998.32	\$ 51.73
REAL ESTATE	\$ 883.40	\$ 973.79	\$ 90.39	\$15.37	\$ 75.02
MORTGAGE-BACKED	\$ 444.81	\$ -	\$ (444.81)	-\$473.82	\$ 29.01
TIPS	\$ 433.97	\$ -	\$ (433.97)	-\$462.30	\$ 28.33
INVESTMENT GRADE CREDIT	\$ 405.99	\$ -	\$ (405.99)	-\$443.73	\$ 37.73
NATURAL RESOURCES	\$ 313.83	\$ 384.78	\$ 70.94	\$77.46	\$ (6.51)
NON-CORE FIXED INCOME	\$ 311.83	\$ 383.07	\$ 71.24	\$49.36	\$ 21.88
CASH EQUIVALENTS	\$ 272.77	\$ 207.40	\$ (65.38)	-\$72.13	\$ 6.75
DIVERSIFYING STRATEGIES	\$ 149.94	\$ -	\$ (149.94)	-\$164.19	\$ 14.25
BROAD FIXED INCOME	\$ 147.75	\$ -	\$ (147.75)	-\$160.09	\$ 12.34
Total	\$ 10,681.69	\$ 12,228.61	\$ 1,546.92	-\$270.39	\$ 1,817.31

Dollar values are in \$1,000,000

December 31, 2019

CIO Update – CAPP Asset Class Allocation Changes During Previous Year



Dollar values are in \$1,000,000

December 31, 2019

CIO Update – Asset Class Benchmark Returns

1 YR	5 YR	10 YR	15 YR	20 YR	
MSCI US IMI 31.14%	MSCI US IMI 11.32%	MSCI US IMI 13.48%	MSCI US IMI 9.20%	MSCI US REIT 11.18%	Legend
MSCI USA SMALL CAP 27.38%	MSCI USA SMALL CAP 9.20%	MSCI US REIT 11.93%	MSCI US REIT 7.88%	BARC US HY 7.21%	
MSCI US REIT 25.84%	PERS 7.37%	PERS 8.97%	BARC US HY 7.20%	MSCI US IMI 6.36%	
MSCI ACWI ex USA IMI 21.63%	MSCI US REIT 7.03%	BARC US HY 7.55%	PERS 6.74%	PERS 5.90%	
PERS 16.77%	BARC US HY 6.14%	MSCI ACWI ex USA IMI 5.21%	MSCI ACWI ex USA IMI 5.48%	BARC US Agg 5.03%	
BARC US HY 14.32%	MSCI ACWI ex USA IMI 5.71%	BARC US Agg 3.75%	BARC US Agg 4.15%	MSCI ACWI ex USA IMI 3.96%	
MSCI AC World Commodity 13.04%	BARC US Agg 3.05%	LIBOR 1 MONTH 0.72%	MSCI AC World Commodity 4.01%	LIBOR 1 MONTH 1.94%	
BARC US Agg 8.72%	MSCI AC World Commodity 2.19%	MSCI AC World Commodity -0.01%	LIBOR 1 MONTH 1.60%		
LIBOR 1 MONTH 2.22%	LIBOR 1 MONTH 1.23%				

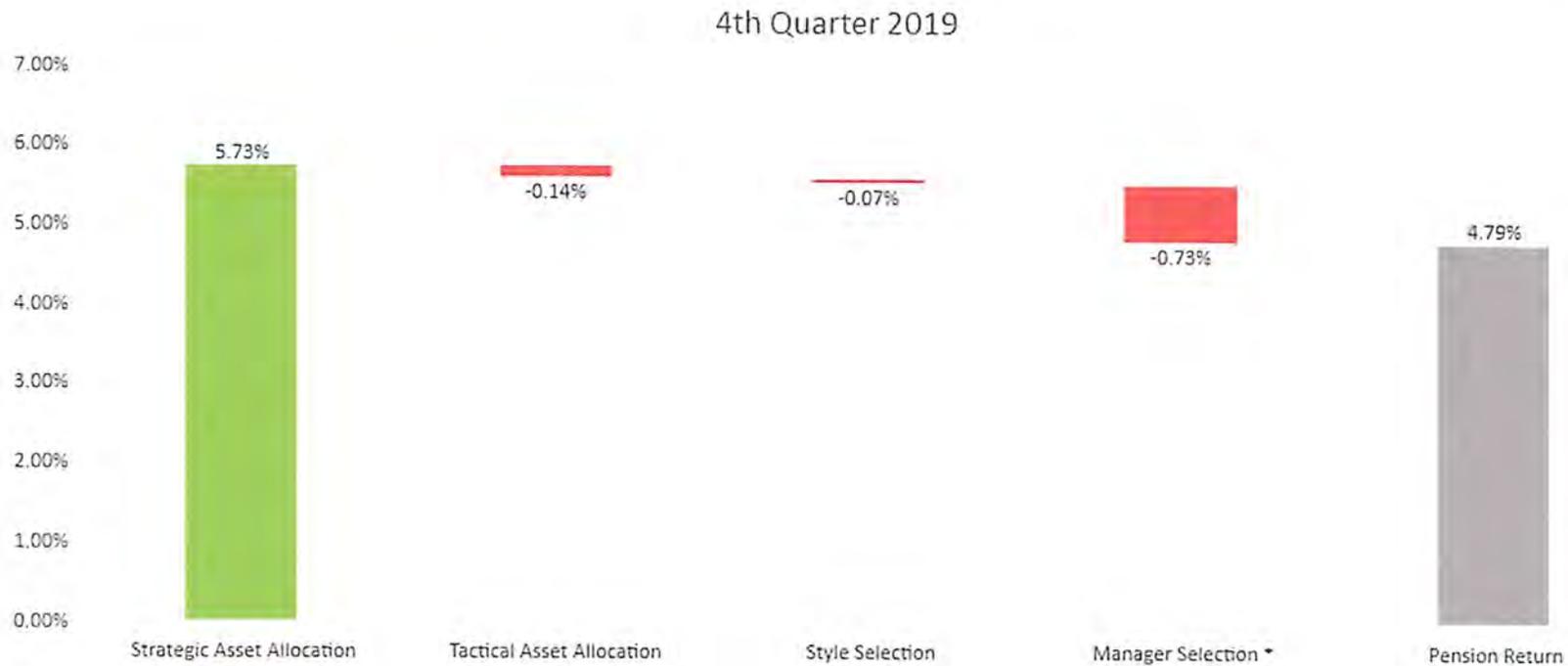
December 31, 2019

CIO Update – Retirement Plan Asset Allocation

Asset Class	12/31/2019 (NAV)	% of Total	Mid Point	Deviation from Mid Point	Approved Ranges
DOMESTIC EQUITY	\$ 3,765,997,546.37	30.53%	30%	0.53%	24% - 36%
CORE FIXED INCOME	\$ 2,782,621,479.34	22.56%	20%	2.56%	15% - 25%
INTERNATIONAL EQUITY	\$ 2,196,606,624.37	17.81%	16%	1.81%	11% - 21%
PRIVATE INVESTMENTS	\$ 1,534,353,808.69	12.44%	14%	-1.56%	11% - 17%
REAL ESTATE	\$ 973,788,582.69	7.89%	9%	-1.11%	5% - 13%
NATURAL RESOURCES	\$ 384,777,020.85	3.12%	4%	-0.88%	1% - 7%
NON-CORE FIXED INCOME	\$ 383,065,543.28	3.11%	5%	-1.89%	3% - 7%
CASH EQUIVALENTS	\$ 315,020,058.41	2.55%	2%	0.55%	0% - 4%
Total	\$ 12,336,230,664.00	100.00%			

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CIO Update – Macro Attribution



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

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

Style Selection - 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.

CIO Update – Macro Attribution



December 31, 2019

CIO Update – Quarterly Macro Attribution

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

* All asset class benchmarks with the exception of real estate added positive contributions to the pension policy-neutral 5.73% return.

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

- * We were slightly overweight International Equities, Core Fixed Income, and Cash.
- * We were slightly underweight Domestic Equity, Private Equity, Natural Resources, Real Estate, and Non-Core Fixed Income.
- * In aggregate, the underweighted asset classes performed better than the over weighted asset classes and reduced the pension portfolio's return by -14bps

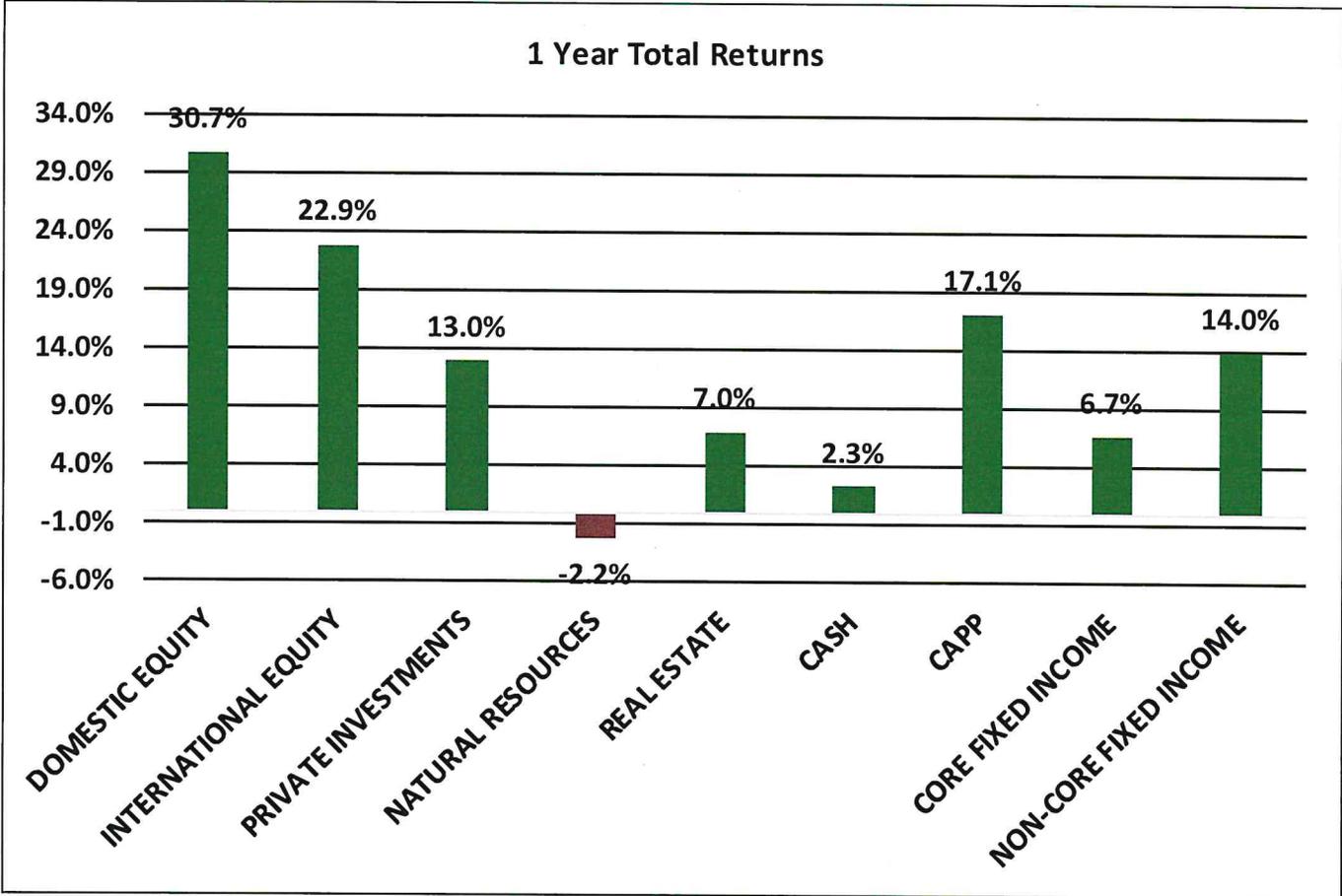
Style Selection -> Did the portfolio benchmarks add additional return over their asset class benchmarks?

- * Cash drag was the largest contributor to negative style selection effects in Domestic and International Equity.
- * The Alerian MLP Index underperformance relative to the MSCI AC World Commodity Producers Index, was the major contributor to negative Natural Resources style selection effects.
- * TIPS, Mortgage-Backed, and Corporates did well vs the Barclays Agg while Treasuries did not during October and November. There are no style selection effects from December forward because of consolidation of FI asset classes into Core Fixed Income.

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

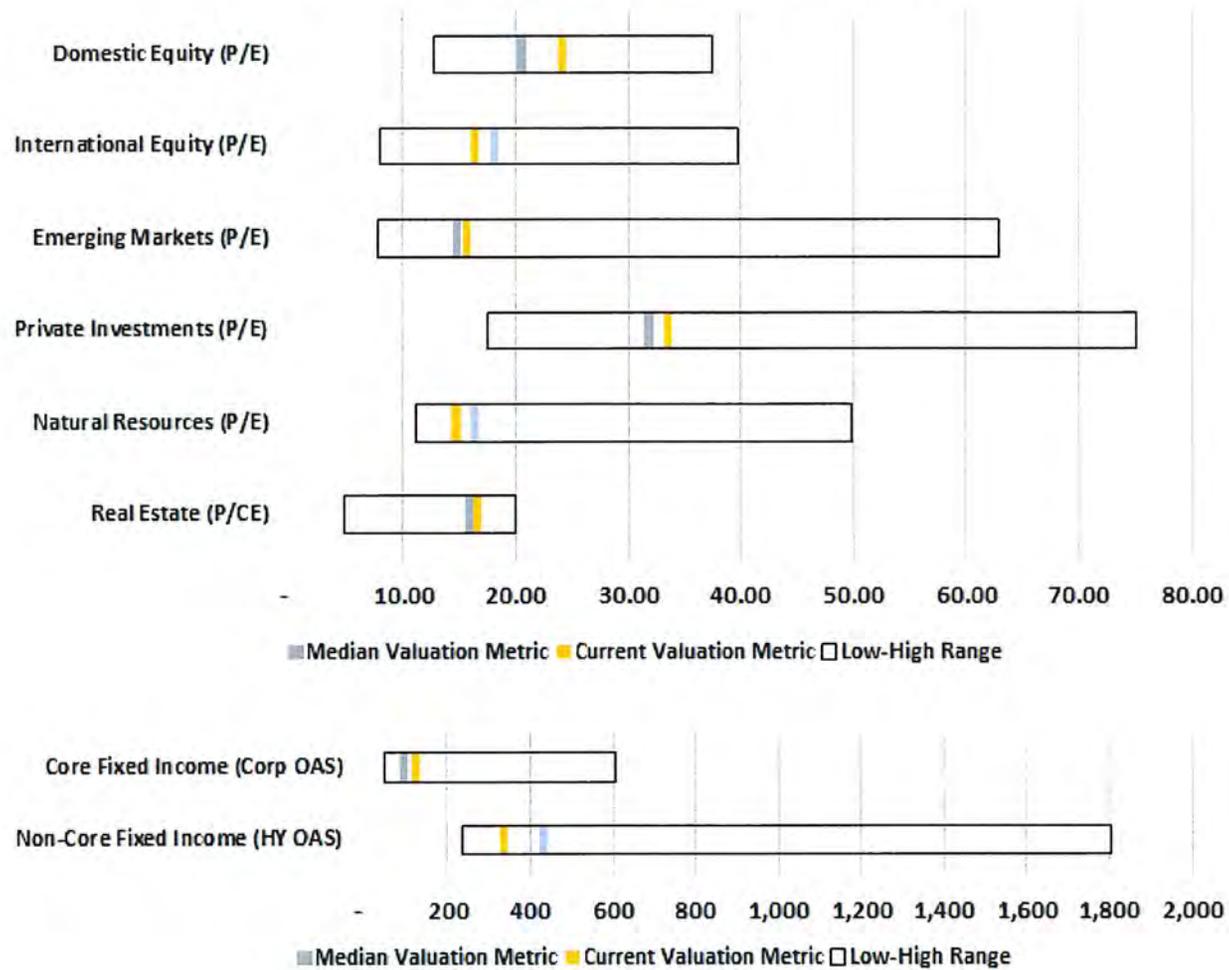
- * The majority of the domestic equity underperformance was due to a small cap value manager.
- * International equity had a few moderately good and a few moderately poor performers.
- * Private Assets, Natural Resources, and Real Estate had large manager selection effects due to imperfect benchmarks and lagged performance of the underlying partnerships.

CIO Update – CAPP Asset Class Returns

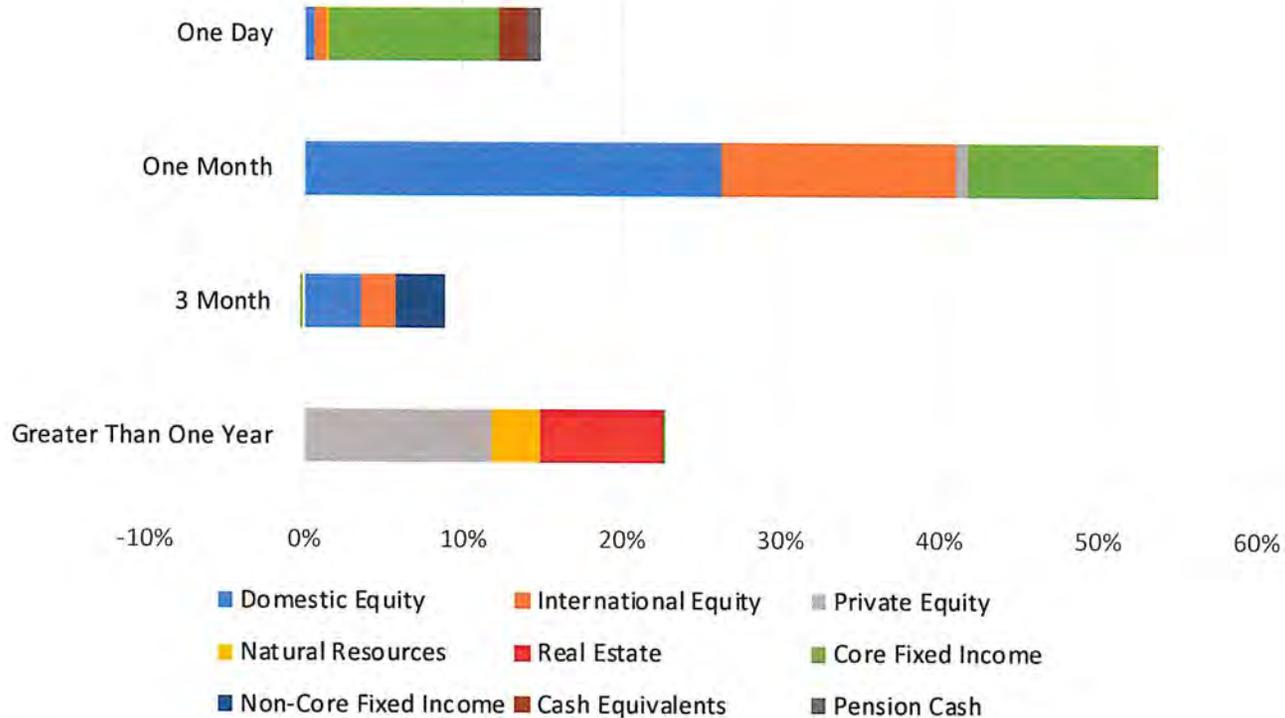


- Cash has reduced from 5.92% of CAPP (7/1/2019) to a 2.55% (12/31/2019) – reduction of 3.37%
- Risk Management Dashboard development is a priority
- MPERA/TRS reports are 2/13 & 2/21 respectively
- Fixed Income and Real Estate teams working to increase income in TFIP

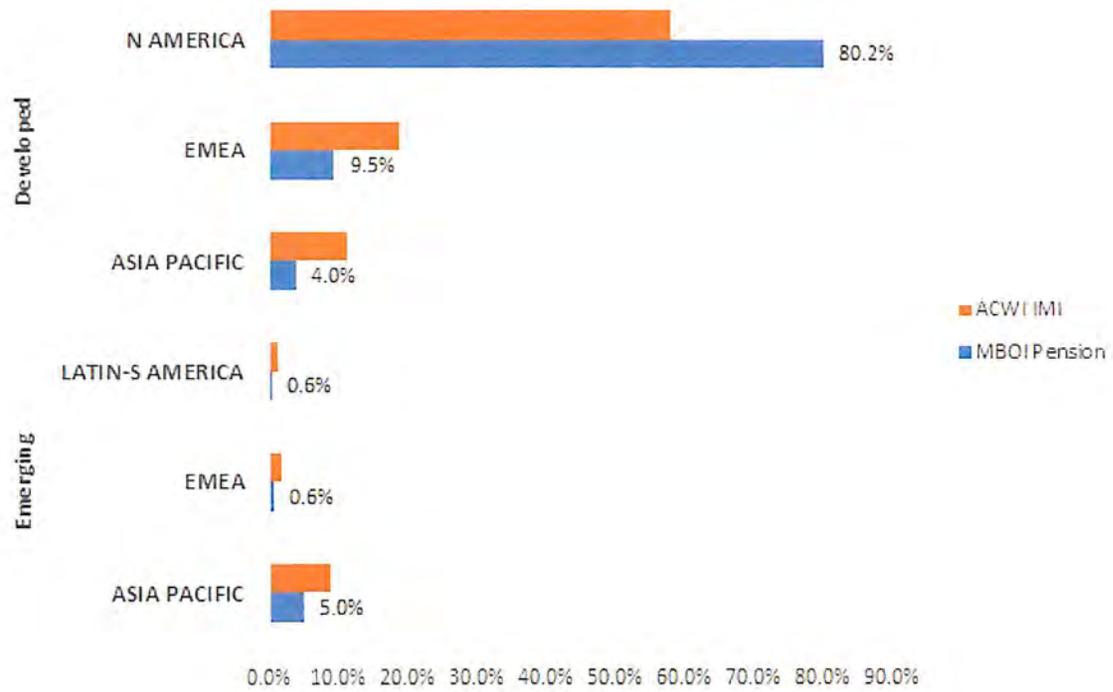
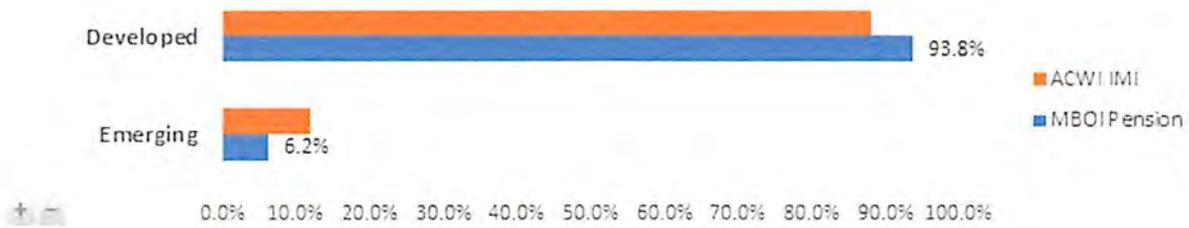
Asset Class Benchmark Valuation Metrics



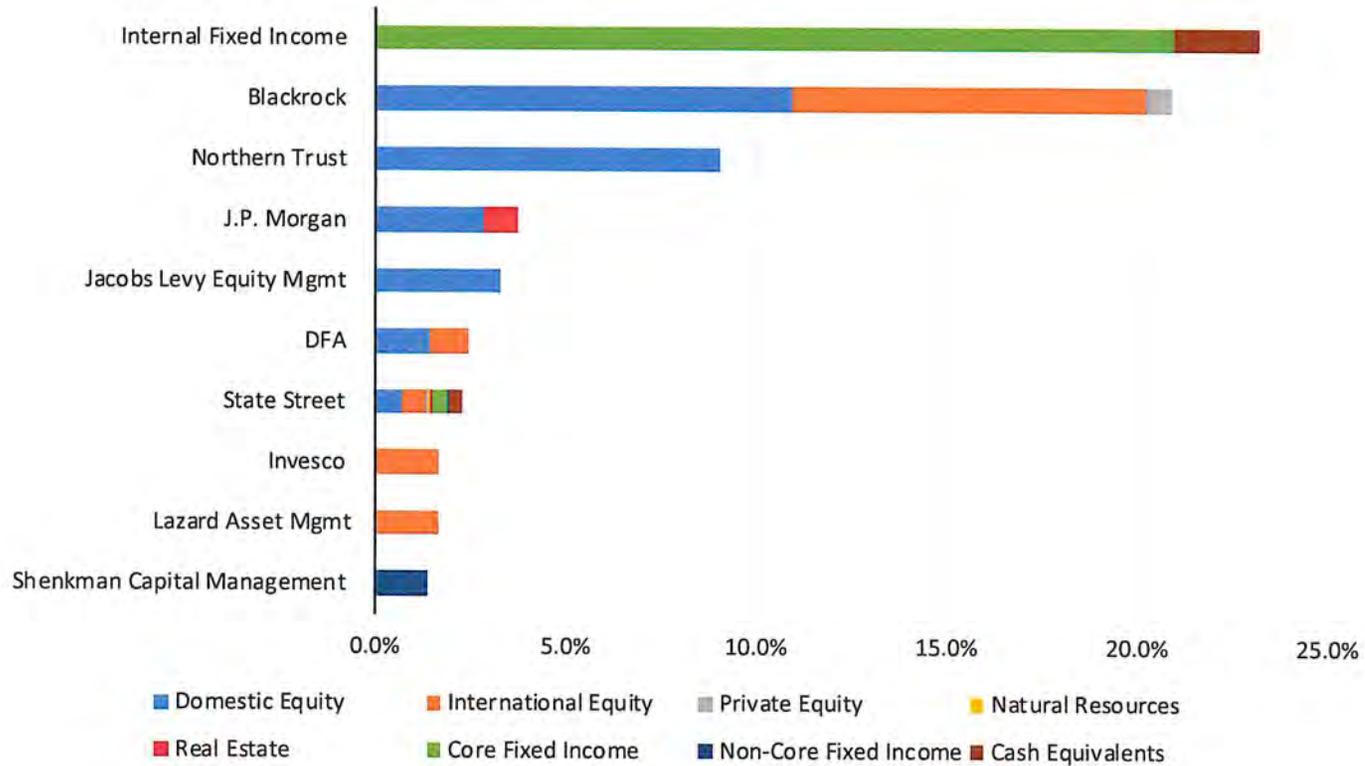
Pension Liquidity



Daily Liquidity = Treasuries/Gov't Agencies, TIPS, and Cash Equivalents at Pension Plan and CAPP level
 One Month Liquid = Domestic and International Large Cap, Mid Cap Equities, ETFs, Investment grade & MBS Fixed Income
 Three Month Liquid = Domestic and International Small Cap Equities, Emerging Market Equities and High Yield Fixed Income
 Not Liquid = Private Equity, Real Estate and Natural Resources

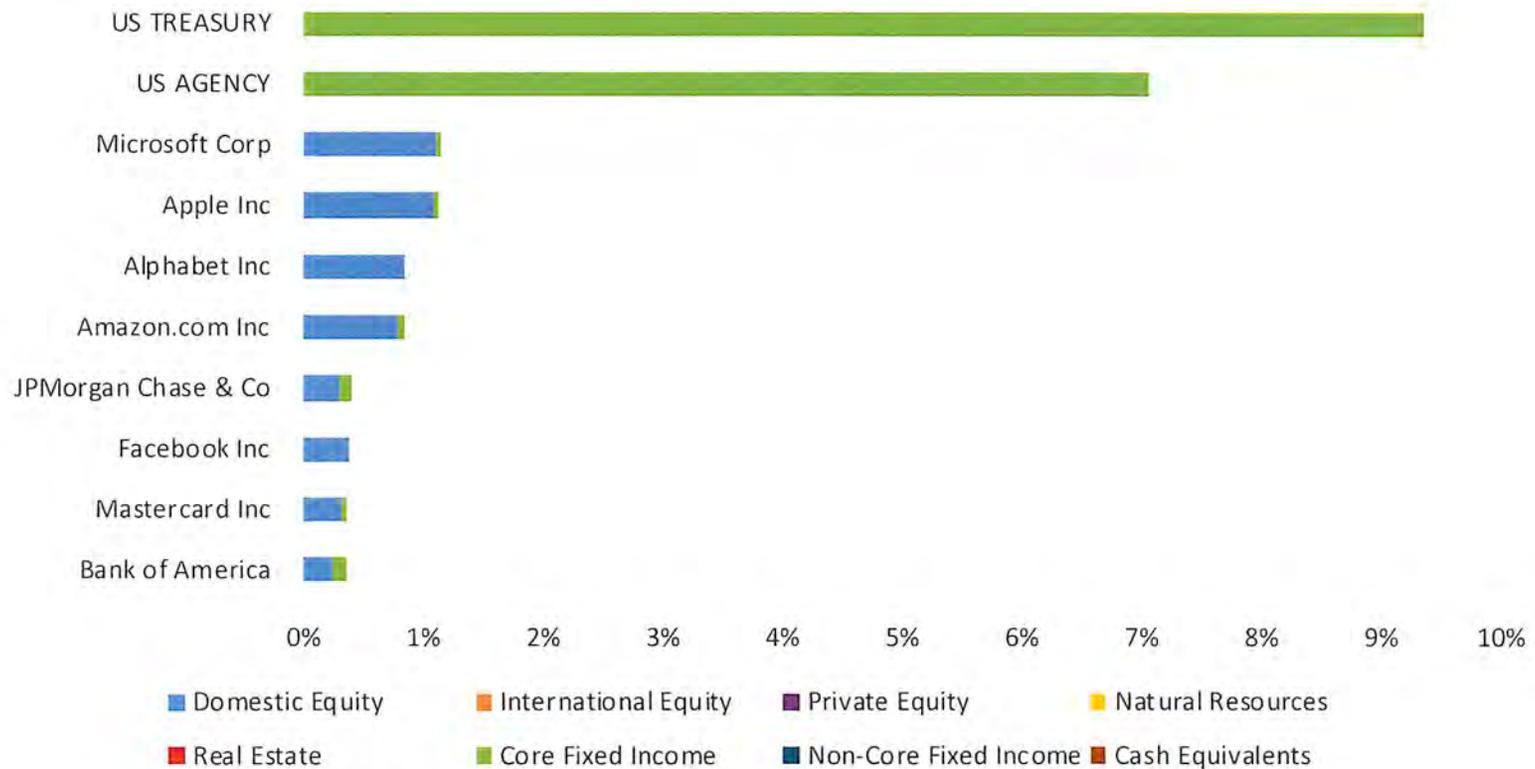


Top 10 Managers



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

Top 10 Issuers



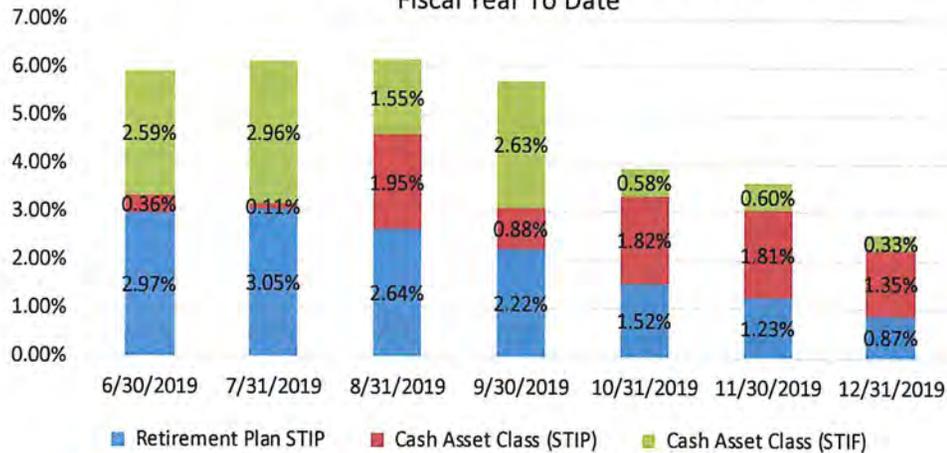
Cash Management

Plan and Asset Class Cash Balances

Cash	6/30/2019	7/31/2019	8/31/2019	9/30/2019	10/31/2019	11/30/2019	12/31/2019
Retirement Plan STIP	2.97%	3.05%	2.64%	2.22%	1.52%	1.23%	0.87%
Cash Asset Class (STIP)	0.36%	0.11%	1.95%	0.88%	1.82%	1.81%	1.35%
Cash Asset Class (STIF)	2.59%	2.96%	1.55%	2.63%	0.58%	0.60%	0.33%
Total Plan and Asset Class Cash	5.92%	6.11%	6.14%	5.72%	3.92%	3.63%	2.55%

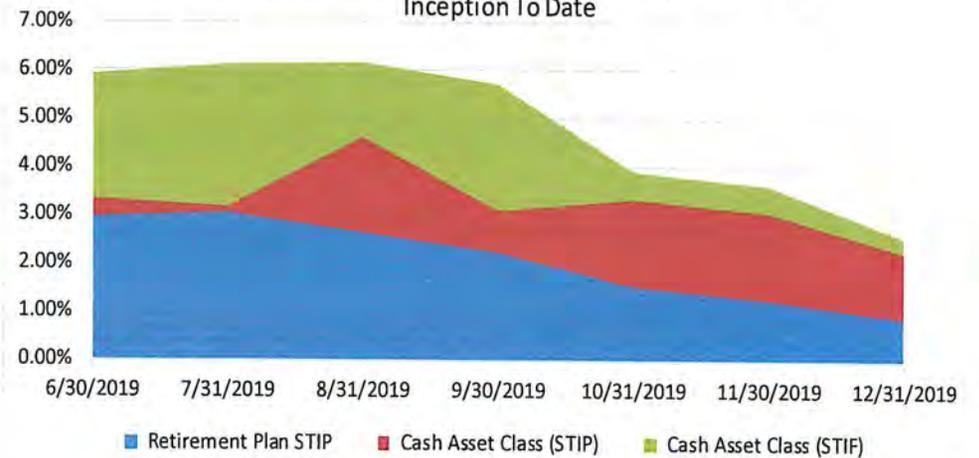
Plan and Cash Asset Class Allocation

Fiscal Year To Date



Plan and Cash Asset Class Allocation

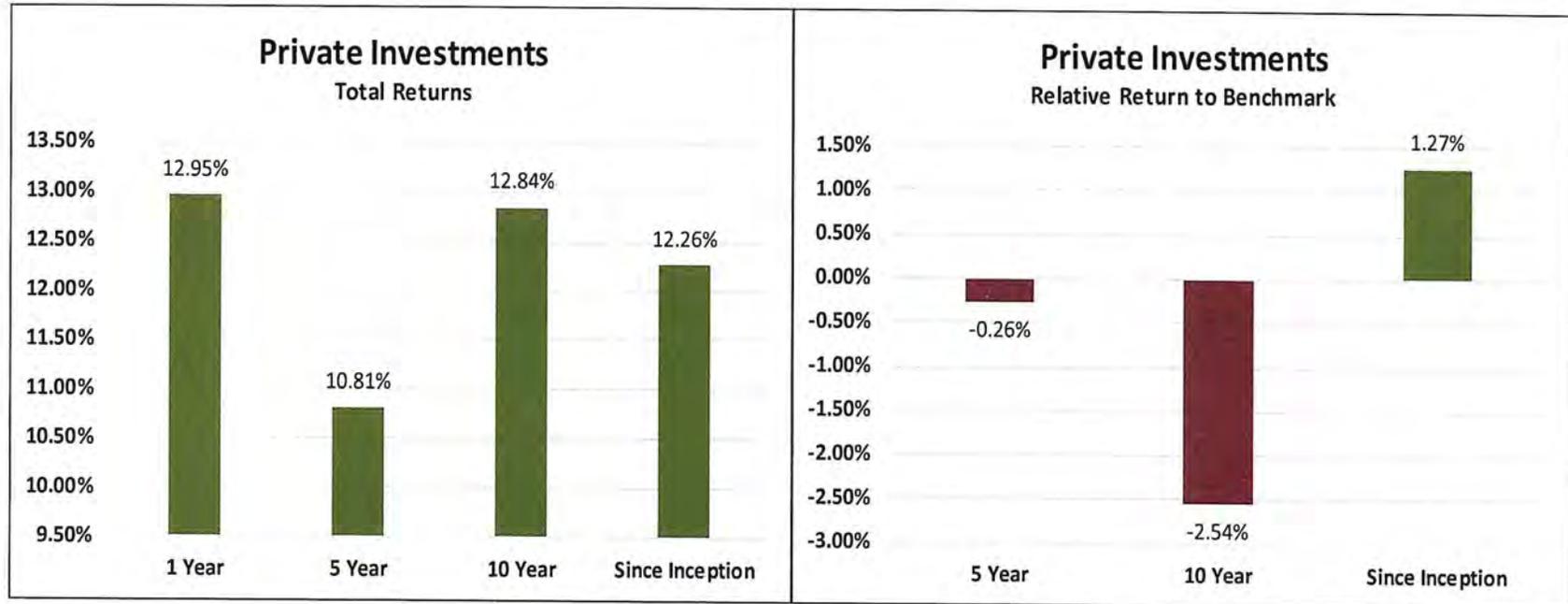
Inception To Date



- Retirement Plan Cash – In January, reached our target allocation of .75% in the Short Term Investment Pool

December 31, 2019

- Private equity deal making in 2019 remained active coming off a record breaking 2018. 5,103 private equity-backed buyout deals were announced in 2019 with an aggregate deal value of \$393 billion. Both numbers represent an approximately 20% reduction from the previous year.
- Valuations for buyouts in 2019 continue to remain elevated at a purchase price multiple of 11.1x EBITDA, well above the 20 year average of 8.4x EBITDA.
- Leverage or debt usage for buyouts remains elevated as well at 5.9x EBITDA, coming in just under pre-GFC highs.
- Private equity dry powder continues to remain abundant with \$1.2 trillion held in private equity funds at the end of 2019.
- While things have cooled off from the beginning of the year, the private equity fundraising environment remains highly competitive. As of year end, there were over 3,500 private equity funds in market raising capital, targeting just under \$1 trillion in aggregate capital.
- Key takeaways – Buyout and venture activity continues to be robust. Valuations, debt usage, access to cheap credit and dry powder all remain at elevated levels. The fundraising environment continues to remain very active.



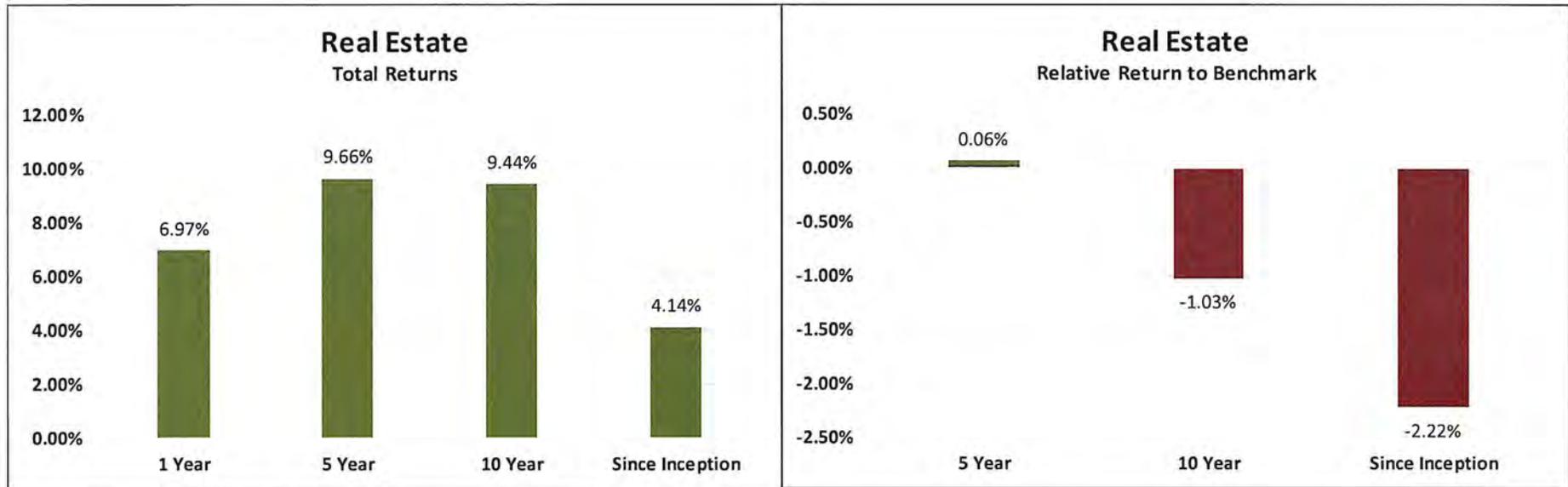
Relevant Benchmark: Private Equity – PAC Custom Blend

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

December 31, 2019

- Total Market Value of \$1.53 billion as of 12/31/19
- North American-centric at ~78%, ~13% non-US developed, and ~9% emerging markets
- Direct/primary fund exposure focus at ~79% vs. Fund-of-Funds at ~21%
- Selectively focused on buyout and venture capital strategies
- Increasing allocation to credit strategies and sector specialists
- Cash Flow Profile
 - Negative \$12.82 million for quarter ending 12/31/19
- One new commitment during the recent quarter
 - Ascendent Capital Partners III - \$45 million

- Real estate markets continue to enjoy low vacancy rates and a balance of new supply and growing demand, supporting rent growth, though at more moderated levels
- Real estate debt is still widely available and debt markets are maintaining conservative underwriting standards
- Investors spent a record \$800B in commercial real estate deals globally in 2019, an increase of 4% compared to 2018
- The Green Street Commercial Property Price Index was unchanged in December, for the full year of 2019, the all-property index increased by 2.5%
- Capitalization rates remained relatively stable throughout 2019, YOY appreciation returns have moderated to their lowest level since 2010, future returns will be more reliant on income generation
- REITs posted a very strong 2019 with total returns approaching 30% for 2019
- 2019 CMBS issuance closed out at \$98B, up from 2018, CMBS credit as indicated by loan performance was generally sound, delinquency rates continue to decline
- As commercial real estate values peak in the nation's top-tier cities and cap rates get squeezed, secondary markets with strong economic fundamentals and population growth continue to be viewed as more attractive by those in search of higher yield
- Capital raising for real estate funds hit a new high in 2019 at \$151B
- Real estate dry powder decreased to \$319B through year-end down from \$331B at year-end 2018
- Key takeaways – Fundamentals healthy, but moderating, debt markets are open, 2019 volumes inline and healthy, pricing is holding, returns more income reliant, REITs performing well, CMBS issuance up, fundraising remains strong with elevated levels of dry powder



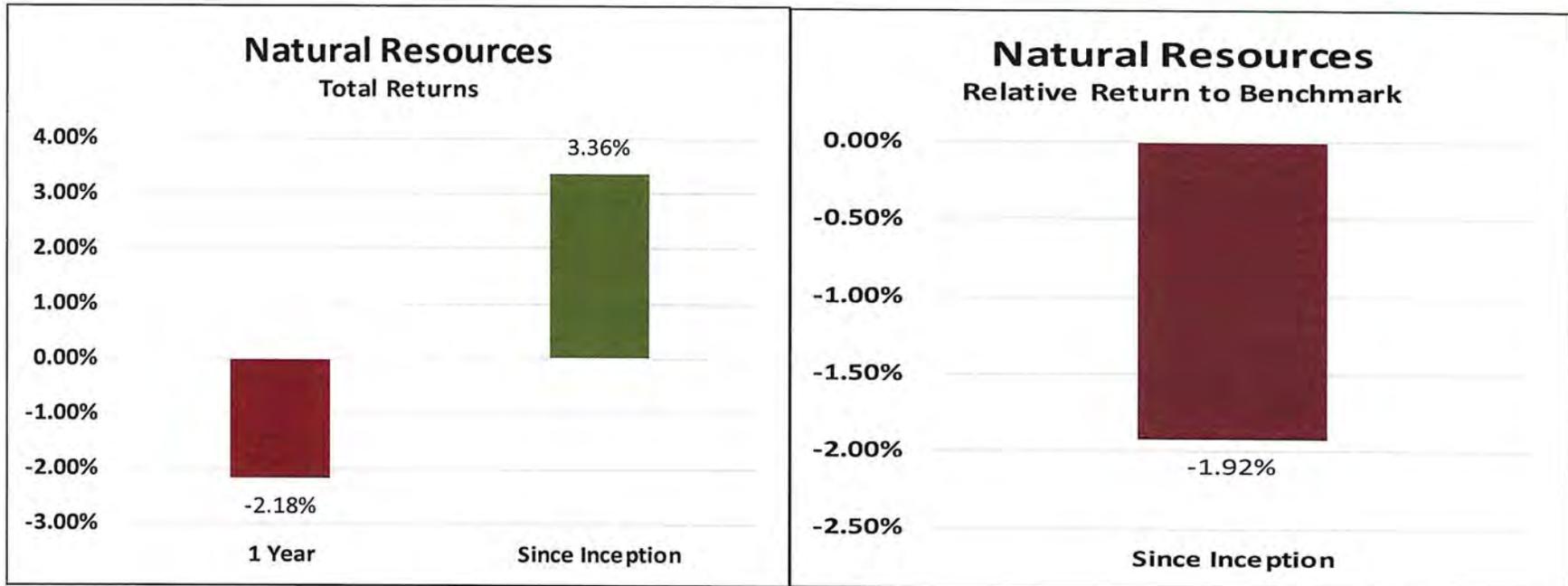
Relevant Benchmark: Real Estate - PAC Custom Blend

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

December 31, 2019

- Total Net Asset Value of approx. \$974M as of 12/31/19
- North American-centric, broadly diversified, less than 2% non-US
- Broadly diversified across property types
- Increased focus on property type specific operators
- Beginning to look at separate accounts for longer duration holds, cash flow
- Focus on existing, high conviction managers, looking to add more real estate debt strategies, reduce core equity exposure on the margin, add to existing REIT exposure
- Cash Flow Profile
 - Negative \$47.2M for quarter ending 12/31/19
- New investment commitments/additions
 - \$100M commitment to Walton Street Real Estate Debt Fund II, LP (RE private debt)
 - \$30M commitment to DRA Growth & Income Fund X, LP (RE private equity)
 - \$30M commitment to Oak Street Real Estate Fund V, LP (RE private equity)
 - \$10M additional investment to Fidelity Real Estate High Income Fund (RE public debt)
- Total Leverage – 48.4% as of 9/30/19
 - Core – 23.5%
 - Non-Core – 62.0%
 - Value Add – 63.8%
 - Opportunistic – 53%

- Oil prices remain range bound, down YTD, but up YOY
- Members of OPEC finalized an agreement to jointly reduce supply by an additional 500,000 barrels per day through the end of March 2020
- US continues to grow oil exports, remains world's largest producer setting a recent highwater mark of 13M barrels per day
- Global oil demand in 3Q19 increased by 1.1M b/d YOY, the fastest pace in a year
- US gas market depressed, world demand strong but US short on export capacity
- Global energy M&A activity remains depressed with bankruptcies in the domestic oil patch continuing
- MLP fundamentals remain intact with growing production, strong volumes, high capacity utilization and strong balance sheets
- The Global Sawlog Price Index fell for the seventh consecutive quarter in 4Q19, reaching a new low, log prices fell throughout the world in 2019
- Homebuilding surged to a 13-year high in December as activity increased across the board, suggesting the housing market recovery was back on track amid low mortgage rates
- 126 natural resource funds in market as of year-end 2019, raising approx. \$107B
- Natural resource funds dry powder remained steady at \$53B through year-end 2019
- Key takeaways – Oil prices range bound, OPEC continues to play ball, US production continues to grow, the fundamental outlook for MLPs looks strong, log prices remain depressed, the housing market showing signs of a rebound, fundraising market and dry powder continue at healthy levels



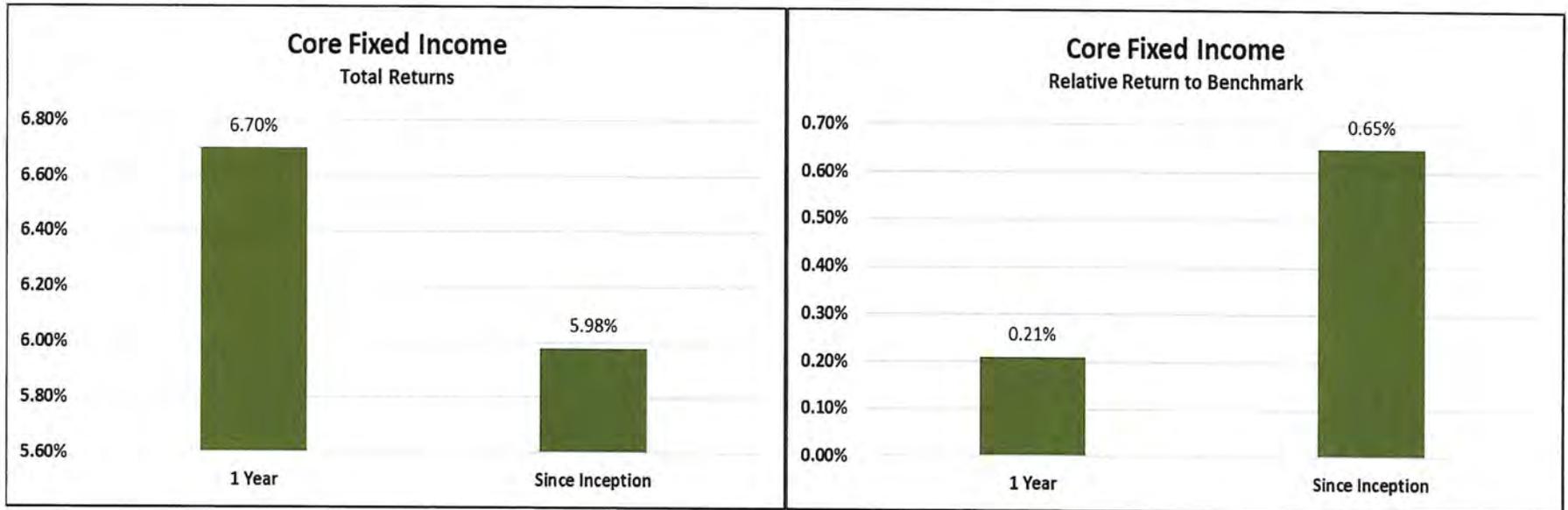
Relevant Benchmark: Natural Resources – MSCI AC World Commodity Producers Net Index

- Inception – 4/1/2017

- Total Net Asset Value of approx. \$385M as of 12/31/19
 - Energy Portfolio - \$269M as of 12/31/19
 - Timberland Portfolio - \$106M as of 12/31/19
 - Broad Natural Resources Portfolio - \$10M as of 12/31/19
- All portfolios are North American-centric, broadly diversified regionally
- Energy is broadly diversified across the energy value chain; timber broadly diversified across species and age class
- Continuing to explore other types of strategies for the asset class to further diversify and gain new exposures
- Cash Flow Profile
 - Negative \$7.9M for quarter ending 12/31/19
- New investment commitments
 - \$45M commitment to Ecosystem Investment Partners IV, LP (NR Broad Natural Resources private equity)
 - \$30M commitment to Mountain Capital Partners II, LP (NR Energy private equity)
- Timber Portfolio Total Leverage – 6.0% as of 9/30/19

- The U.S. Treasury curve remained relatively flat over the last year. However, interest rates fell 60 to 100 bps along the curve.
- The Federal Reserve cut interest rates three times in 2020 as concerns mounted about global growth.
- Headline inflation was 2.3% year over year in December. Core CPI was also 2.3% year over year.
- Money market yields fell during 2019 as the Federal Reserve cut interest rates and spreads on commercial paper compressed.
- Spreads on corporate bonds ended 2019 at 93 bps which is close to the 5 year low.
- Spreads on mortgage backed securities (MBS) ended 2019 at 39 bps which is slightly above the 5 year average.

- The Barclays Aggregate returned 8.72% in 2019 driven by lower interest rates and spread compression in Corporates.
- TIPS performed well versus nominal Treasuries in the 4th quarter. However, the breakeven for 10 year TIPS was little changed year over year.
- Bond market liquidity remained healthy throughout the year. Investment Grade market volume as measured by FINRA (Financial Industry Regulatory Authority) averaged \$19.4B/day vs. the 5-year average of \$16.6B/day.
- Total investment grade corporate issuance remained strong with \$1.23T of debt issued in 2019 vs. \$1.25T issued in 2018.



Benchmark:

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

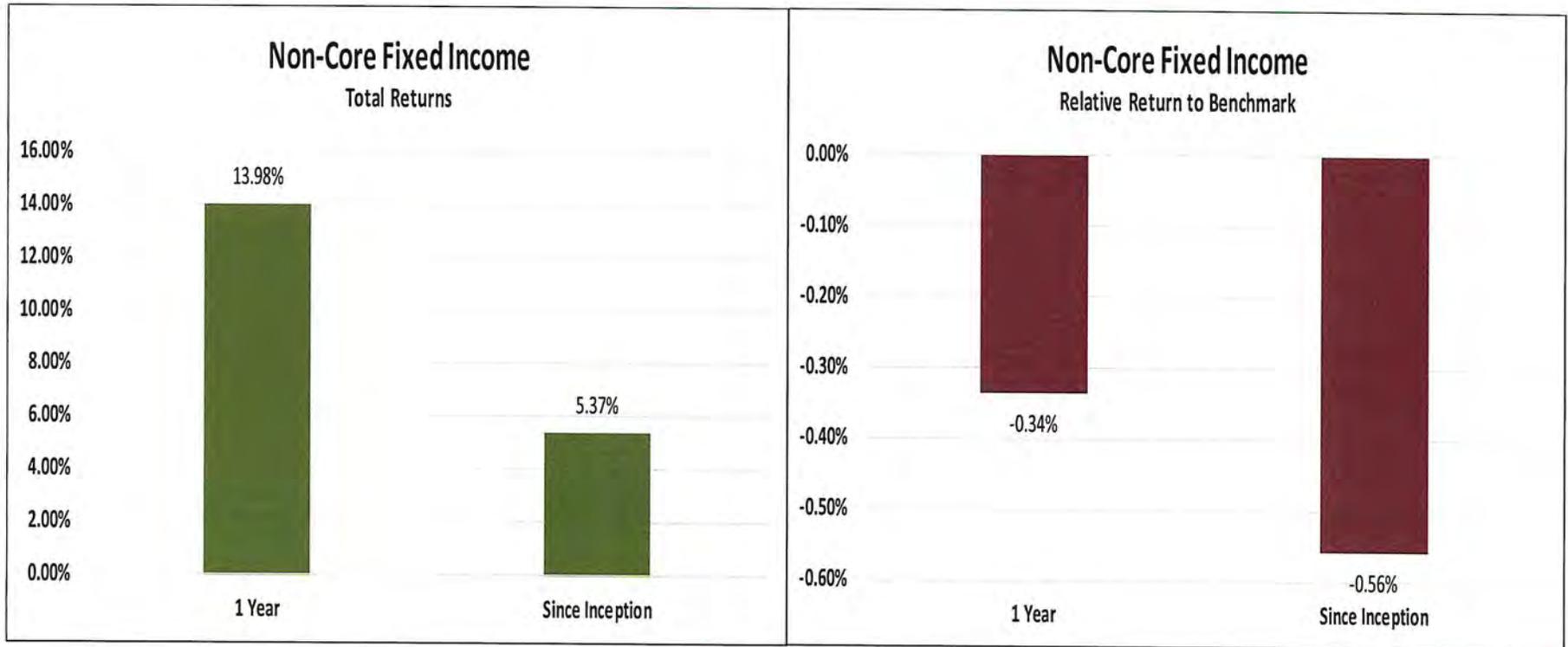
December 31, 2019

Performance

- Positive total return for December of 3 bps
- Outperformed benchmark by 10 bps in December.

Characteristics and Activity

- Total market value of approx. \$2.76 billion at quarter end.
- Duration was approx. 92% of the benchmark at quarter end. Significantly underweight the long end of the curve.
- Portfolio was overweight Treasuries/Agencies and underweight spread product as we continue to rebalance.



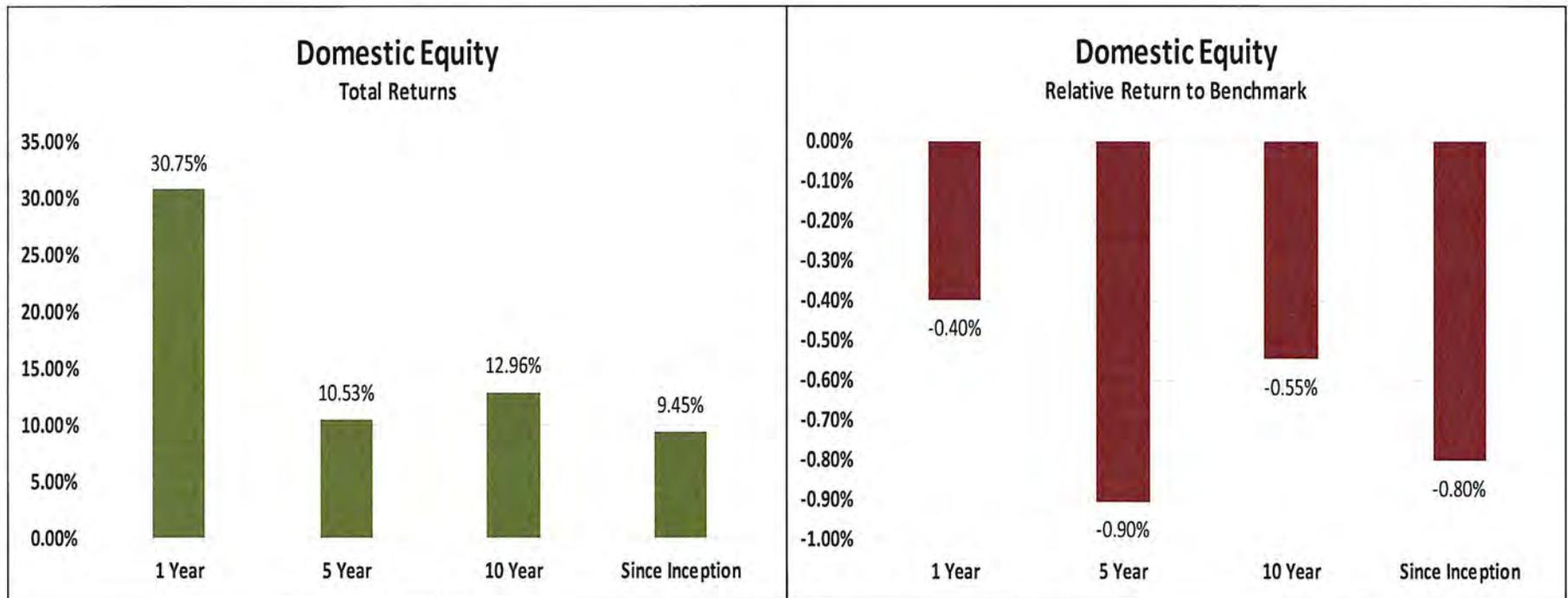
Benchmark: Bloomberg Barclays US High Yield – 2% Issuer Cap

- Inception Date: 4/1/2017
- High Yield Asset Class name change to Non-Core Fixed Income 11/30/19

December 31, 2019

- High yield spreads tightened by about 50 basis points during the fourth quarter as a friendly Fed and the strong possibility of the Phase I China trade deal ignited a risk taking appetite by investors.
- Although the Fed looks finished with its rate cuts it is still viewed as dovish going into 2020 which should continue to benefit risk assets including high yield.
- High Yield default rates continue to be low by historical standards, but after falling throughout 2017-2018 and during the first quarter of 2019, defaults rose steadily into the end of the year to 3.1%. This was mostly due to the deterioration of energy credits.
- High yield spreads remain near historical tightness at 385+ Treasuries which has been the overall theme for several quarters.

- The defensive positioning within the non-core asset class remains.
- Recall that by design, the non-core asset class at MBOI carries a significant weighting in downside-protecting portfolios.
- Duration of the non-core asset class is slightly less than that of the benchmark (Bloomberg Barclays US High Yield 2% Issuer Cap Index) and the sector exposure is well diversified.
- Overall, the non-core fixed income asset class underperformed by -28 basis points for the quarter.
- For the last twelve months ended December 31, the asset class underperformed by -34 basis points.
- There are no changes in the manager lineup anticipated at this time.



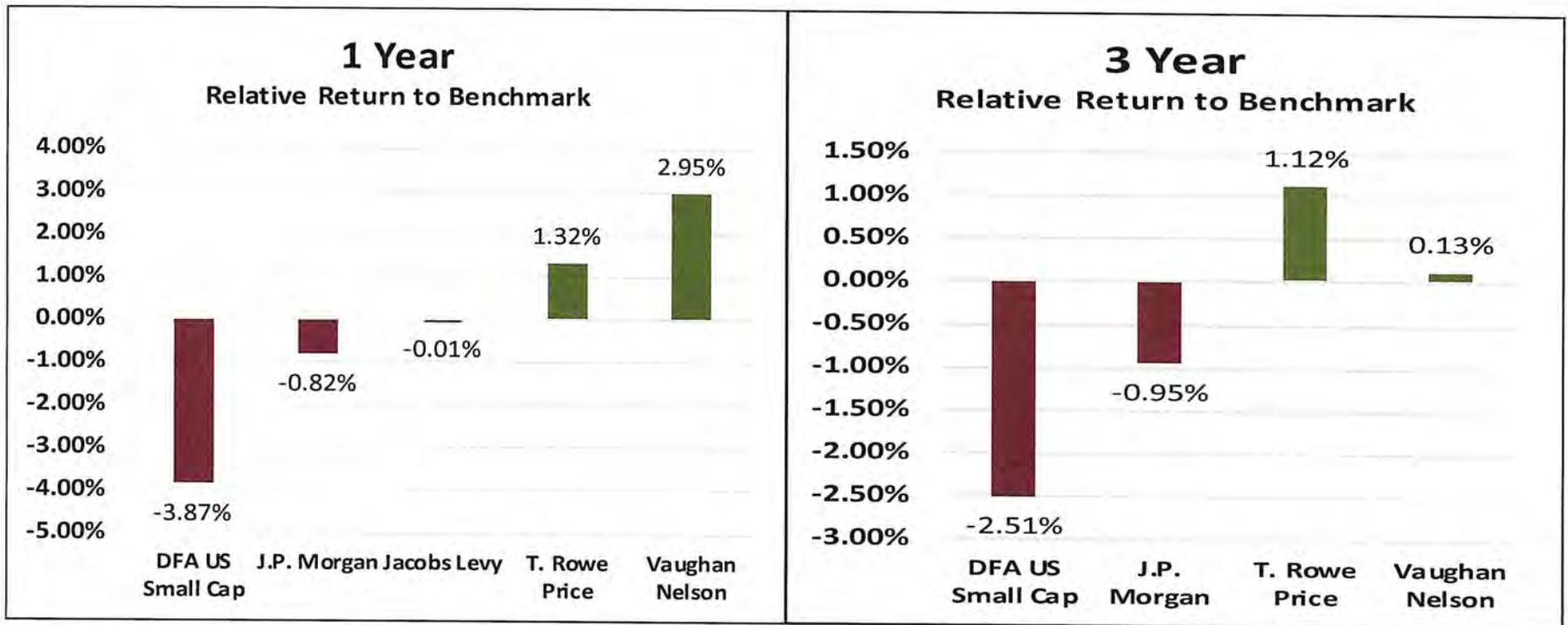
Benchmark: Domestic Equity – PAC Custom Blend

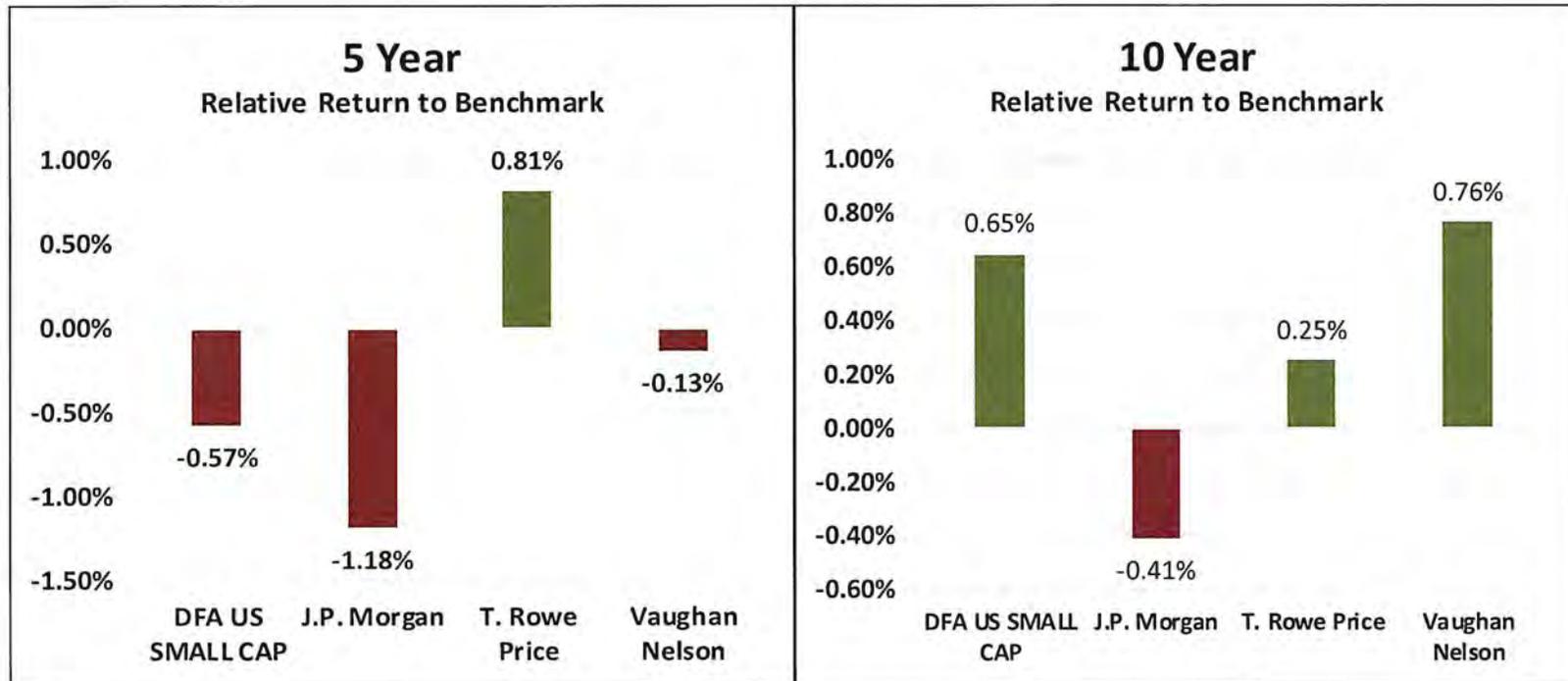
- From inception to 4/30/2017: S&P 1500 Super Composite
- 5/1/2017 to present: MSCI USA IMI, Gross
- Inception Date: 5/1/2003

December 31, 2019

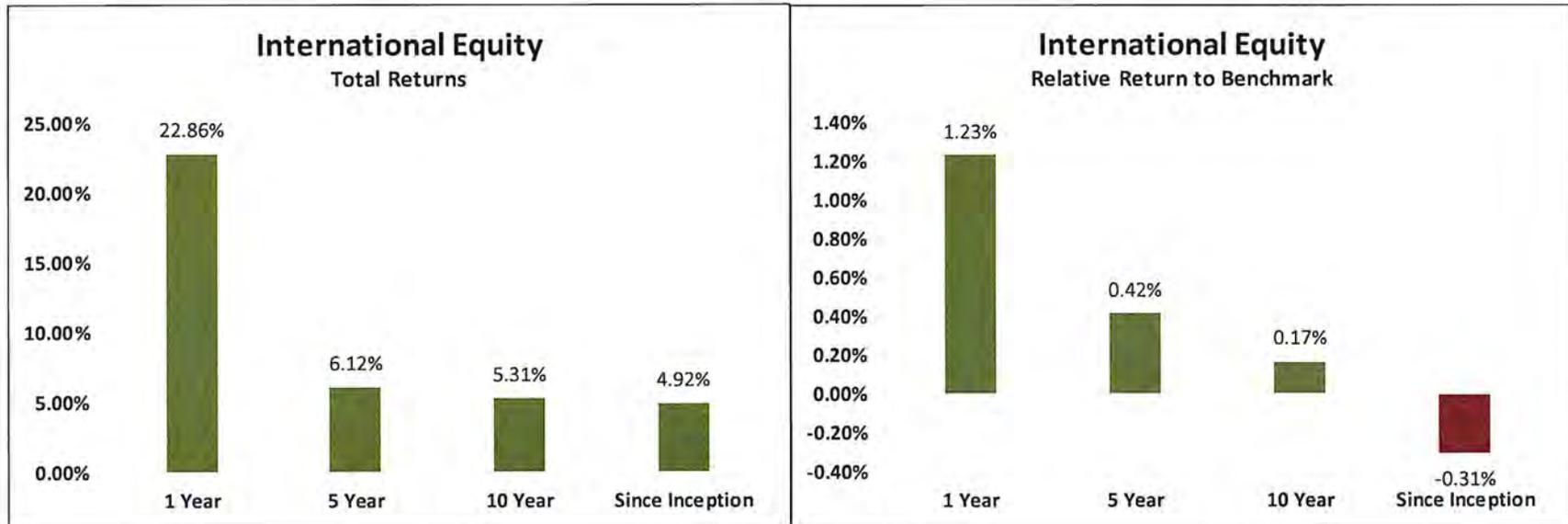
- US equities marched steadily higher to record levels in the fourth quarter. Large cap stocks generated positive returns of 9.1% (S&P 500), while small cap stocks returned 9.9% (Russell 2000).
- The macro factors that have influenced the market, i.e. the Fed and steady economic growth continued to drive investor sentiment. And as anticipated at the last Board meeting, the old adage of “don’t fight the Fed” was fulfilled again. Add in positive developments with China trade and it was a perfect recipe for the attainment of record highs for the US equity market.
- Small cap stocks produced gains greater than large cap stocks in the quarter, finally playing some catch up, but still lagged the large caps for the calendar year.
- At the end of December, the S&P 500 Index was valued at 18.7x estimated next 12-month earnings.

- The domestic equities asset class underperformed its benchmark during the quarter by -34 basis points, and lagged for the last twelve months by -40 basis points.
- For the quarter, size allocation (overweight to small-cap stocks) added to performance but manager selection was a larger negative contributor. There was also some cash drag due to the high market returns experienced. For the last twelve months period size allocation, manager selection, and cash drag were all negatives.
- The asset class has lagged its benchmark for the 5 year and 10 year periods ended December 31.





- Index funds account for the majority of allocation to large cap stocks.
- Small-cap stocks remain overweight relative to the benchmark at 14.4%.
- Cash at the asset class level is 1.5%.
- The structure of the domestic equities asset class reflects the changes in the manager lineup that occurred last April. Recall that five managers were terminated and one was downsized as part of a restructuring of the asset class.



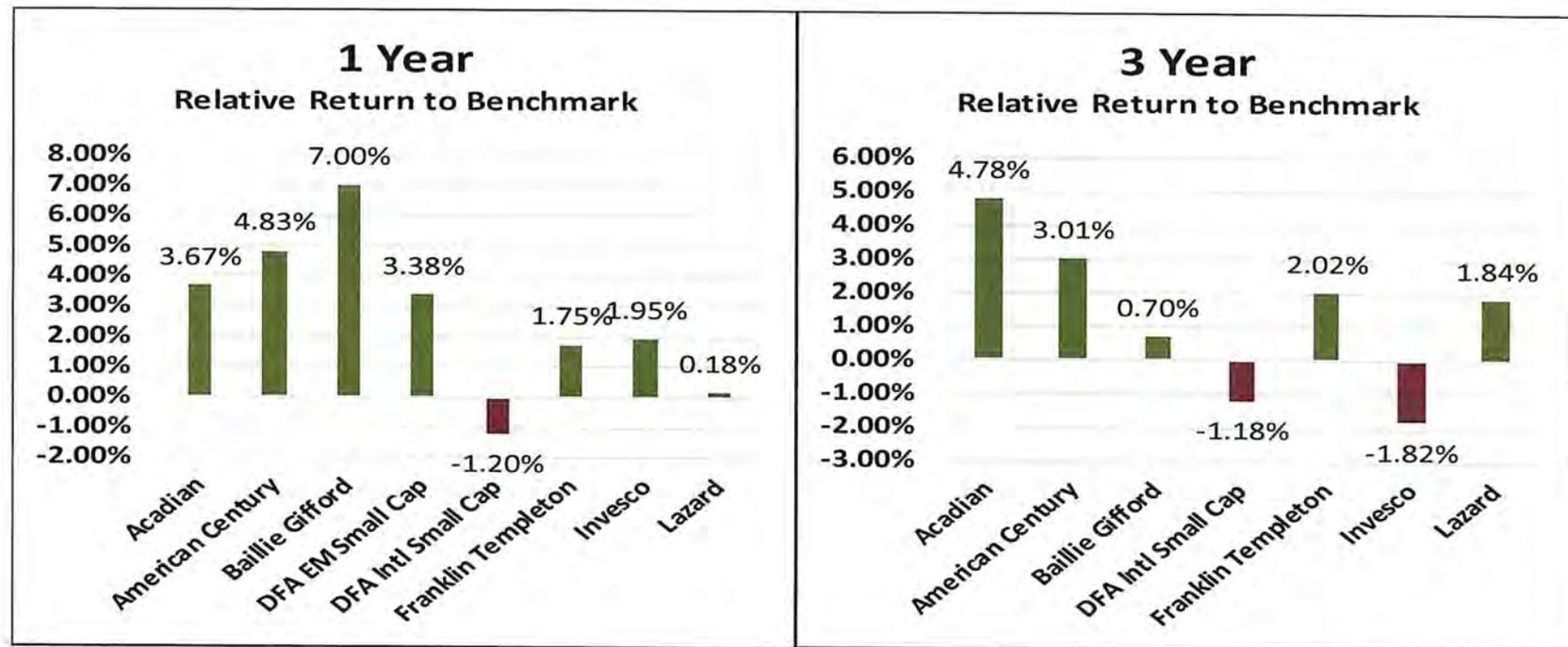
Benchmark: International Equity – PAC Custom Blend

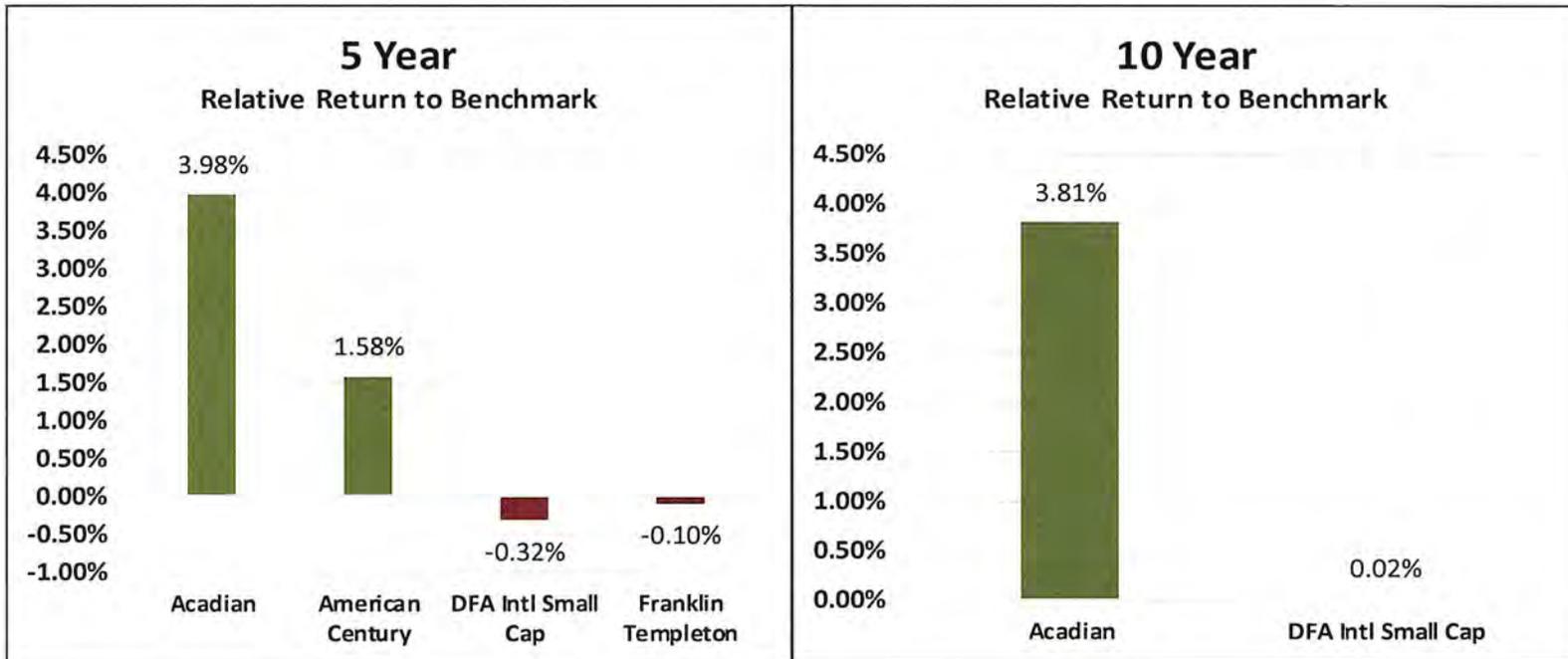
- From inception to 10/31/2006: MSCI EAFE, Net
- 11/1/2006 to 6/30/2007: MSCI ACWI ex-US, Net
- 7/1/2007 to 2/28/2014: 92.5% ACWI ex-US + 7.5% ACWI ex-US Small Cap
- 3/1/2014 to present: MSCI ACWI ex-US IMI, Net
- Inception Date: 4/1/1997

December 31, 2019

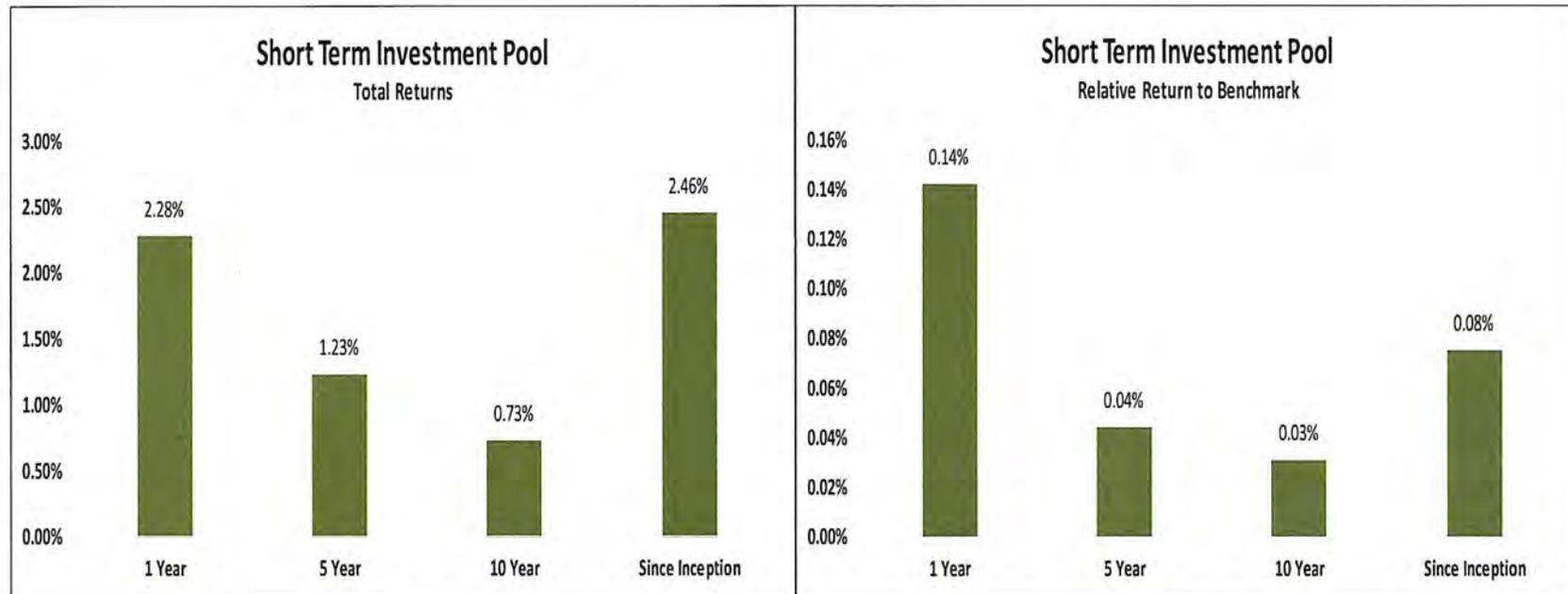
- International stocks produced strong returns in the fourth quarter with developed market stocks returning 7.9% (MSCI World ex-US) and emerging market stocks returning 11.8% (MSCI EM). Small caps outperformed large caps within developed markets by returning 11.4% (MSCI World ex-US SC).
- The developed international economies as a whole continue to struggle to find growth. Until Germany specifically can attain improved growth it is hard to believe international equities can begin to outperform US equities for any length of time.
- Emerging markets provide much of the growth investors seek abroad but those markets are heavily influenced by China's economic activity which has slowed due to the tariff dispute with the US.
- The dollar weakened during the quarter, which added about 3% to the returns of international stocks held by US investors.

- At quarter end, the MSCI World ex-US Index (developed markets) was valued at 14.6x estimated next 12-month earnings, while the MSCI Emerging Markets Index was valued at 12.6x estimated next 12-month earnings.
- The international equities asset class underperformed its benchmark during the quarter by -29 basis points and outperformed for the last twelve months by 123 basis points.
- Manager selection had a positive impact to the performance of the international equities asset class in the quarter, but did not completely offset cash drag. For the last twelve months, manager selection added significantly to performance and easily offset a drag from the small cap overweight as small caps lagged large caps for the year. There was also some cash drag that detracted from the annual performance.
- The asset class has outperformed its benchmark for the 5 year and 10 year periods ended December 31.





- The large-cap allocation retains a significant weight to index funds.
- Small-capitalization stocks are underweight relative to the benchmark at 12.8%.
- There is a slight underweight to emerging markets.
- Cash at the asset class level is 2.7%.
- There are no changes to the manager lineup anticipated at this time.



Relevant Benchmark:

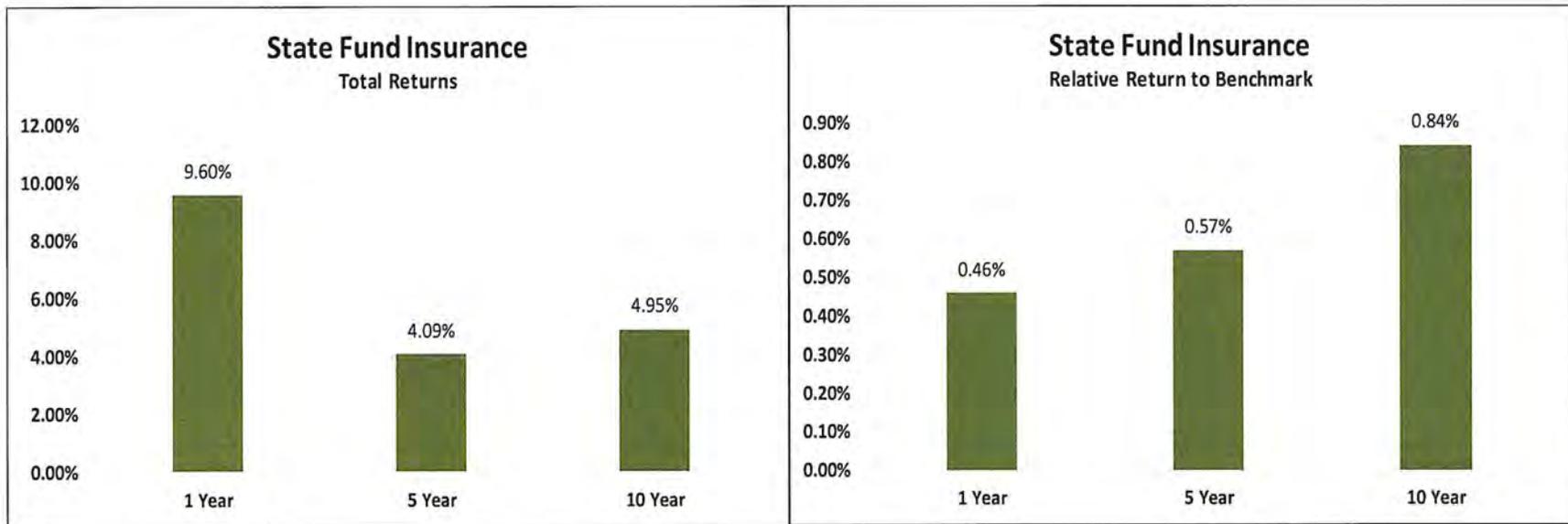
- Inception to 4/30/2018 - LIBOR 1 Month
- 5/1/2018 to present: Federal Reserve US Treasury 1M Constant Maturity Index
- Inception – 4/1/1997

Performance

- The yield on STIP was 1.72% at the end of December.
- Out performed the index by 14 bps over the year, net of fees.
- Good performance versus the index over 3, 5 & 10 years.

Characteristics & Activity

- Treasuries, Agencies and Government money market funds made up just over 33% of the Pool on 12/31/19, up from the prior year.
- Local Government participants' percentage was 39.3% on 12/31/19, compared to 41% the prior year.
- The STIP assets were \$4.396 billion on 12/31/2019 up over \$700 million from 12/31/18.
- The STIP reserve was \$50.82 million on 12/31/19



Relevant Benchmark:

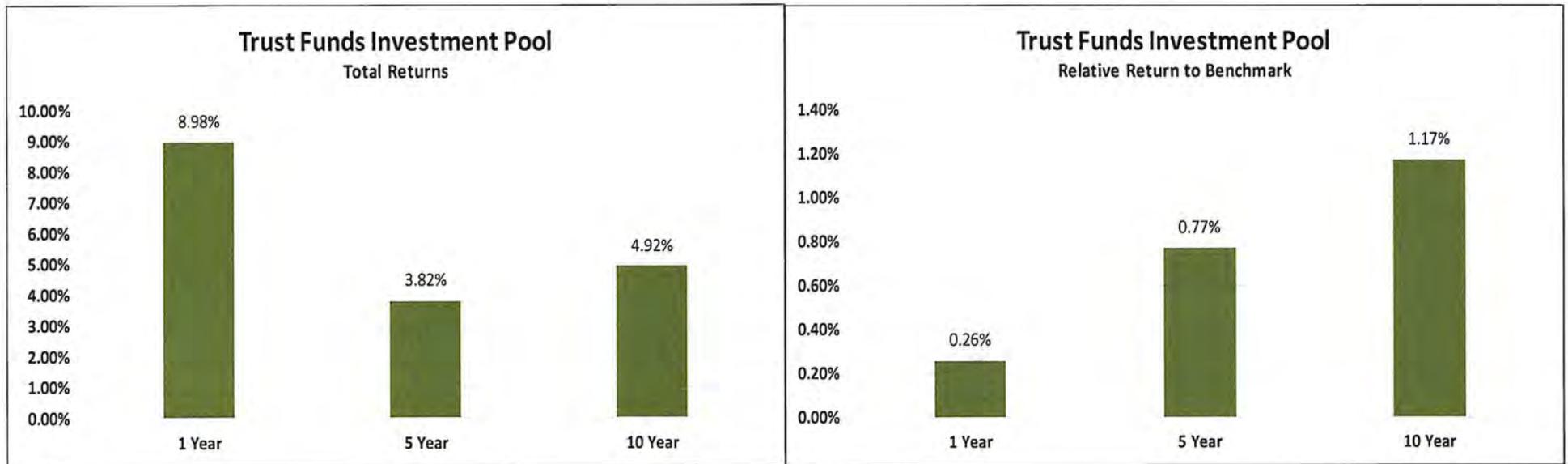
- State Fund Custom Benchmark: Proportionately weighted Bloomberg Barclays Int. U.S. Govt. Credit Bond Index, S&P 500 Index, MSCI ACWI ex U.S. Index, NCREIF ODCCE Index

Performance

- Total portfolio return was 9.60% for 2019. Equity returns led the way followed by fixed income and then real estate.
- Solid performance over every time frame vs. the benchmark.
- Total portfolio outperformed the benchmark by 46 bps and bond portfolio outperformed the benchmark by 79 bps over the year.

Characteristics & Activity

- Total market value of approx. \$1.53B at quarter end.
- Duration was slightly below the benchmark at quarter end.
- Reducing corporate bonds and moving into securitized bonds. Maintaining our bias toward higher quality.
- Modest increase in core real estate. Added JP Morgan Core Real Estate Fund.



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

Performance

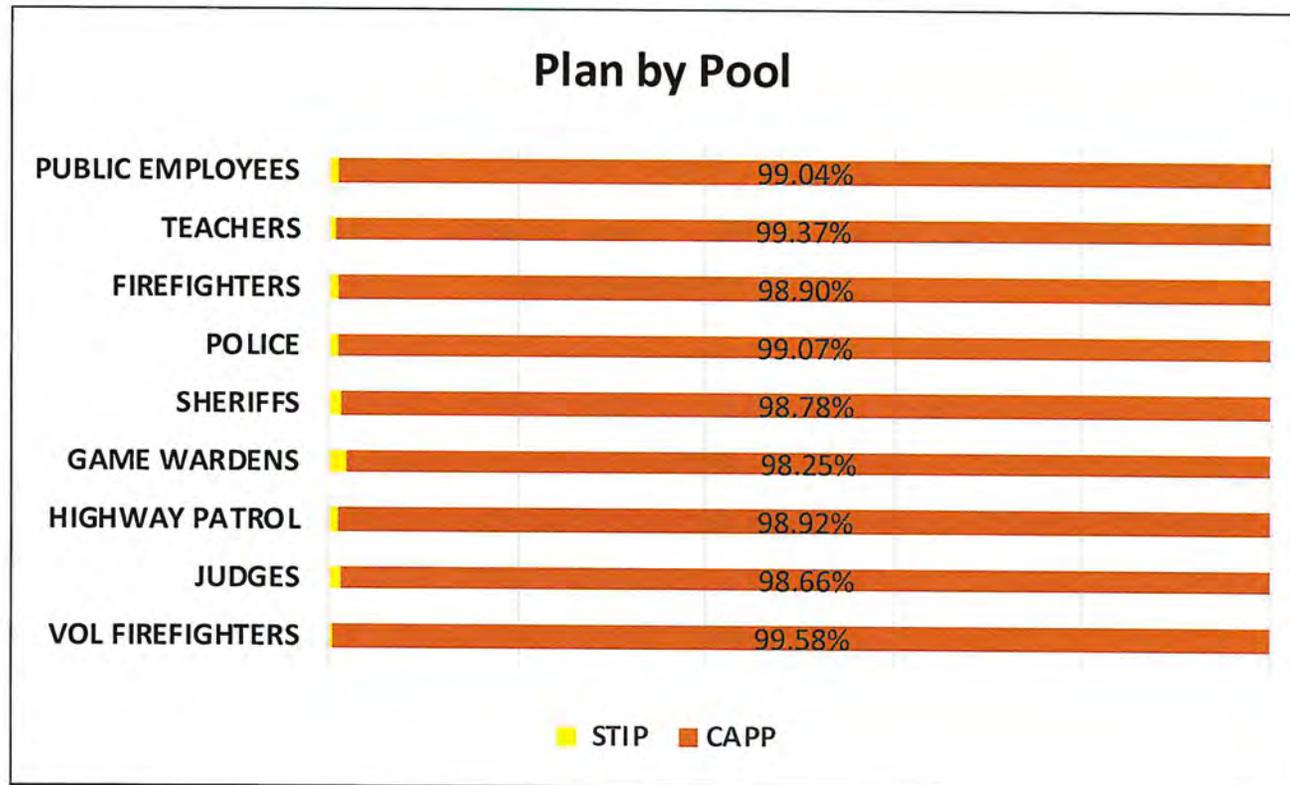
- Good returns from investment grade bonds and high yield were partially offset by lower returns in real estate resulted in relative out performance for the twelve months.
- Solid performance over other time frames versus the benchmark.
- Total portfolio out performed the benchmark by 26 bps and the internal bond portfolio outperformed the benchmark by 27 bps.

Characteristics & Activity

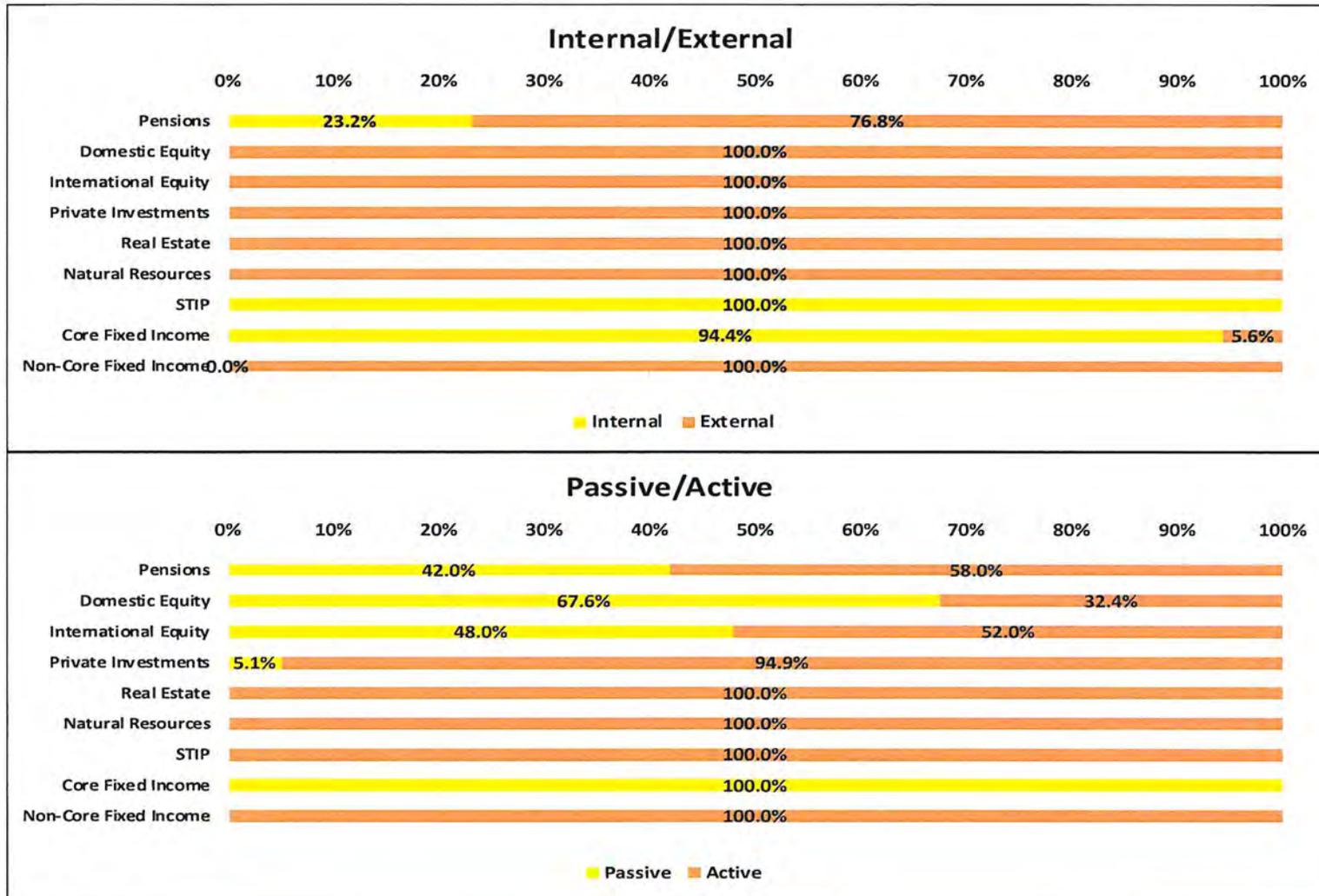
- Total market value of approx. \$2.55B at quarter end.
- TFBP duration was slightly below the benchmark at quarter end. Significantly underweight the long end of the curve.
- TFBP maintained overweight to Corporates, CMBS and ABS and underweight to Treasuries and MBS.

APPENDIX

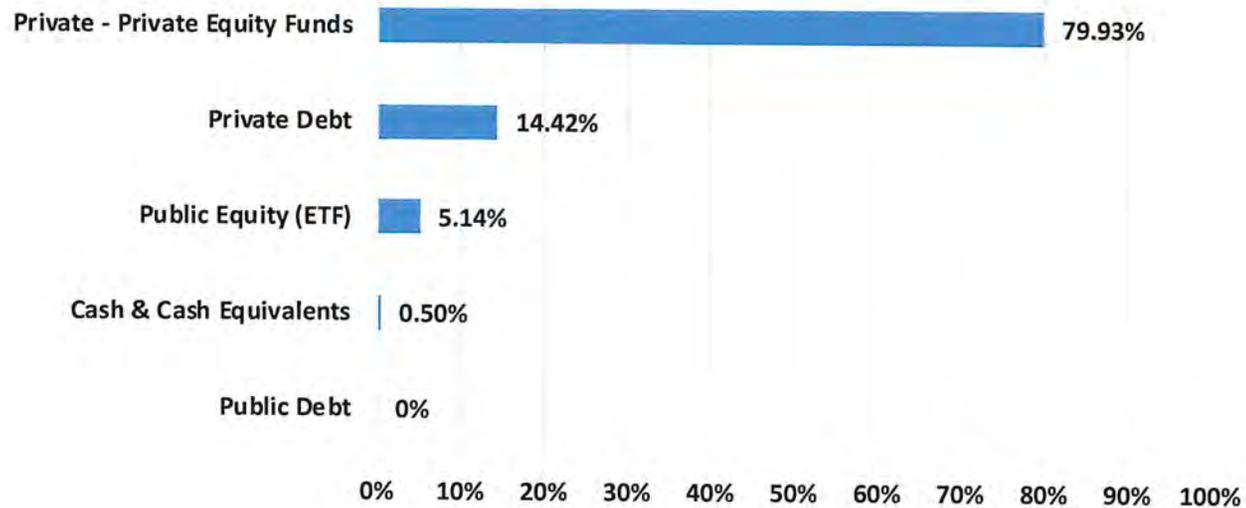
CIO Update – Pension Plans Allocations by Pool



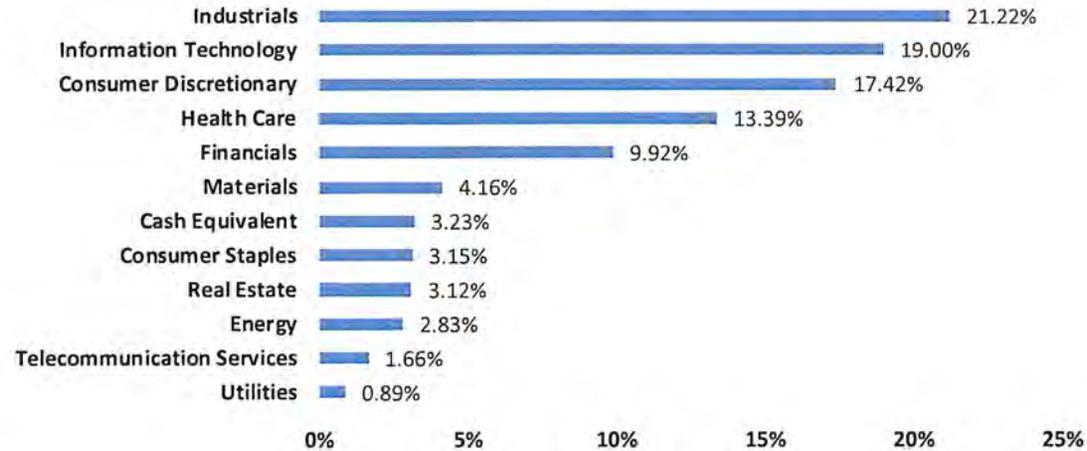
December 31, 2019



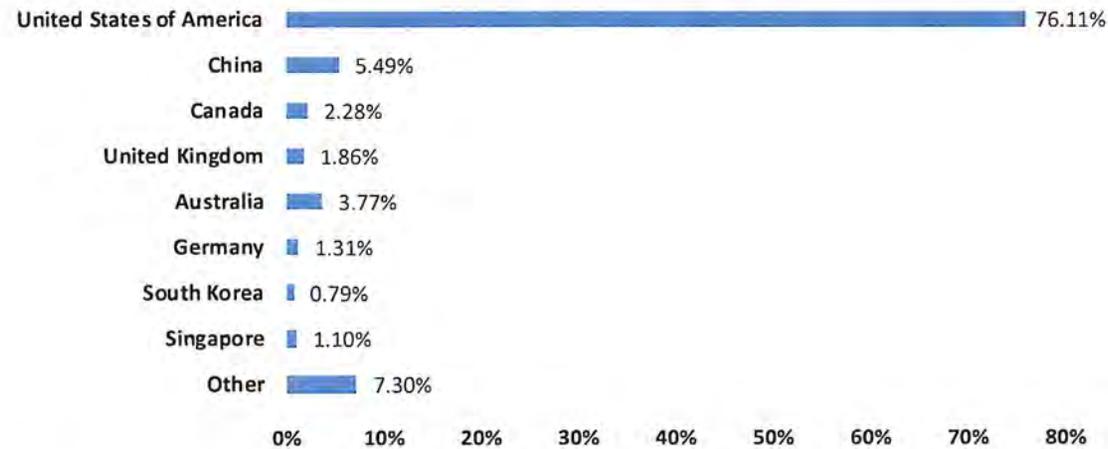
Private Investments Asset Class by Type



Private Investment by Sector

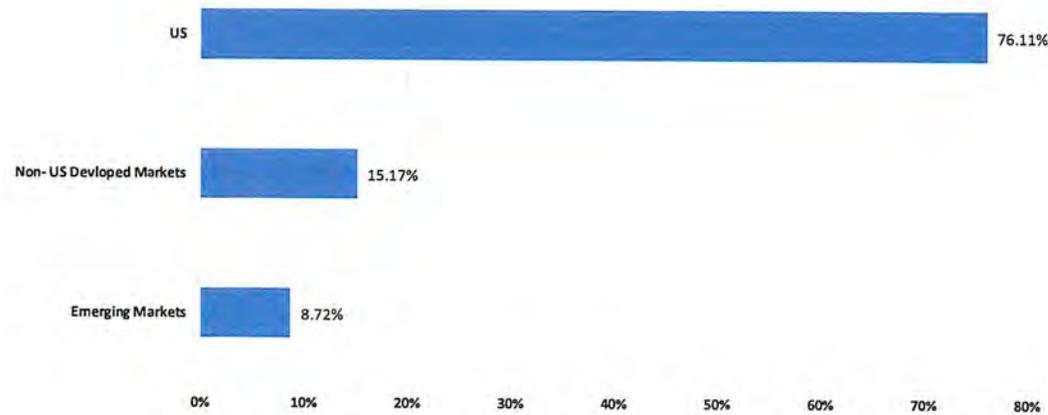


Private Investment - Worldwide Geography

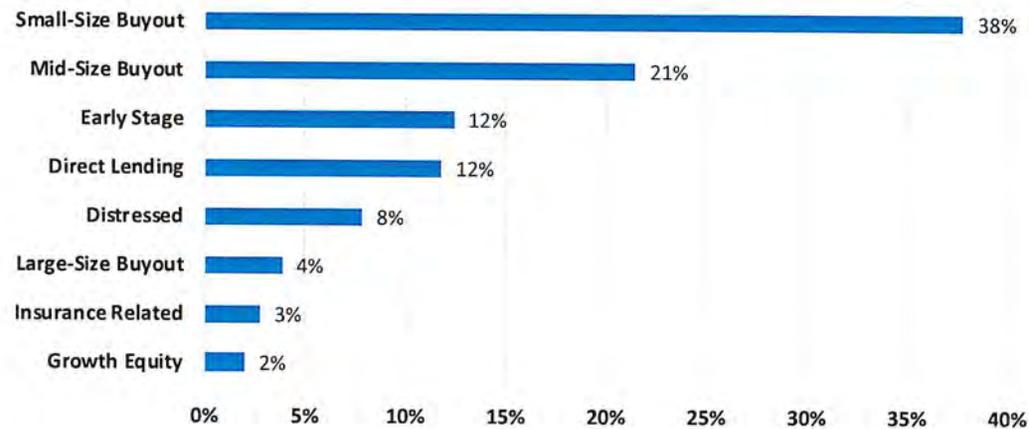


Note: Data reflects most recent GP-reported holdings as of 9/30/19
December 31, 2019

Private Investment by Global Region

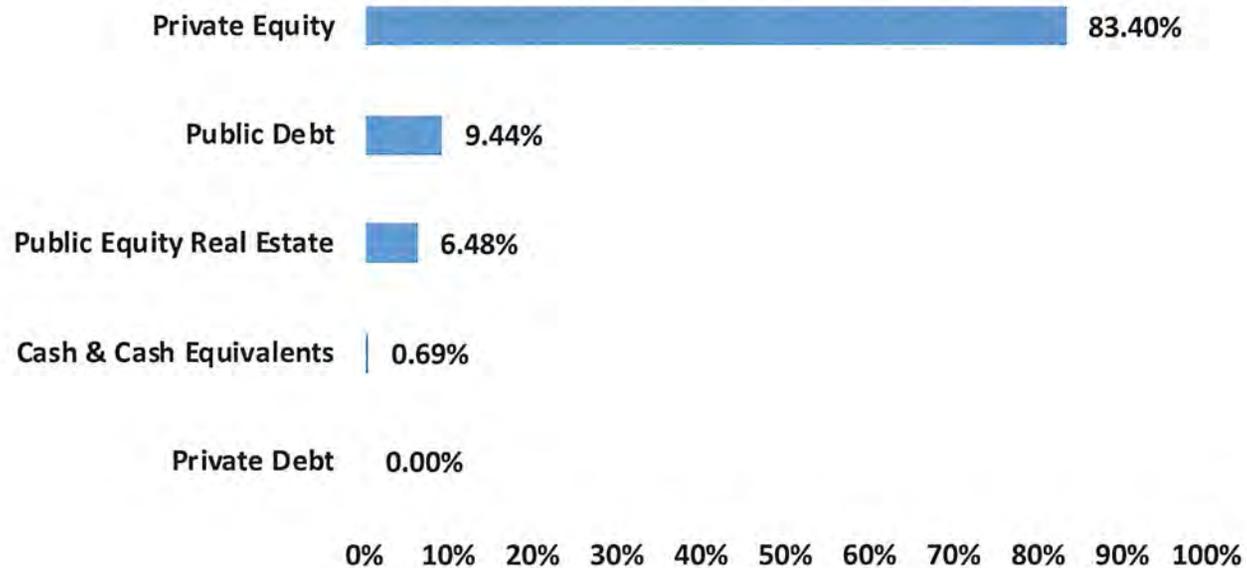


Private Investment by Strategy

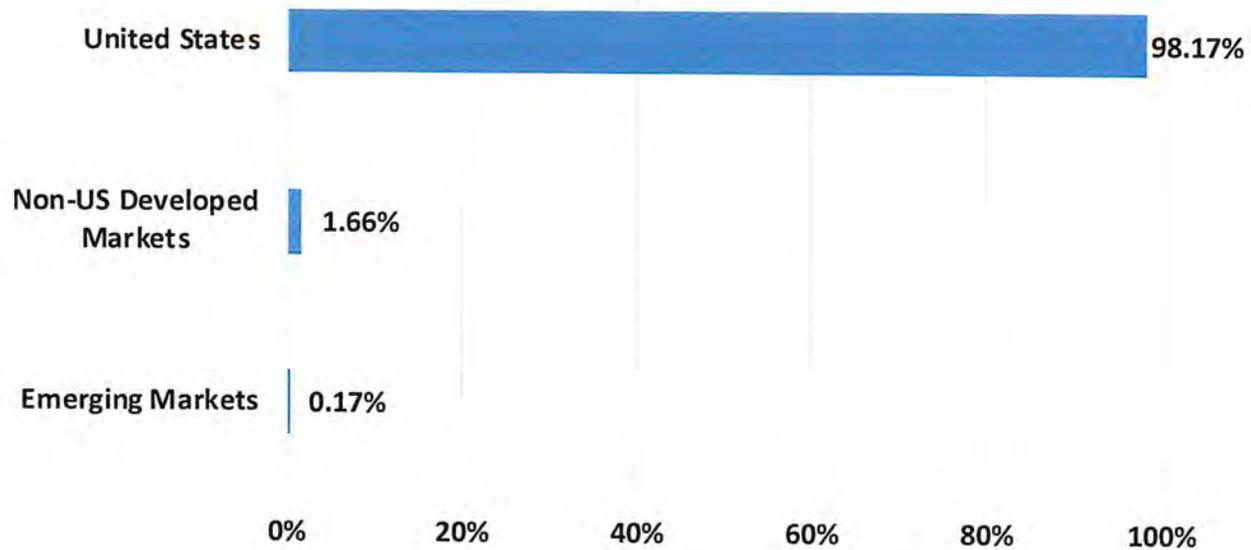


Note: Data reflects most recent GP-reported holdings as of 9/30/19
December 31, 2019

Real Estate: Asset Class by Type

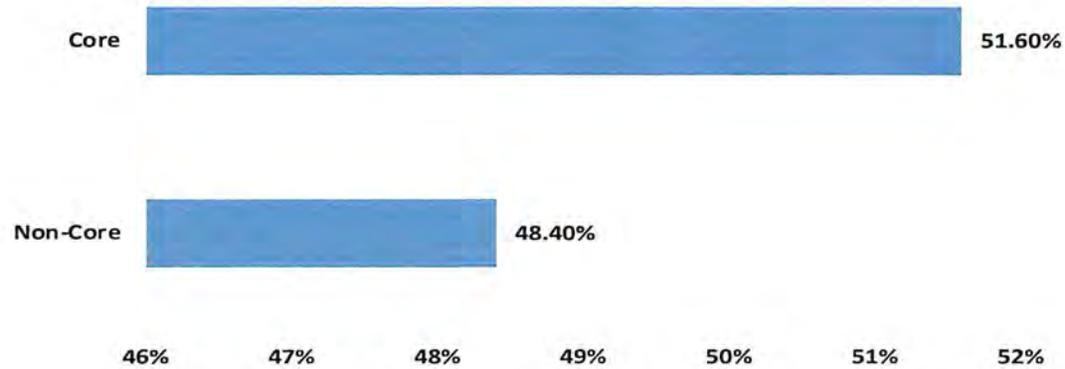


Real Estate: Asset Class by Global Region

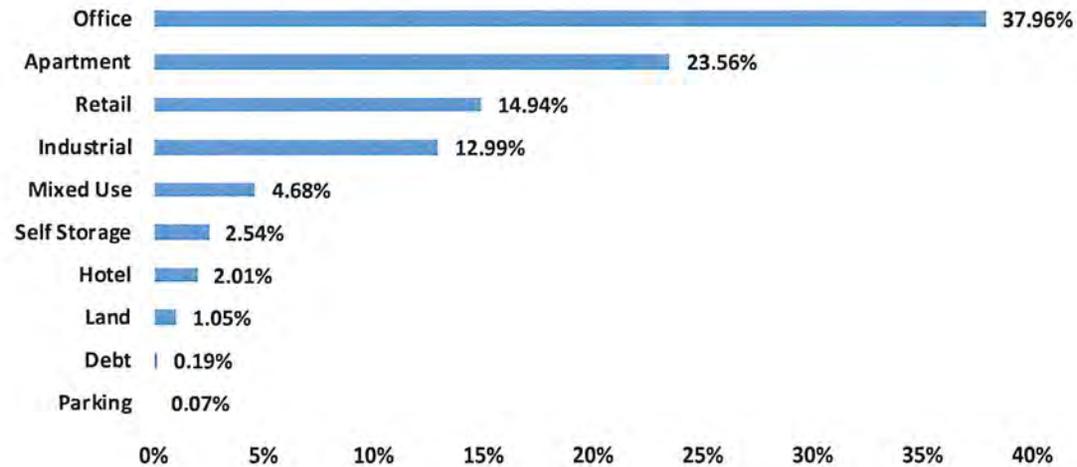


Note: Data reflects most recent GP-reported holdings as of 9/30/19
December 31, 2019

Private Real Estate Funds by Style

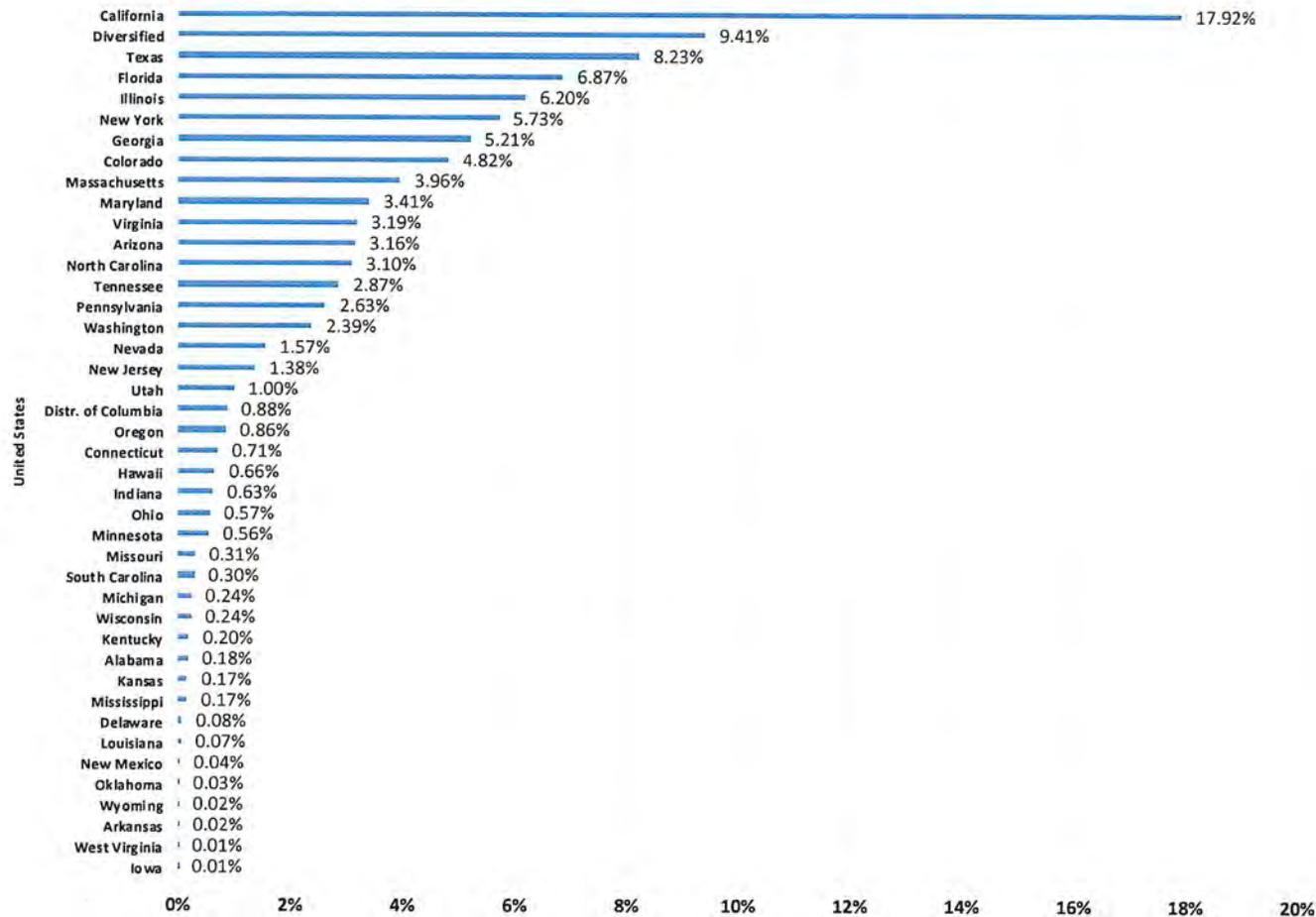


Private Real Estate Funds by Property Type



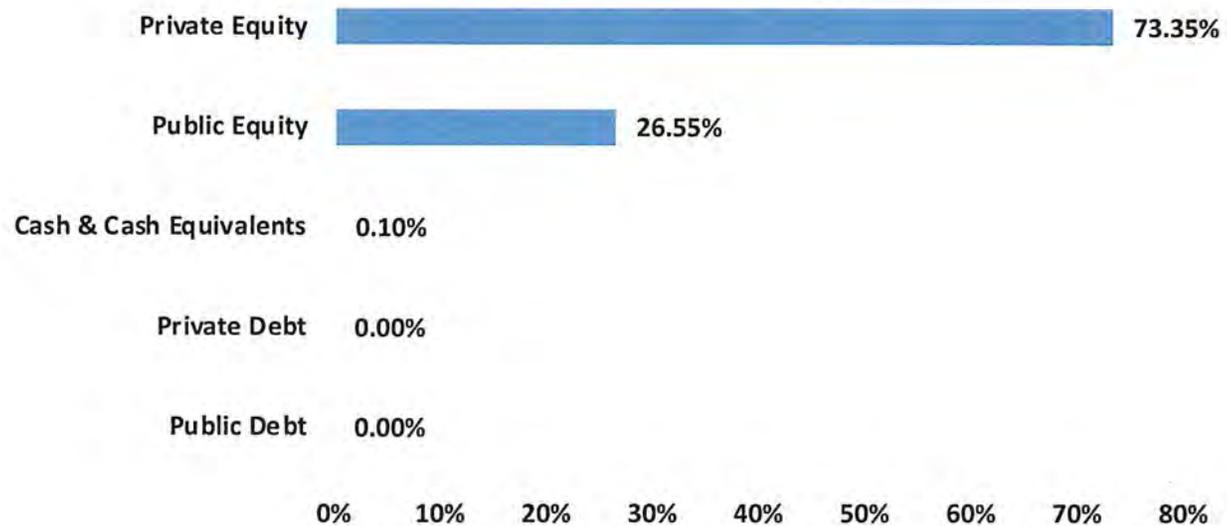
Note: Data reflects most recent GP-reported holdings as of 9/30/19
December 31, 2019

Private Real Estate Funds by U.S. State

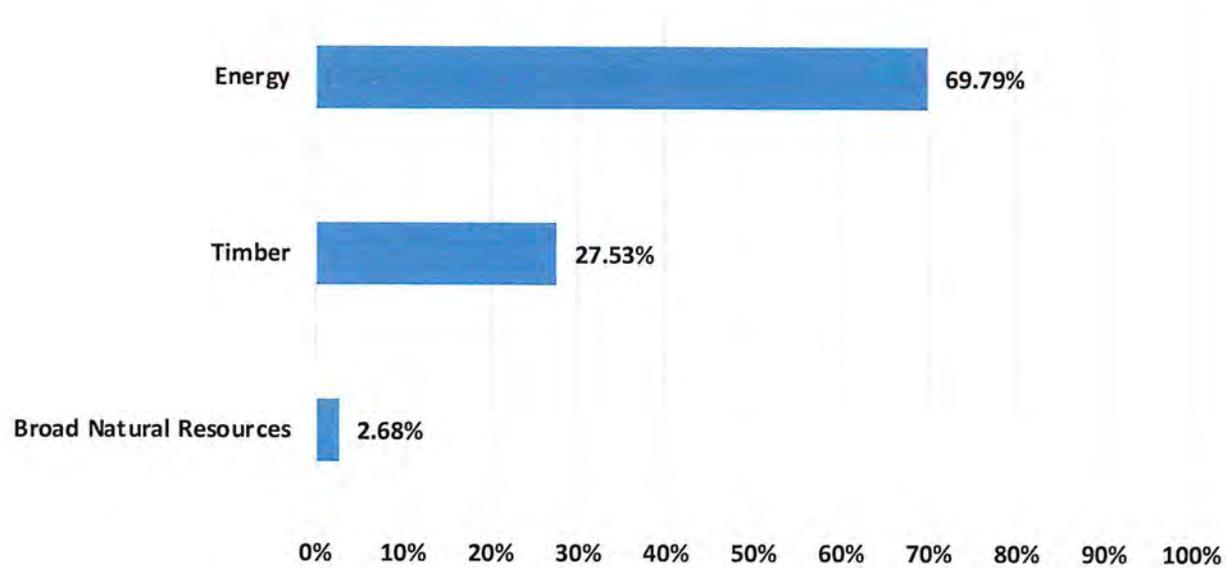


Note: Data reflects most recent GP-reported holdings as of 9/30/19
December 31, 2019

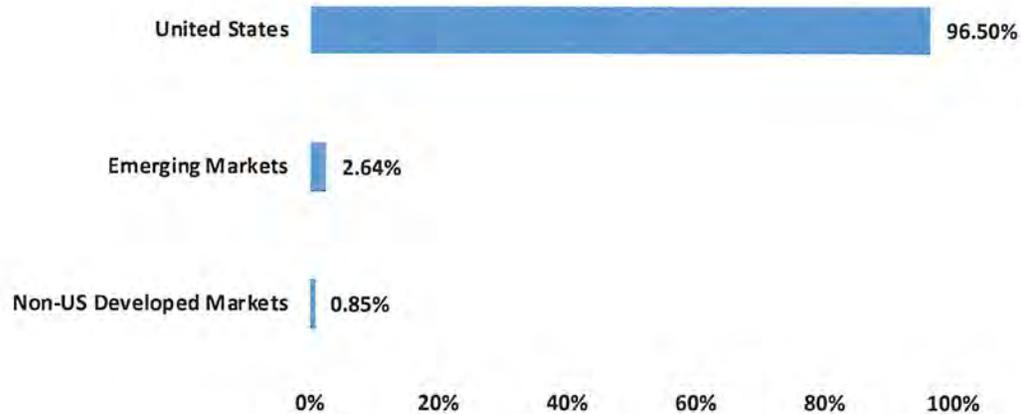
Natural Resources: Asset Class by Type



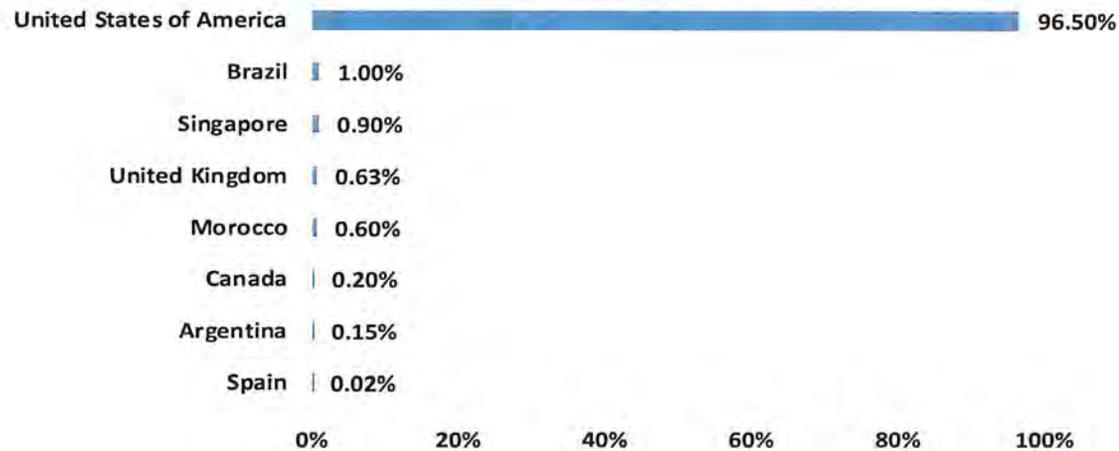
Natural Resources: Asset Class by Resource Type



Natural Resources: Asset Class by Global Regions

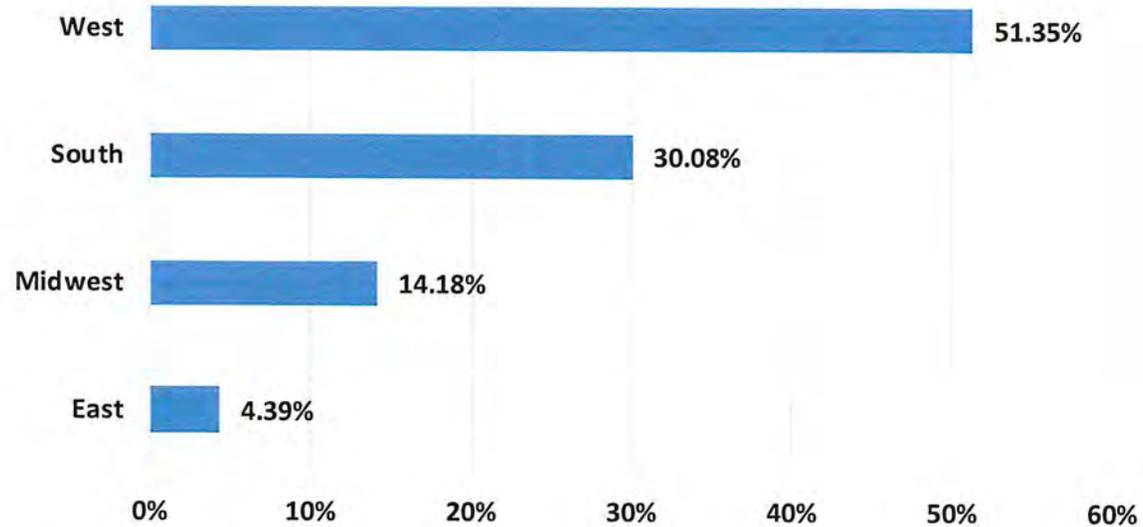


Natural Resources: Asset Class by Country



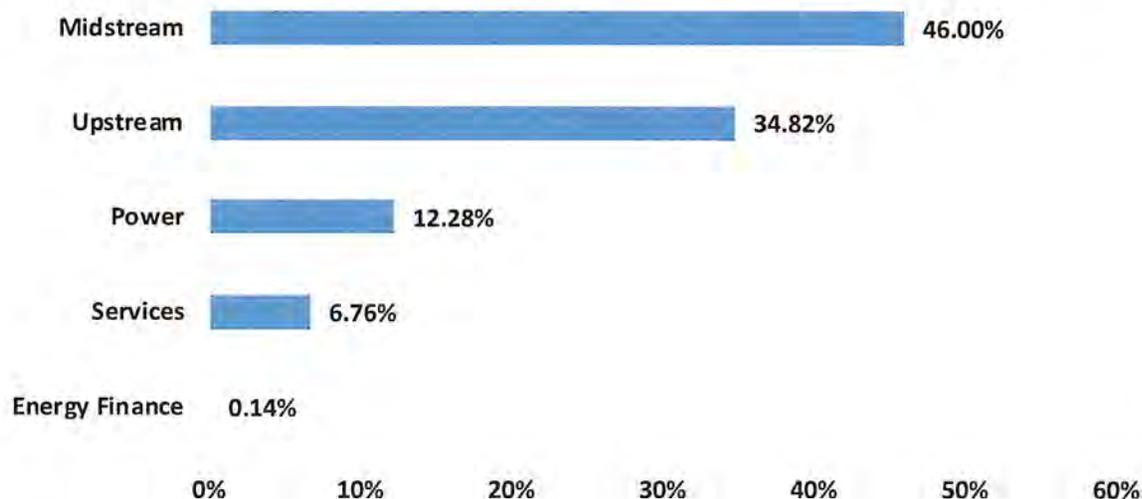
Note: Data reflects most recent GP-reported holdings as of 9/30/19
December 31, 2019

Natural Resources: Timber by U.S. Region



Note: Data reflects most recent GP-reported holdings as of 9/30/19
December 31, 2019

Natural Resources: Energy by Segment

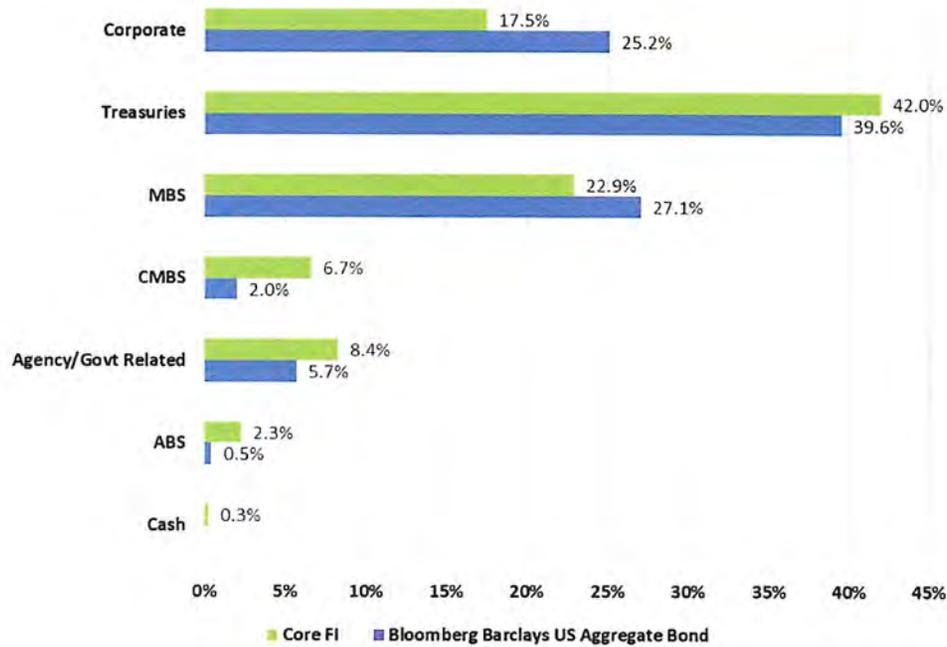


Upstream	Exploration and production
Services	Businesses that provide ancillary services and equipment required to explore for, produce and transport oil and gas
Power	Generation plants that create power
Midstream	Pipelines, terminals and storage of oil and gas and involves the transportation of oil and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

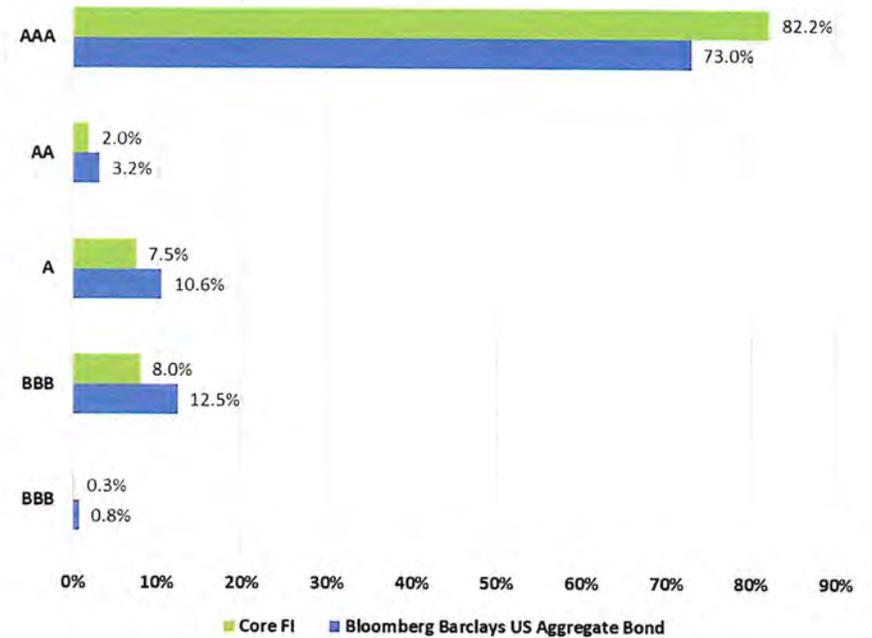
Note: Data reflects most recent GP-reported holdings as of 9/30/19

December 31, 2019

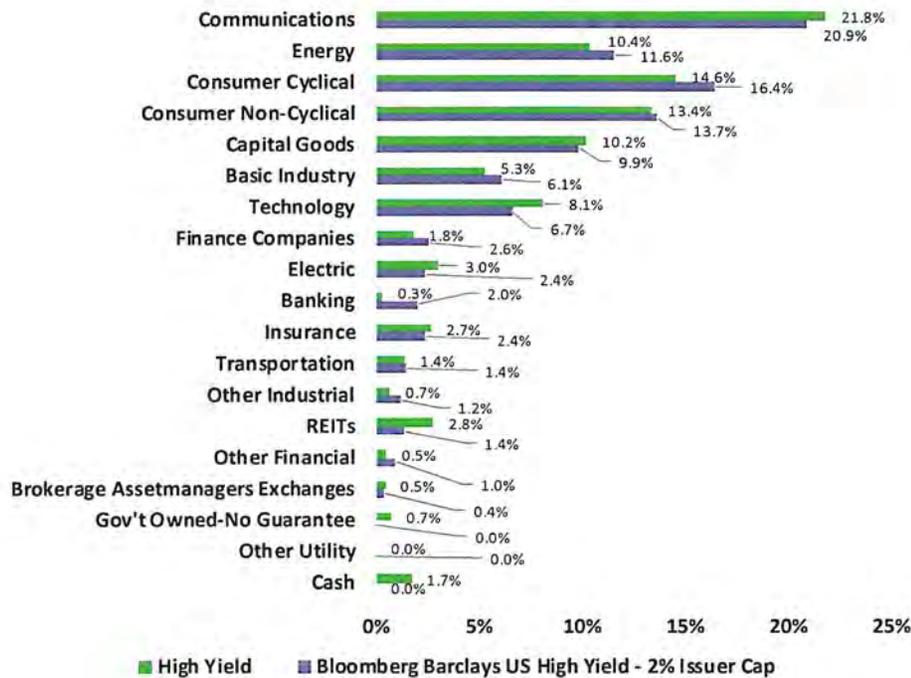
**Core Fixed Income
Sector Weights**



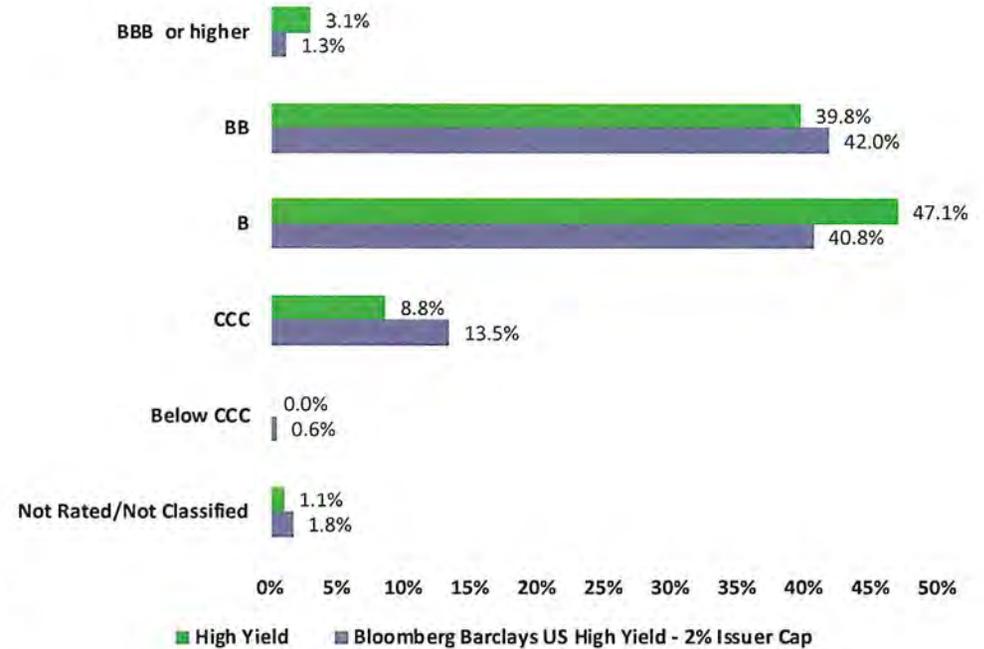
**Core Fixed Income
Credit Quality**



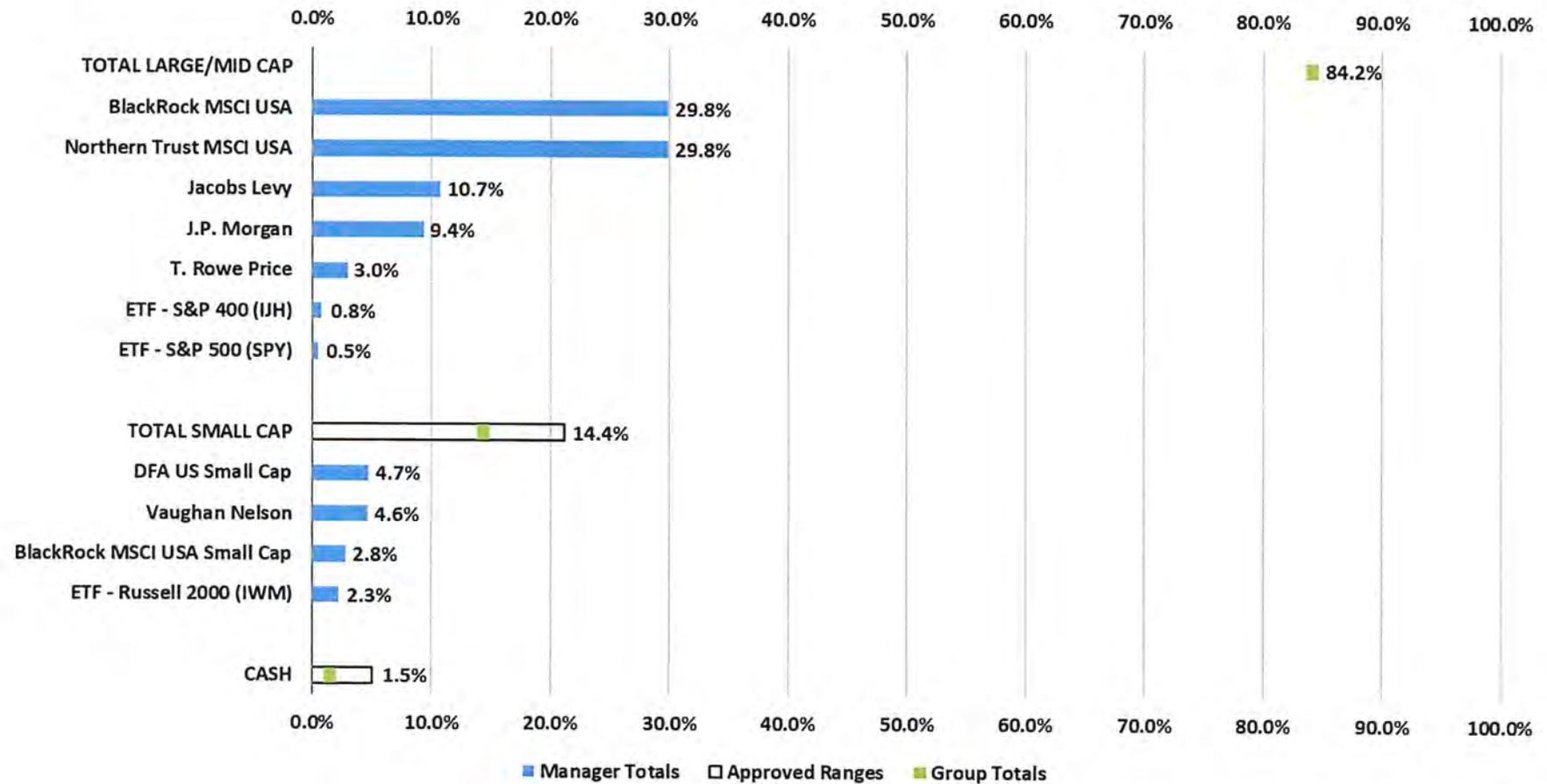
**Non-Core Fixed Income
Sector Weights**



**Non-Core Fixed Income
Credit Quality**



Domestic Equity by Manager

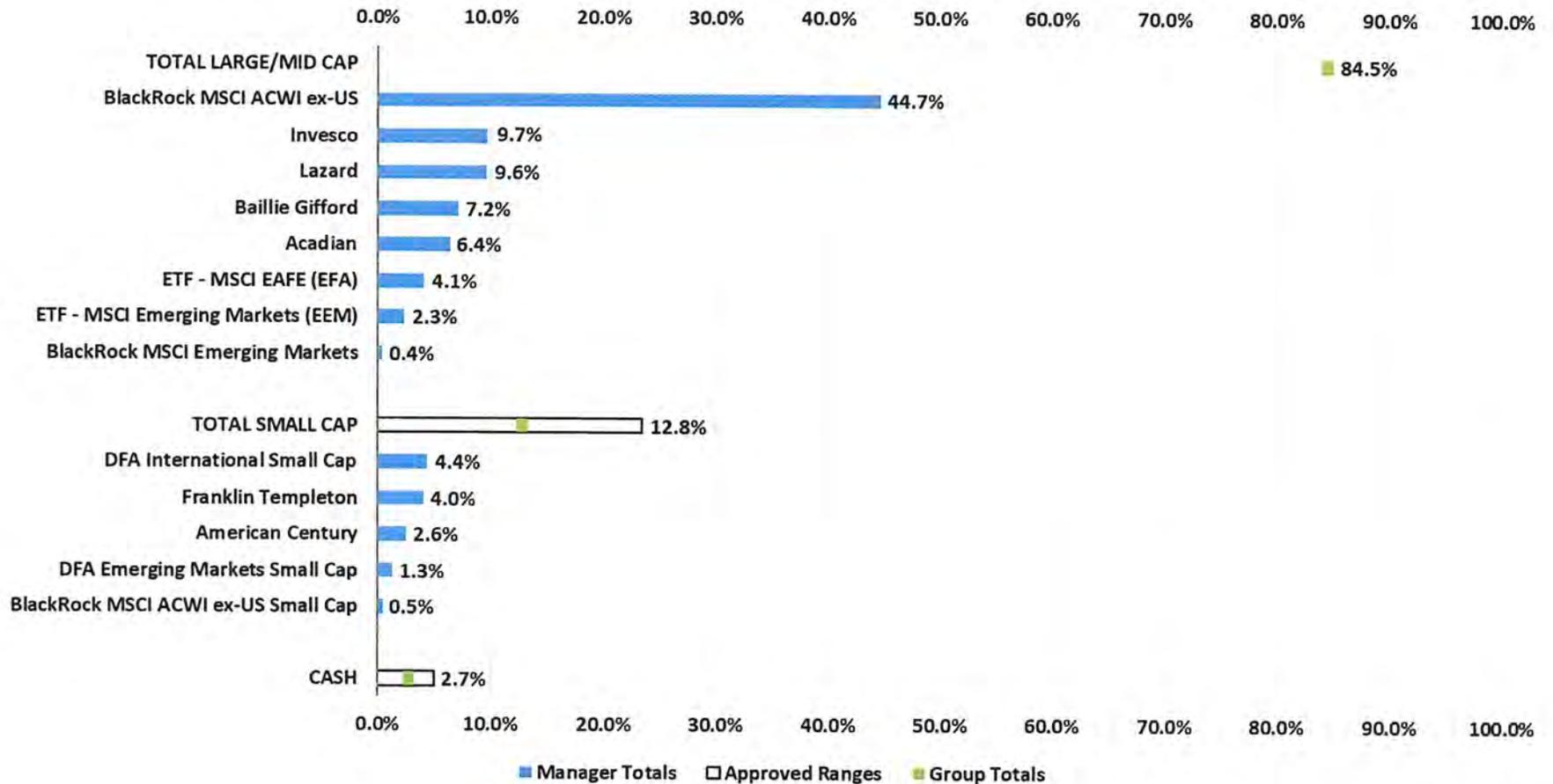




Benchmark: Domestic Equity – PAC Custom Blend

December 31, 2019

International Equity by Manager



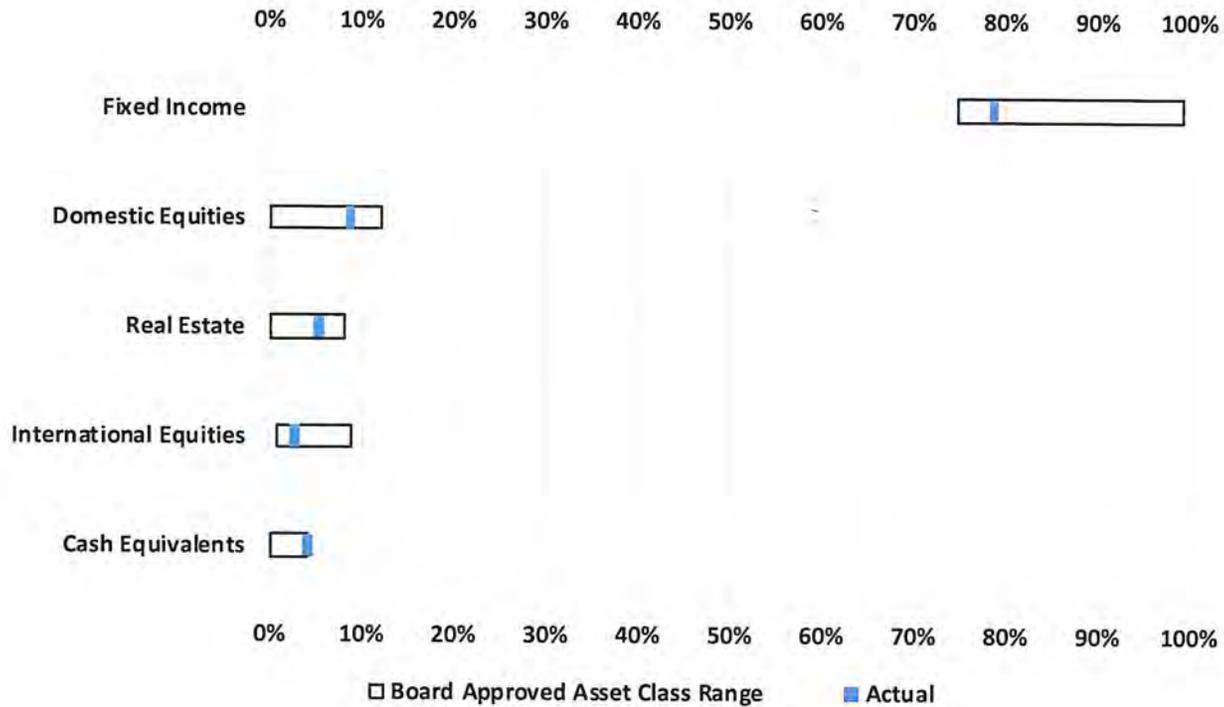
December 31, 2019

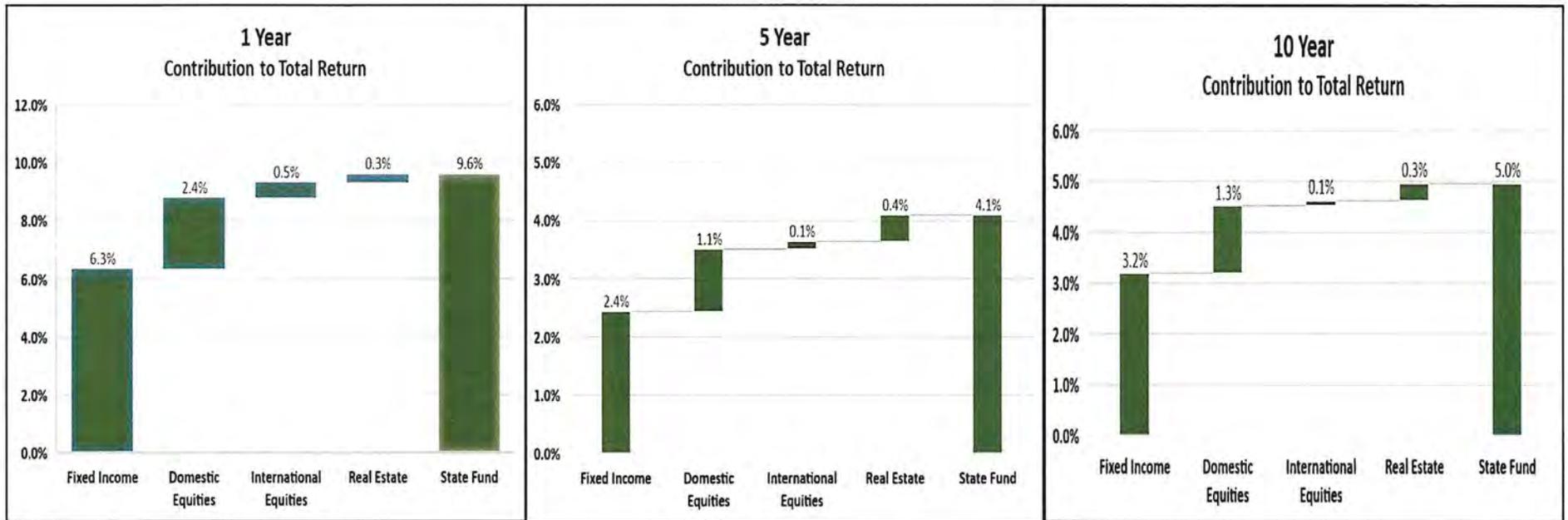


Benchmark: International Equity – PAC Custom Blend

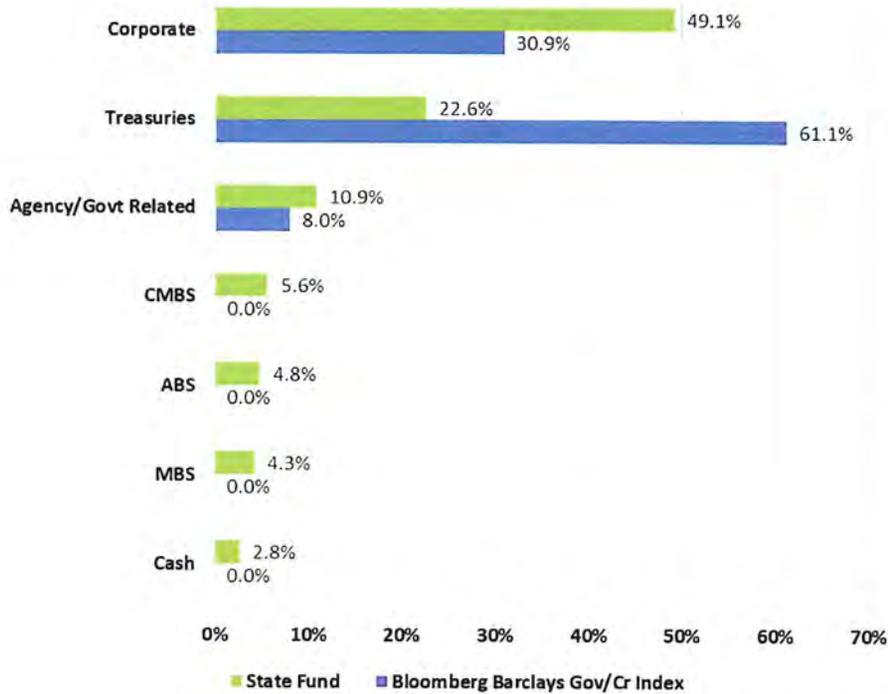
December 31, 2019

State Fund Asset Allocation

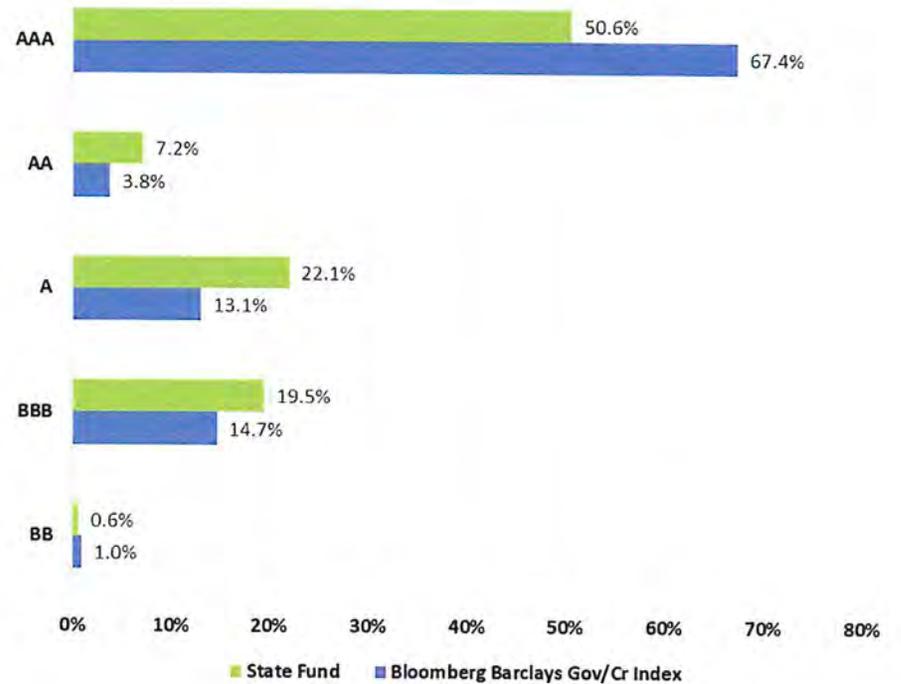


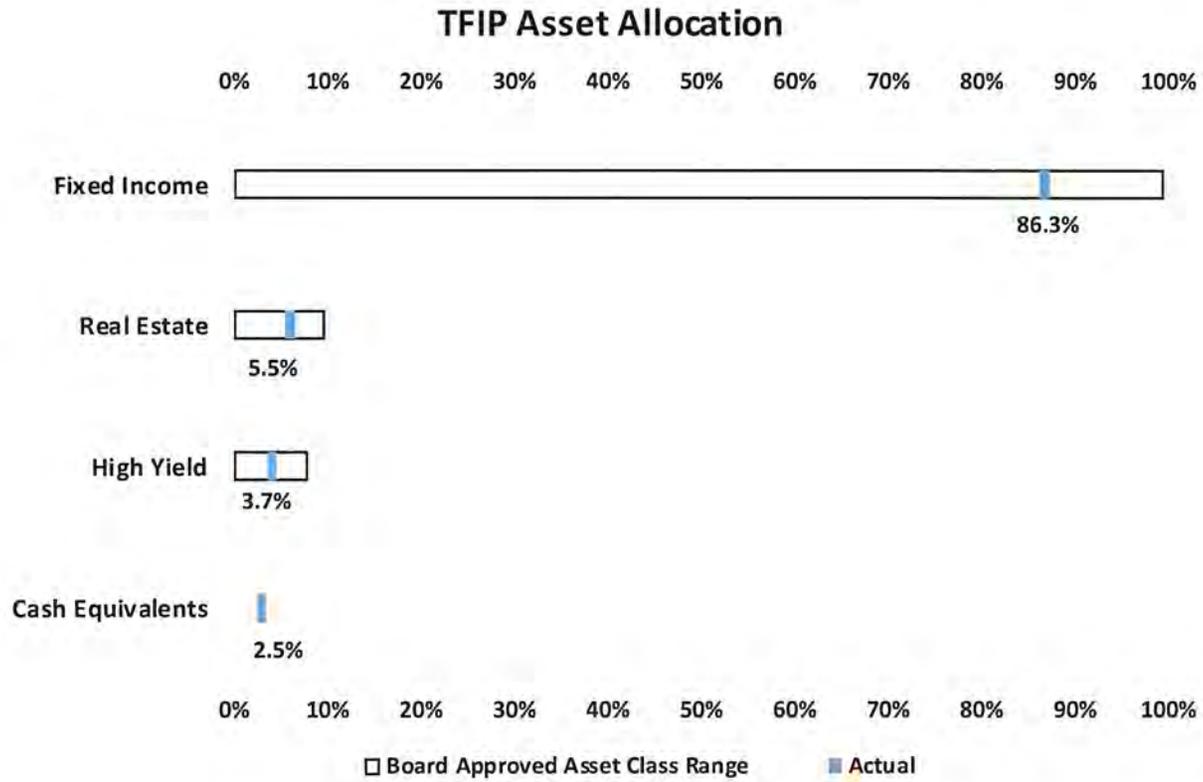


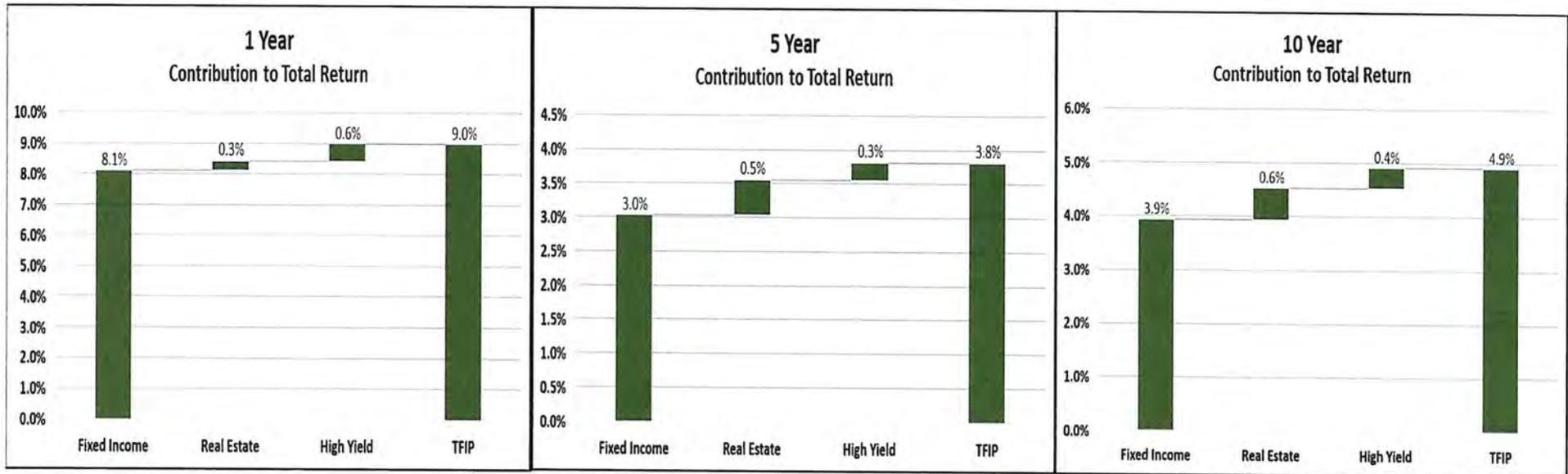
**State Fund Bond Portfolio
Sector Weights**



**State Fund Bond Portfolio
Credit Quality**

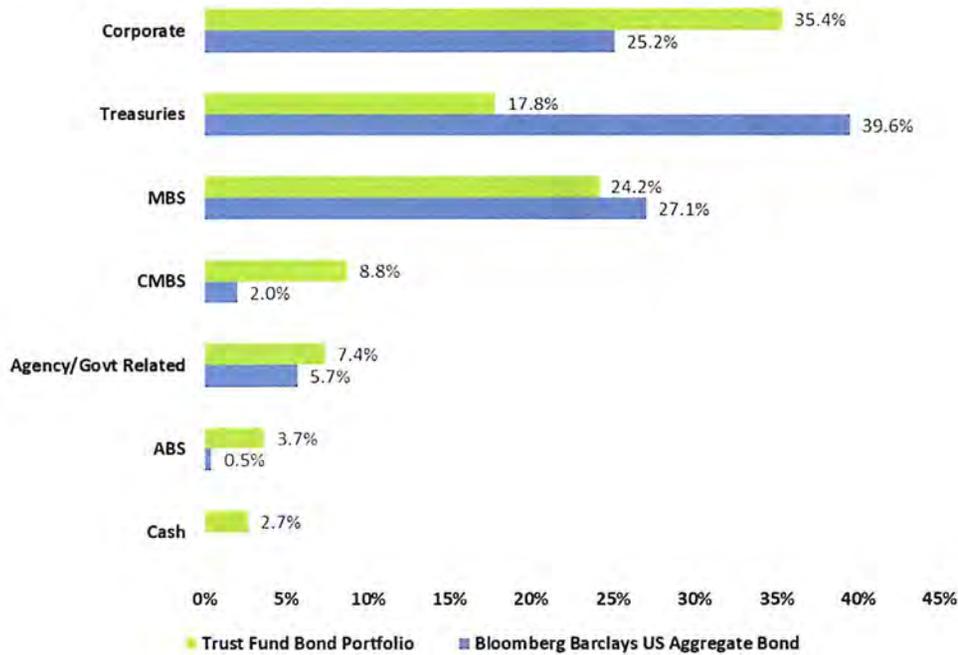




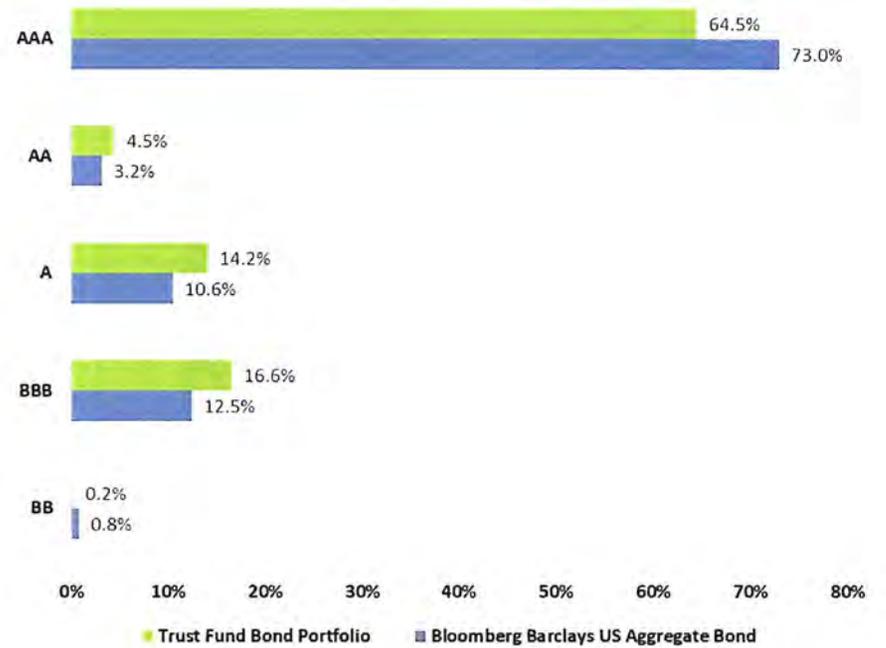


December 31, 2019

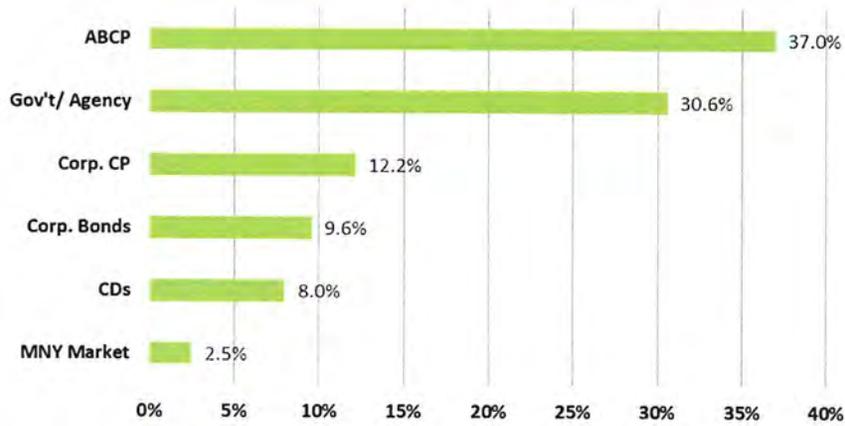
**Trust Fund Bond Portfolio
Sector Weights**



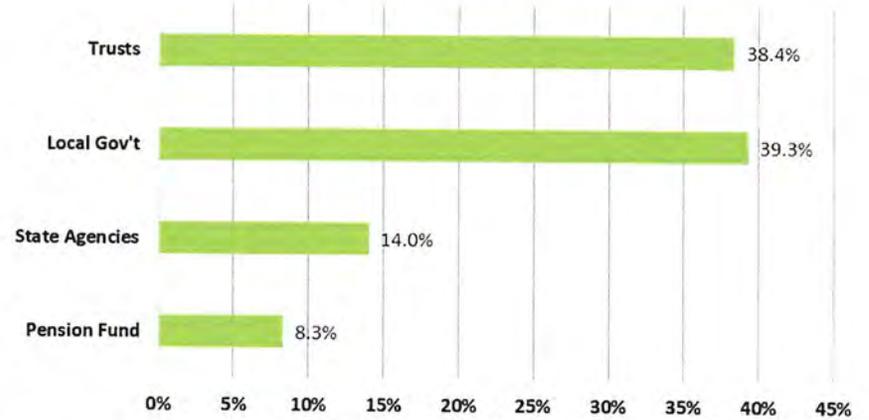
**Trust Fund Bond Portfolio
Credit Quality**



Assets by Type



Participant by Type



2020 CALENDAR

Board Dates Board Packet Mailing Holidays

1 New Year's Day
20 M.L. King Day

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

17 Presidents Day

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

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

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

25 Memorial Day

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

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

3/4 Independence Day

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

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

7 Labor Day

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

12 Columbus Day

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

3 Election Day
11 Veterans Day
26 Thanksgiving Day

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

25 Christmas Day

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

BOI WORK & EDUCATION PLAN

2020

FEBRUARY 11-12

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

APRIL 14

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

MAY 27-28

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

AUGUST 18-19

Budget Proposed FY '22-'23
Budget Status Prior FY
High Yield Asset Class Review (Non Core Fixed Income)
Quarterly Reports
Committee Meetings:
 Audit: SOC Report

OCTOBER 13

Proxy Voting Public Equities Review
Consultant Board Member Education
First Reading - Asset Allocation Range Recommendation

NOVEMBER 18-19

2021 Legislative Session
Resolution 217 Authorization of Investment Vendors
PERS and TRS Relationship
Adoption - Asset Allocation Range Approval
Quarterly Reports
Committee Meetings:
 Audit: SOC Report
 Audit: Annual Report and Financial Statements
 HR: Exempt Staff Performance Review

2021

FEBRUARY TBD (2 Day)

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

APRIL TBD (1 Day)

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

MAY TBD (2 Day)

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

AUGUST TBD (2 Day)

Cost Reporting including CEM, Inc. Analysis
Budget Status Prior FY
Coal Severance Tax Trust Review
Natural Resources Asset Class Review
Quarterly Reports
Committee Meetings:
 Audit: SOC Report

OCTOBER TBD (1 Day)

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

NOVEMBER TBD (2 Day)

Resolution 217 Authorization of Investment Vendors
PERS and TRS Relationship
Adoption - Asset Allocation Range Approval
Quarterly Reports
Committee Meetings:
 Audit: Securities Litigation Status
 Audit: Annual Report and Financial Statements
 HR: Exempt Staff Performance Review

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

Board of Investment's Commonly Used Acronyms

ABCP	Asset Backed Commercial Paper
ABS	Asset Backed Securities
ACH	Automated Clearing House
ADR	American Depository Receipts
AUM	Assets Under Management
BOI.....	Board of Investments
CAFR	Comprehensive Annual Financial Report
CAIA.....	Chartered Alternative Investment Analyst
CAPP	Consolidated Asset Pension Pool
CFA	Chartered Financial Analyst
CGT	Capital Gains Tax
CIPM.....	Certified in Investment Performance Measurement
CMBS.....	Commercial Mortgage-Backed Securities
CP	Commercial Paper
CPA	Certified Public Accountant
CPI	Consumer Price Index
CRP Loan.....	Conservation Reserve Enhancement Program Loan
DOA	Department of Administration
DPI.....	Distributions to Paid-In
EBITDA.....	Earnings Before Interest, Taxes, Depreciation, and Amortization
EM	Emerging Markets
EMEA.....	Europe, Middle East, Africa
ESG	Environmental, Social, Governance
ETF.....	Exchange Traded Funds
FCA	Financial Conduct Authority
FMV	Fair Market Value
FOIA	Freedom of Information Act
FRM.....	Financial Risk Manager

FTE.....Full Time Equivalent position (State personnel)

FX Foreign Exchange

GAAP Generally Accepted Accounting Principles

GASB..... Governmental Accounting Standards Board

GP General Partner

GTAA.....Global Tactical Asset Allocation

IG Investment Grade

IPS..... Investment Policy Statement

IRP Intermediary Relending Program

IRR Internal Rate of Return

LAD Legislative Audit Division

LBO Leverage Buyout

LP Limited Partner/Partnership

LPAC Limited Partner Advisory Committee

LTV.....Loan to Value

MBOH Montana Board of Housing

MBOI Montana Board of Investments

MBS Mortgage Backed Securities

MFFA Montana Facility Finance Authority

MLP Master Limited Partnership

MMbbl/D..... One Million Barrels per Day (Oil)

MOIC Multiple of Invested Capital

MOM Montana Operations Manual

MPERA.....Montana Public Employee Retirement Administration

MPT Modern Portfolio Theory

MSCI Morgan Stanley Capital International

MSCI ACWI MSCI All Country World Index

MSCI EAFE MCSI Europe, Australasia, and Far East

MSCI EM MSCI Emerging Markets

MSTA Montana Science and Technology Alliance

MTSBA Montana School Boards Association

MVO	Mean-Variance Optimization
NAV	Net Asset Value
NCREIF	National Council of Real Estate Investment Fiduciaries
NOI	Net Operating Income (Real Estate)
ODCE	Open-End Diversified Core Equity (Core Real Estate Funds)
PE.....	Price-to-Earnings Ratio
PERS.....	Public Employees' Retirement System
QSCB.....	Qualified School Construction Bonds
QZAB.....	Qualified Zone Academy Bonds
REIT.....	Real Estate Investment Trust
RFP.....	Request for Proposal
Russell	Russell Indices
RVPI	Residual Value to Paid-in
SABHRS.....	Statewide Accounting Budgeting and Human Resource System
SFBP.....	State Fund Bond Portfolio
SFIP	State Fund Investment Portfolio
SITSD.....	State Information Technology Services Division
SMAs.....	Separately Managed Accounts
SOC	Service Organization Controls (Audit Report)
SPX.....	Standard & Poor's 500 Total Market Index
SSBCI.....	State Small Business Credit Initiative
STIP	Short Term Investment Pool
TFBP.....	Trust Funds Bond Portfolio
TFIP	Trust Funds Investment Pool
TIF	Tax Increment Financing
TIFD	Tax Increment Financing District
TIPS.....	Treasury Inflation Protected Securities
TRS.....	Teachers' Retirement System
TVPI	Total Value to Paid-in
TWR.....	Time-Weighted Return
VC	Venture Capital

Board of Investment's Terminology List

Revised August 2019

130/30 Market Strategy

A form of Long-Shorting where the long exposure is 130% and the short exposure is 30%. See Partial Long/Short

Public Markets

Active Management

An investment method which involves hiring a manager to research securities and actively invest and trade securities to outperform an assigned index. Compare to Passive Management.

Actuarial Assumed Rate of Return

The investment rate of return used by actuaries that enables them to project the investment growth of retirement system assets into the future. An individual rate is determined and adopted by each Pension System.

Accounting

Actuarial Funding Status

A measurement made by actuaries to measure a pension system's financial soundness. Shows the actuarial assets available to fund liabilities.

Accounting

Agency Bonds

Agency bonds are issued by official US Government bodies. Compare to GSE Bonds

Fixed Income

All Other Funds (AOF)

Holds all uncategorized accounts and funds.

Alpha

The measure of active return on an investment compared to the market. A measure of 1 means that an investment returned 1% in excess of the benchmark over a specified time period.

Alternative Investments

An all-encompassing range of investments, other than traditional assets such as publicly traded stocks and bonds. The most common alternative investments are private equity, real estate, commodities, and hedge funds.

Annualize

To annualize is to convert a short-term calculation or rate into an annual rate.

Appreciation

An increase in the value of an asset over time. The increase can occur for several reasons, including changes in supply or demand, or because of changes in inflation or interest rates. Compare to Depreciation.

Asset Backed Securities (ABS)

A security whose income payments and overall value are collateralized by a specific pool of underlying assets (i.e. mortgage backed loans, auto loans, credit card loans). Pooling together a group of similar assets into financial instruments allows investors to mitigate the risk of individual default.

Fixed Income

Average Credit Quality

The average credit rating for each bond in the portfolio adjusted for its relative weight in the portfolio. See Credit Rating.

Fixed Income

Basis Points (bps)

A basis point is 1/100th of a percentage and is regularly used when discussing the market (100 bps = 1.00%)

Beta

The measure of volatility or systematic risk of a security or portfolio compared to the market.

Example: If a company has a beta of 1.5, it implies that its more volatile than the overall index because it is greater than 1. Because of this, if the market moves 1% the company is expected to move 1.5% in the same direction.

< 1 = less risk than market

1 = same risk as market

> 1 = more risk than market

Bid-Ask Spread

The difference between the highest price the buyer is willing to pay and the lowest price that a seller is willing to accept.

Blind Pool

A fund or portfolio where the investors are not aware of what the specific investments will be at the time of the initial commitment.

Private Investments

Bloomberg Barclay's US Aggregate Index

A broad bond index covering most U.S. traded bonds and some dollar denominated foreign bonds traded in the U.S.

Fixed Income

Broad Fixed Income

A broad investment class including Investment Grade, structured bonds, Government and Agency bonds, international bonds, and High Yield.

Fixed Income**Buyout**

A fund strategy that acquires a controlling interest in a company. Under a buyout, the previous ownership loses control over the company in exchange for compensation. If borrowed funds are used to acquire the company, the deal is called a 'leveraged buyout'.

Private Investments

- Large-Size buyout
 - Target companies have revenues >\$1B, EBITDA of >\$50M
 - *Typically, private equity fund sizes of \$2B and up*
- Mid-Size buyout
 - Target companies have revenues <\$1B, EBITDA of \$25M - \$50M
 - *Typically, private equity fund sizes of \$750M to \$2B*
- Small-Size buyout
 - Target companies have revenues of \$10M - \$300M, EBITDA of \$3M - \$25M
 - *Typically, private equity fund sizes of <\$750M*

Capital Call (Drawdown)

When the GP's investment team is ready to purchase an asset, they will issue a capital call or drawdown for a portion of the capital committed by the LPs.

Private Investments**Capital Commitment**

The amount of capital an LP is contractually obligated to pay into a blind pool fund or portfolio to finance underlying investments and their associated fees and expenses.

Private Investments**Cap Rate**

The ratio of NOI compared to the current market value. The cap rate is often used to value and compare real estate investments.

Real Estate**Carried Interest**

A share of the profits of an investment fund that is paid to the GP.

Private Investments**Cash Equivalents**

Assets that retain value and have a high degree of liquidity and are generally short-term commitments with minimal risk of loss.

China A-Share

The equity shares of mainland China that are quoted in the Chinese renminbi with restriction on foreign investment.

China B-share

The equity shares of Chinese companies that trade in foreign currencies. Used as a target investment for foreign investors.

Clawback

A payment from the GP to the LPs as the result of the GP receiving excess distributions above what was contractually agreed upon.

Private Investments**Commingled Fund**

Represents a pool of assets for multiple clients and are managed in a similar fashion by the same entity. Each client has a pro-rata share of the overall portfolio. Custody of the underlying securities are at the investment manager's custodian.

Consolidated Asset Pension Pool (CAPP)

The Consolidated Asset Pension Pool invests directly in the 13 Asset Classes.

Correlation

A measure of how investments or asset classes move relative to each other during the same period. To increase diversity, managers look for assets with lower correlations with other assets.

-1.0 = perfectly negative correlation

0.0 = no correlation

+1.0 perfectly positive correlation

Coupon

The interest rate paid on a bond. This can either be a fixed or floating rate. A floating interest rate is typically tied to a benchmark such as U.S. Treasury Bills. Payments can be monthly, semi-annual, or annual.

Fixed Income

Covenant

A legally binding term of agreement between a bond issuer and a bond holder which are designed to protect both parties. Can potentially restrict an issuer from undertaking certain activities or ensure they meet certain requirements.

Fixed Income**Credit Rating**

An assessment of creditworthiness of a borrower. A credit rating (between AAA and BBB) given by one of the three main credit rating agencies indicates a relatively low risk of default and hence an Investment Grade security.

Fixed Income

	Moody's	S&P	Fitch
Investment Grade	Aaa	AAA	AAA
	Aa	AA	AA
	A	A	A
	Baa	BBB	BBB
High-Yield	Ba	BB	BB
	B	B	B
	Caa	CCC	CCC
In Default	D	C	CC
		D	DDD

Currency Risk

A risk variable that comes from investments in currencies, currency futures contracts, forward currency exchanges, etc. These investments are subject to the risk that the value of a currency will change at a fundamental level.

Risk Management**Custodian**

A financial institution responsible for safeguarding BOI's financial assets by holding assets on behalf of BOI, thus forming a fiduciary relationship.

BOI/Gov't Specific**Debt Multiple**

A company's debt divided by EBITDA

Private Investments**Debt Related**

A fund strategy that provides debt financing in the form of a secured or unsecured loan for working capital or capital expenditures. Also called term loans, which often requires the borrower to adhere to certain rules regarding financial performance called covenants.

Private Investments**Depreciation**

A decrease in the value of an asset over time. The decrease can occur for several reasons, including changes in demand or supply, or because of changes in inflation or interest rates. Compare to Appreciation.

Discount

Describes the discrepancies in the paid amount against its par value. A discount means the purchasers bought the security for less than the asset's par value. Compare to Premium

Fixed Income**Distressed**

An investment strategy whereby the private investment manager purchases a distressed asset at a significant discount with the intention of turning around or improving the asset prior to selling.

Private Investments**Distributions**

Either cash or equity returned to investors after a fund or portfolio exits an investment.

Private Investments**Diversification**

Investing in different asset classes, industries, securities, and/or countries to protect against extreme losses and to expand the possibilities of gains from multiple asset types.

Risk Management**Domestic Equity**

Equity from the United State including stocks, or other public equity-related investments.

Downside Capture Ratio

During a down market, the downside capture ratio shows how a portfolio compared to its benchmark. It is shown as a ratio with a value below 1 being preferred as it indicates that the portfolio had good downside protection and didn't lose as much as its benchmark. Compare to Upside Capture Ratio.

Downside Risk

Downside risk describes the potential downfall and unintended negative consequences of an investment.

Risk Management

Dry Powder

Refers to fund's uninvested capital available to fund future investments.

Duration

A measure of a bond or portfolio's sensitivity to changes in interest rates. As duration increases, the bond or portfolio's sensitivity to interest rates increases.

Fixed Income

Example: if current interest rates increase by 1% and a bond has a duration of 4, the bond price will decrease by about 4%. However, if interest rates decrease by 1% the bond price will increase by about 4%

EBITDA

Stands for: Earnings Before Interest, Taxes, Depreciation, and Amortization. It is a non-GAAP measurement that shows as an organization's earnings before interest, taxes, depreciation, and amortization can be subtracted out. This allows for a greater understanding of a company's current operating profitability

EBITDAX

Stands for: Earnings Before Interest, Taxes, Depreciation, Depletion, Amortization, and Exploration Expenses. This is a valuation metric used for oil and gas companies which shows their ability to produce income from operations in a given year.

Private Investments

Enterprise Fund Financial Statements

Used to account for the recovery of costs for goods or services primarily provided to users outside of the primary government. Used by BOI to report the programs created under the Municipal Finance Consolidation Act and the Economic Development Bond Act.

Accounting

Equity Styles

Categorization of investment approaches or objectives that a fund manager uses

Public Markets

Core: Core holdings are a central investment of a long-term portfolio that exhibit common traits such as strong market share and promising growth prospects. Considered a blend of growth and value investing.

Growth: An investment style that focuses on earnings that are expected to grow at a desirable and above average rate.

Value: An investment strategy where assets are chosen because they are trading below their intrinsic value or fundamentals making them undervalued.

Exchange Traded Fund (ETF)

An investment fund traded on stock exchanges, much like stocks. Most ETFs track an index, such as a stock index or bond index.

Public Markets

Face (Par) Value

The stated value of an investment at maturity.

Fixed Income

Fixed Income

An investment, generally in bonds and loans, that returns payments on a regular schedule (coupon) as well as the original investment (principal) at the end of investment period.

Fixed Income

Foreign Markets Risk

Risks that are not typically associated with domestic markets including changes in currency exchange rates, less government supervision of exchanges, brokers, and issuer; increased social economic, political uncertainty, and greater for price volatility. These risks may be greater in emerging and frontier markets.

Risk Management

Forms of Economic Markets

Economic markets are divided based on several measurements including economic development, size and liquidity requirements, and market accessibility criteria.

Public Markets

Developed Market: A country that is developed in terms of its economy and capital markets like the US, Japan, Germany, or Canada.

Emerging Market: A country that has built an adequate infrastructure to facilitate a developed economy and capital market but is still working towards other characteristics of a developed market.

Frontier Market: A market from a developing country that does not have a developed stock market or infrastructure and generally has higher returns to compensate investors.

Forward Contract

A contract between parties to buy or sell an asset at a future date and predetermined price regardless of future market conditions. Can be used for hedging or speculation.

Public Markets

Forward Rate

An interest rate that will be applicable to a future financial transaction.

Public Markets

Free Cash Flows

Net cash a company produces through its operations excluding non-cash expenditures.

Fund-of-Funds

A fund that invests in multiple managers/funds, who then invest that capital directly.

Private Investments

GAAP/GASB

The Governmental Accounting Standards Board (GASB) is the author of the generally accepted accounting principles (GAAP) used by state and local governments in the US along with various corporations.

Accounting

General Partner (GP)

The team/firm that oversees the investment of a specific private fund.

Private Investments

Global Industry Classification Standard (GICS)

A common global classification standard used by thousands of market participants including MSCI (the BOI's preferred index provider). Through GICS there are 11 sectors, 24 industry groups, and 68 industries.

GSE Bonds

Stands for Government Sponsored Entity (GSE) bonds which are offered by lenders created by an act of congress to assist groups of borrowers. GSE bonds are backed but not guaranteed by the U.S. government. Compare to Agency Bonds

Fixed Income

Hedge Funds

Like mutual funds, hedge funds pool investors' money and invest that money to make a positive return. Hedge funds typically have more flexible investment strategies than mutual funds.

Public Markets

Hedging

An investment position taken to offset potential losses that may be incurred by another investment. Compare to Speculation.

Public Markets

High-Yield Bond

A non-investment grade bond that is at a higher risk of default or some other adverse event. However, these pay higher yields than better quality bonds to make them attractive to investors.

Public Markets

Indenture

A contract that explains the various terms, options, and intricacies of a bond.

Fixed Income

Index

A hypothetical portfolio of securities representing a market segment and are commonly used as a benchmark for the stock and bond markets (S&P 500, Barclay's Aggregate, or the MSCI USA IMI).

Inflation

The rate at which the general level of prices for goods and services is increasing. As inflation increases, the purchasing power of money falls.

In-State Loan Program

Statutory authorized program that directs the Board to provide financial lending using Coal Tax Trust fund money to borrowers who meet program requirements set in law.

BOI/Gov't Specific

Interest

The amount that must be paid to compensate the lender/investor for the use of the funds.

Fixed Income

Intermediary Relending Program (IRP)

A loan to an Economic Development organization that has three years to loan the money to local businesses that need equity capital to obtain a bank loan. Funds are matched through a program with the United States Department of Agriculture (USDA).

Internal Controls

The plan of an organization that has the methods and measures used to monitor assets, prevent fraud, minimize errors, verify the accuracy and reliability of accounting data, promote operational efficiency, and ensure that established managerial policies and procedures are complied with.

Internal Rate of Return (IRR)

The dollar-weighted return earned by investors.

Internal Service Fund

Used to account for the recovery for costs of goods or services primarily provided by one department or agency to another department or agency. Used to report to the investment operations of the Board.

Accounting**International Equity**

Equity outside of the United States. Examples include stocks or equity investments in China, Germany, or Canada.

Investment Grade Bond

Bonds rated BBB/Baa and above. These bonds have lower yields than high-yield bonds because of the lower risk of default.

Fixed Income**Investment Period**

The prespecified timeframe during the beginning of a fund's life when the investments of the fund will be made.

Private Investments**Key Man Provision**

A clause that prevents the GP from making new investments after a key executive(s) departs.

Private Investments**Leverage (Financial leverage)**

The use of debt to acquire additional assets.

Example: If we were to purchase a \$1,000 asset using \$750 of debt and \$250 of cash to fund the purchase, the purchased would 75% leveraged.

LIBOR

Benchmark interest rate at which major global banks borrow from one another. The rate is calculated based on survey results from a panel of banks.

Fixed Income**Limited Partnership**

The common legal structure used for private equity funds.

Private Investments**Liquidity**

The ability of an asset to be converted into cash quickly and without a meaningful price discount.

LPAC Membership

The Limited Partnership Agreement Committee (LPAC) membership is occasionally available as a term of agreement. Being on the LPAC gives BOI a chance to voice concerns more directly and make decisions in conjuncture with other LPAC members during unexpected events including the loss of key investment team members, extending the investing or exiting time frame, etc.

Private Investments**Mark-to-Market**

Recording the price of an asset on a regular basis to reflect its current market value. Can also be referred as fair value accounting.

Market Capitalization

Measured by the total dollar market value of a company's outstanding shares and is generally used to compare companies in investment universes or sectors. The following classification are according to the MSCI and are variable between investors and indexes. (all below ranges come from MSCI World)

Public Markets

Large (Big) Cap: Defined as companies with market caps that are \$20 billion or larger. Less volatile than other, smaller firms

Mid Cap: Defined as a company with a market cap between \$2 - \$20 billion. These tend to have more risk than larger companies but with room to grow their market cap.

Small Cap: Defined as companies with market caps less than \$2 billion. Generally younger companies with growing potential and added risk.

Market Impact

The effect a market participant has when it buys or sells an asset, on the price of that asset.

Maturity

The agreed date that the full amount of the bond or investment must be paid back to the lender plus interest if applicable.

Fixed Income**Mean**

The average of a data set. All data points are added together and then divided by the number of data points.

Median

The center or middle number in a range of data when data points are organized by value.

Montana Operations Manual (MOM)

Contains guidance for all state agencies. Among the topics included are accounting, travel, procurement, information technology, budget, and human resources.

Accounting**MSCI**

The provider of investment decision support tools including indexes.

ACWI – All Country World Index

ACWI ex US – All Country World Index

excluding US

EAFE – Europe, Australasia, and Far East

EM – Emerging Markets

IMI – Investible (all-cap) Market Index

US – the United States

Multi-Asset Class

A combination of asset classes (i.e. cash, equity or bonds) used in an investment creating a group or portfolio of assets.

Multiple of Invested Capital (MOIC)

Performance metric which shows how much more or less an investment is worth compared to the total invested capital over time. A multiple greater than one indicates a gain, and a multiple less than one indicates a loss.

Private Investments

$$\text{Total Value} / \text{Invested Capital}$$

Natural Resources

Natural Resource investments are investments managed by external advisors who invest in timber, gas and oil related companies, as well as other natural resources.

Private Investments**Net Asset Value (NAV)**

The 'true' value of a fund's investments based on the quoted prices of its components.

Accounting

$$\text{NAV} = \text{Value of Assets} - \text{Value of Liabilities}$$

NCREIF

Stands for National Council of Real Estate Investment Fiduciaries. A property Index that is compiled quarterly and shows the composite total rate of return measure of investment performance of a pool of individual commercial real estate properties acquired in the private market for investment purposes.

Real Estate**NFI-ODCE**

Short for NCREIF Fund Index – Open End Core Equity; an index of investment returns reporting on both a historical and current basis. This information comes from 33 open-end commingled funds pursuing a core investment strategy.

Real Estate**NOI (Net Operating Income)**

A calculation used to analyze real estate investments. NOI equals the revenue from the property minus necessary operating expenses.

Opportunity Cost

The loss of potential gain from other alternatives when one alternative is chosen.

Overweight

A security position that is in excess, or overweight when compared to the security's weight in the underlying benchmark or sector. Actively managed portfolios will overweight securities that have the potential to earn excess returns above the benchmark returns. Portfolios can also be overweight sectors, countries, or some other characteristic. Compare to alternative weighting schemes such as equal weight or underweight.

Public Markets**Partial Long/Short**

An investing strategy that takes long positions in stocks that are expected to appreciate and short positions in stocks that are expected to decline.

Public Markets

Passive Management

An investment strategy where a manager purchases a portfolio of securities that they hope to replicate market index returns, (this strategy generally involves lower management fees).

Placement Agent

A third-party group that assists the GP in fundraising for a new or existing fund.

Private Investments**Policy Portfolio**

A fixed baseline or target mix of asset classes (stocks, bonds, cash, etc.) for a portfolio.

Preferred Return

The threshold return that the LPs of a private equity fund must receive, prior to the GP receiving its carried interest.

Private Investments**Premium**

Describes the discrepancies in the paid amount against its par value. A premium means the purchasers bought the security for more than its par value. Compare to Discount.

Fixed Income**Present Value**

The value of a stream of future cashflows discounted at a specified interest rate to the present date. Shows what a dollar in the future is worth to an investor today.

Accounting**Price to Book (P/B) Ratio**

Price of an Asset divided by its Book Value.

Price to Earnings (P/E) Ratio

Price of an Asset divided by its Earnings.

Principal

The initial size of a bond or investment.

Fixed Income**Principal Repayment**

The payment of the face value or principal of a security by the issuer, generally due on the maturity date unless the issuer redeems the security before it matures.

Fixed Income**Private Investments**

Asset classes comprised primarily of equity and debt securities in private operating companies, real property and other types of investments that are not publicly traded on a stock exchange. At BOI it is an umbrella term that covers the private equity, real estate, and natural resources asset classes.

Private Investments**Prudent Expert Principle**

A measure that requires the fiduciary (BOI) to properly discharge their duties by doing the following:

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

Purchase Price Multiple

The enterprise value of a company divided by the company's EBITDA

Private Investments**Ratings**

An assessment of the creditworthiness of a borrower. Bond ratings from Moody's, S&P and Fitch between AAA and BBB- are investment grade. BB and below are below investment grade/high yield.

Fixed Income**Real Estate Classes**

Core: Lower risk; considered the best quality holdings such as prime commercial property in major metropolitan cities that have low leverage and low levels of vacancy.

Value-Add: Moderate risk, non-core; property that generally already has some form of in-place cash flow which investors are seeking to increase by making improvements or repositioning the property.

Opportunistic: Higher risk, non-core; these properties tend to need more significant alterations and rehabilitation to realize their full earning potential. These properties generally have a higher vacancy rate, include higher levels of leverage, and can include ground-up development.

Real Estate

Rebalancing

The action of buying or selling assets to realign the asset weights to meet the target portfolio.

Risk Management

Resolution

A formal and written action by an organizational body that has long-term significance and requires a vote from the governing body. BOI uses resolutions mainly for its most significant and long-term actions and/or policies.

BOI/Gov't Specific

Risk Tolerance

An investor's ability to handle declines in the value of their portfolio.

Risk Management

Russell US Indexes

A family of global equity indices from FTSE Russell that allow investors to track performance of market segments.

Public Equity

S&P 500 Index

The Standard & Poor's market index based on the market capitalizations of the 500 largest companies which have common stock listed on the NYSE or NASDAQ. The weightings are determined by S&P Dow Jones Indices.

SABHRS

Stands for the State Accounting, Budgeting and Human Resource System. By statute, BOI investment and other financial data must be reported through this system, which is the State's official accounting book of record.

Accounting

Sector

An area of the economy in which businesses share the same or related product or services, e.g. an economic sector. This can also refer to a group of securities that exhibit similar characteristics. See Global Industry Classification for examples.

Separately Managed Account (SMA)

Represents a portfolio of assets specifically constructed according to the client's investment policy.

Short Position

A negative share or market value indicates a short position or sale of a borrowed security.

Short Term Investment Pool (STIP)

Used by state and local agencies and the retirement systems as an alternative to idle cash. STIP investments are short, highly liquid and among the safest obtainable as it is structured like a money market fund.

Shortfall

A situation where the level of funds required to meet an obligation is not available.

SOFR

Influential interest rate based on daily transactions in the Treasury repurchase market.

Fixed Income

Speculation

Involves investors making bets on future market conditions or events and is used when an investor hopes to increase profits. Compare to Hedging.

Public Markets

Spread

A measurement of the difference in yield between a non-Treasury bond and a U.S. Treasury bond. The U.S. Treasury is considered the risk-free alternative. A higher spread represents greater uncertainty of repayment.

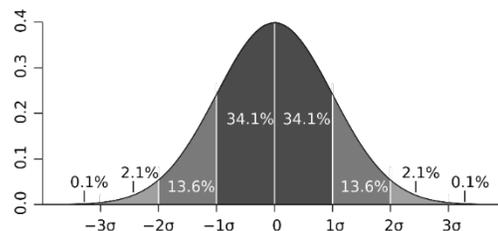
Fixed Income

Spread duration

Measures the price sensitivity of a bond to changes in spread.

Standard Deviation

Measures the dispersion or spread of a dataset compared to its historic mean. In finance it can be applied to the annual rate of return of an investment. It sheds light on the historical volatility of that investment. The greater the standard deviation of a security, the greater the variance between each price and the mean.



Tail Risk

Describes portfolio risk when the return is (generally) more than two standard deviations from the mean. The tail risk probability is towards the far left or far right of the normal distribution curve pictured above and has a small chance of occurring (the returns during the Great Recession was considered a five standard deviation event). Left-tail risk is associated with negative returns while right-tail risks are associated with positive returns.

Risk Management**Target-Risk**

A mix of stocks, bonds, and other investments holdings to create a desired risk profile.

TED Spread

The difference between the interest rates on interbank loans and on short-term U.S. government debt ("T-bills"). TED is an acronym formed from T-Bill and ED, the ticker symbol for the Eurodollar futures contract.

Fixed Income**TIPS**

Treasury Inflation Protected Securities (TIPS) are Treasury bonds that are indexed to the Consumer Price Index to protect investors from the negative effects of inflation.

Fixed Income**Total Return**

The return on an investment including appreciation or depreciation, interest, dividends, and fees in the price of a security over a given period.

Tracking Error

The divergence between the price change of a position or a portfolio and the price change of a benchmark.

Trust Fund Investment Pool (TFIP)

TFIP is managed with the primary focus of generating income.

Underweight

A security's portfolio weight that is less than or underweight the security's weight in the underlying benchmark. Can also be used to describe the relative composition of a portfolio such as underweight a sector or industry. Compare to equal weight or overweight.

Public Markets**Underwriter**

The agent who buys investments to be resold to the public. At BOI this would generally be the investment firm that buys the Board's bonds to be resold to the public.

Fixed Income**Unified Investment Program Financial Statements**

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

Accounting**Upside Capture Ratio**

During an up market, the upside capture ratio shows how well a portfolio performed compared to its benchmark. It is shown as a ratio with a value above 1 being preferred as it indicates the portfolio "beat the market" by outperforming. Compare to Downside Capture Ratio

Venture Capital

Money that is provided to seed early-stage, emerging growth companies. Venture capital funds invest in companies in exchange for equity in the companies they invest in.

Private Investments**Vintage Year**

The first year in which capital is drawn to fund an investment.

Private Investments**Volatility**

The degree of variation of a price series over time as measured by the standard deviation of returns. Historic volatility is derived from time series of past market prices. An implied volatility is derived from the market price of a market traded derivative (in particular an option).

Waterfall Type

The waterfall type describes how a private equity fund will make distributions to its LPs and GP.

Private Investments

European Waterfall: Payment schedule where distributions are based off of how well the fund as a whole has performed.

Deal-by-Deal Waterfall: Payment schedule where distributions are made on a deal-by-deal basis instead of on performance of the whole fund.

Weighted Average Maturity (Life)

Measures of how quickly the outstanding principal will be repaid. The higher the number the longer it is expected to take for the debt to be paid.

Fixed Income

Yield Curve

A curve that plots the prevailing yield for bonds at different maturities. Curves generally slope upward because longer maturities require a higher interest rates to compensate for the added risk of holding an asset for an extended period. The graph below is a representation and not up to date.

Yield Curve Inversion

Rare type of curve in which long-term debt has a lower yield than short term debt of the same credit quality. Normally seen as a recession indicator.

Yield to Maturity

The yield anticipated on a bond or portfolio if it is held until maturity and all coupon payments are reinvested at the YTM.

Fixed Income

