

**REGULAR MEETING OF THE  
MONTANA BOARD OF INVESTMENTS  
DEPARTMENT OF COMMERCE  
2401 Colonial Drive, 3<sup>rd</sup> Floor  
Helena, Montana  
August 20-21, 2019**

*Control + Home brings you to here*

**COMMITTEE MEETINGS**

- A. Audit Committee** **8:30 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
  2. Approval of May 2019 Committee Meeting Minutes
  3. Comments from Chair and Reference to Checklist
  4. Executive Director General Comments
  5. Wipfli SOC 1 Type 2 Presentation – **Decision**
  6. FY19 Financial Statements – Update and Comments
  7. STIP – Local Participant Letters
  8. Board Policy Revision Regarding Non-Travel Meals – **Decision**

- B. Human Resource Committee** **9:45 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
  2. Executive Director General Comments
  3. Chief Investment Officer Recruitment – **Decision**
  4. Executive Director Performance Review and Contract Consideration – **Decision**

- C. Loan Committee** **11:30 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
  2. Approval of May 2019 Committee Meeting Minutes
  3. In-State Loan Requests – **Decisions**
  4. Supplemental and Amending Indenture of Trust – **Decision**

**LUNCH SERVED** **12:00 PM**

- Tab 1 CALL TO ORDER – Karl Englund, Chairman** **1:00 PM**
- A. Notice of Video Recording of Meeting
  - B. Roll Call
  - C. Public Comment – *Public Comment on issues with Board Jurisdiction*
  - D. Approval - May 21-22, 2019 Regular & July 19, 2019 Special, Board Meeting Minutes – **Decisions**
  - E. Administrative Business
    1. Audit Committee Report – **Decisions**
    2. Human Resource Committee Report – **Decision**
    3. Loan Committee Report – **Decisions**
  - F. Comments from TRS and PERS Board Members
  - G. Comments from Board Legislative Liaisons

- Tab 2 EXECUTIVE DIRECTOR REPORTS – Dan Villa, Executive Director** **1:15 PM**
- A. Member Requests or Follow up from Prior Meeting
  - B. Monthly Snapshot & Briefing on New Format
  - C. Monthly Website Traffic
  - D. FY19 Expenditure Report and FY 20 Budget – **Decision**

- Tab 3 INVESTMENT CONSULTANT – RVK, INC.** **1:30 PM**
- A. Executive Summary Report
  - B. Capital Markets Review
  - C. Quarterly Review

- Tab 4 Coal Severance Tax Trust Fund Investment Policy – Decision** **2:30 PM**  
**Jon Putnam, CFA, FRM, CAIA**

<b>BREAK</b>	<b>3:00 PM</b>
<b>Tab 5 Public Market Investment Manager Change – Rande Muffick, CFA and Mike Pettit</b>	<b>3:15 PM</b>
<b>Tab 6 Diversifying Strategies Asset Class Update - Jon Putnam, CFA, FRM, CAIA and Steve Strong</b>	<b>3:30 PM</b>
<b>Tab 7 BOND PROGRAM REPORT – Louise Welsh, Senior Bond Program Officer</b>	<b>4:30 PM</b>
A. INTERCAP	
1. Activity Report	
2. Staff Approved Loans Report	
3. Annual INTERCAP Loan Detail Report	
<b>Tab 8 MONTANA LOAN PROGRAM REPORT – Doug Hill, Director of In-State Loans</b>	<b>4:45 PM</b>
A. Commercial and Residential Portfolios Report	
<b>ADJOURNMENT</b>	<b>5:00 PM</b>

---

### WEDNESDAY AGENDA – DAY 2

<b>RECONVENE AND CALL TO ORDER – Karl Englund, Chairman</b>	<b>8:00 AM</b>
A. Notice of Video Recording of Meeting	
B. Roll Call	
C. Public Comment – <i>Public Comment on issues with Board Jurisdiction</i>	
<b>Tab 9 Portfolio Risk – Dan Zarling, CFA, CIPM and Eron Krpan, CIPM</b>	<b>8:05 AM</b>
<b>Tab 10 New Private Investment Commitments</b>	<b>9:10 AM</b>
A. Private Equity – <b>Michael Nguyen and Thomas Winkler, CAIA</b>	
B. Real Estate and Natural Resources – <b>Ethan Hurley, CAIA and Emily Kovarik, CPA</b>	
<b>Tab 11 INVESTMENT UPDATE</b>	<b>9:25 AM</b>
A. CIO Update – <b>Dan Villa, Executive Director</b>	
B. Risk Management – <b>Dan Zarling, CFA, CIPM</b>	
C. Private Equity – <b>Ethan Hurley, CAIA</b>	
D. Real Estate – <b>Ethan Hurley, CAIA</b>	
E. Natural Resources – <b>Ethan Hurley, CAIA</b>	
F. Internally Managed Fixed Income - <b>Jon Putnam, CFA, FRM, CAIA</b>	
G. Broad Fixed Income – <b>Rande Muffick, CFA</b>	
H. Domestic Equity – <b>Rande Muffick, CFA</b>	
I. International Equity – <b>Rande Muffick, CFA</b>	
J. STIP – <b>Kirsten Haswell</b>	
K. State Fund – <b>Jon Putnam, CFA, FRM, CAIA</b>	
L. Trust Fund Investment Pool – <b>John Romasko, CFA</b>	
M. High Yield – <b>Rande Muffick, CFA</b>	
<b>BREAK</b>	<b>10:45 AM</b>
<b>Tab 12 REAL ESTATE ASSET CLASS REVIEW – Ethan Hurley, CAIA and Emily Kovarik, CPA</b>	<b>11:00 AM</b>
<b>RECAP OF STAFF TO DO LIST AND ADJOURNMENT – Karl Englund, Chairman</b>	<b>12:00 PM</b>
<b>Appendix</b>	
A. Annual Board Meeting Schedule	
B. Systematic Work and Education Plan	
C. Acronym Index	
D. Terminology List	

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

**MINUTES OF THE MEETING – May 21-22, 2019**

**BOARD MEMBERS PRESENT:**

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

**BOARD MEMBERS ABSENT:**

Karl Englund, Chair

**LEGISLATIVE LIAISONS PRESENT:**

Representative Jim Hamilton

**LEGISLATIVE LIAISONS ABSENT:**

Senator Scott Sales

**STAFF PRESENT:**

Polly Boutin, Associate Financial Manager	Emily Kovarik, CPA, Investment Analyst
Jason Brent, CFA, CAIA, Investment Officer Public Markets	Eron Krpan, CFA, CIPM, Investment Analyst
Dana Chapman, Board Secretary	Rande Muffick, CFA, Director of Public Market Investments
Frank Cornwell, CPA Associate Financial Manager	Michael Nguyen, Investment Officer Private Investments
Joseph M. Cullen, CFA, CAIA, FRM Chief Investment Officer	Mike Pettit, Director of Investment Operations
Julie Feldman, CPA, Financial Manager	Jon Putnam, CFA, FRM, CAIA Director of Fixed Income
Kirsten Haswell, Investment Analyst	John Romasko, CFA, Investment Officer
Tim House, Investment Analyst	Steve Strong, Investment Analyst
Douglas Hill, Director of In-State Loan Programs	Dan Villa, Executive Director
Ethan Hurley, CAIA Director of Private Investments	Louise Welsh, Senior Bond Program Officer
Teri Kolnik, CFA, Investment Analyst	Thomas Winkler, CAIA, Investment Analyst
	Dan Zarling, CFA, CIPM Director of Risk Management

**GUESTS:**

Becky Gratsinger, CFA, CEO, Senior Consultant, Principal, RVK, Inc.  
Mark Higgins, CFA, Principal, RVK, Inc.  
Adam Gill, MFFA, Executive Director  
Nathan Finch, BOI Summer Intern  
Mike Dennison, MTN News  
Phil Drake, Great Falls Tribune  
Corin Cates Carney, Montana Public Radio  
Emily Ritter Saunders, Communications Director, Department of Commerce  
Anna Miller, Bureau Chief, Department of Natural Resources and Conservation  
Paul Lasiter, VP Operations & Finance, University of Montana  
Cheryl Grey, SFSD Administrator, Department of Administration  
Cody Pearce, SFSD State Accounting Bureau Chief, Department of Administration

Shannon Gilskey, Program Specialist, Department of Justice  
 Melanie Lien, Senior Vice President, Public Finance Investment Banking, Piper Jaffray  
 Laurel Fish, Unite Here Local 2  
 Noel Rodriguez, Unite Here  
 Vicky Juarez, Unite Here

**CALL TO ORDER**

Vice Chair Mark Noennig called the regular meeting of the Board of Investments (Board) to order at 11:45 a.m. As noted above a quorum of Board Members was present. Vice Chair Noennig advised of video and audio recording of the meeting and asked for public comment on issues within Board jurisdiction. There was none.

Vice Chair Noennig called for comments or revisions to the minutes from the April 2, 2019 Board Meeting.

Member Jack Prothero made a motion to approve the April 2, 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 checklist which staff compiles. The Committee reviewed Director Dan Villa’s written report on the Fiscal Year 2018 audit findings and the actions that have been taken to date. The Committee was also notified of an information request from the IRS in relation to the 2010 INTERCAP series tender option bond compliance. The request is a random one, likely due to being the only ones in the state that have this type of bond.

Wipfli LLP will begin planning and field work for the SOC 1 Type 2 Audit Report for the fiscal year ending June 30, 2019. They have requested some information from staff and are scheduled to return onsite July 29th. LAD (Legislative Audit Division) is scheduled to be onsite June 17th to begin their Financial Audit planning.

The only exception listed in the Wipfli SOC 1 Type 2 Audit Report was relating to Department of Administration State Information Technology Services Division password protocols that did not adhere to policy which has been corrected.

Wipfli also provided a Management Letter that contained two items for BOI’s consideration that pertained to BOI’s Disaster Recovery Plan and Business Continuity Plan.

The Committee then received an update on the SIVs (Structured Investment Vehicles) which became questionable investments several years ago. BOI is in the process of selling the remaining assets in one of the SIV’s. The total recovery for that SIV will be approximately 91 cents on the dollar. The SIV investments were previously written down.

**Human Resource Committee Report**

The Human Resource Committee met prior to the Board meeting. Committee Chair Terry Cohea advised the Committee approved the Exempt Staff Pay Plan Policy revisions.

Executive Director Villa explained each year salaries are reviewed. The Policy updates are made using salary surveys and updates to market salaries for the respective positions.

Member Maggie Peterson made a motion to approve the revised Exempt Staff Pay Plan Policy. Member Diane Fladmo seconded the motion. The motion carried.

Committee Chair Cohea stated the second item approved by the Committee was the exempt staff pay recommendations, which needs full Board approval.

Member Peterson made a motion to approve the revised exempt staff pay recommendations. Member Diane Fladmo seconded the motion. The motion carried.

Committee Chair Cohea stated the last item approved by the Committee was the revised organizational chart and the three positions changing from classified to exempt positions.

Director Villa noted Michael Nguyen, Jason Brent and John Romasko are moving into the new exempt positions effective July 1, 2019.

Member Peterson made a motion to approve the revised staff organizational chart. Committee Chair Cohea seconded the motion. The motion carried.

### Loan Committee Report

The Loan Committee met prior to the Board meeting. Committee Chair Jack Prothero advised the Committee approved an INTERCAP loan request of \$3.41 million from the City of Billings for an expansion of the police evidence building. The loan will be in the form of a general promise to pay and has a 15-year term. The loan does not need full Board approval.

The Committee also reviewed the INTERCAP Loan Program Policy revisions to Section 7 Special or Rural Improvement District Loans. The legislature passed House Bill (HB) 299 which released dollar restrictions and non-marketability provisions for these improvement districts allowing more leeway. The Committee approved the Policy revisions which need full Board approval.

Committee Chair Prothero made a motion for full Board approval of the revised INTERCAP Loan Program Policy. Member Terry Cohea seconded the motion. The motion carried.

Committee Chair Prothero stated the Committee approved proposed revisions to three In-State Loan Program policies. The changes are not substantial. For the Commercial Loan Policy, loans without an identified borrower are no longer accepted, and appraisal requirements are revised to \$500,000, up from \$250,000 for a formal appraisal. Policies requiring the appraisal changes include the Commercial, Infrastructure and Value-Added loan policies. The appraisal change was made to comply with recently passed laws.

Committee Chair Prothero made a motion for full Board approval of the three revised In-State Loan Program policies. Member Bruce Nelson seconded the motion. The motion carried.

Committee Chair Prothero stated the Committee considered a loan request for the Master Loan Program for Bighorn Valley Health Center in Hardin, Montana. The Board funds the reserve for the Montana Facility Finance Authority (MFFA) loans. Chair Prothero asked MFFA Executive Director Adam Gill to provide further information to the Board.

Mr. Gill explained MFFA provides financing to nonprofit health care providers to help contain their costs. BOI helps with the guarantee using the BOI quality bond rating, which saves significantly for borrowers. The BOI provides a guarantee on the debt service reserve account of the financing. If the reserve account is tapped, BOI would be asked to loan the MFFA funds to refill the reserve account. Mr. Gill added there has never been a need to tap the reserve in the history of the program. The financing request from Bighorn Valley Health Center is for up to \$4.5 million.

Committee Chair Prothero made a motion to approve the \$4.5 million MFFA Master Loan Program request. Member Terry Cohea recused herself from the vote. Member Maggie Peterson seconded the motion. The motion carried.

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

Member Maggie Peterson stated she missed the last PERS meeting; however, she listened to the meeting recording. The PERS Board approved the 2020 budget, and it appears there is a \$3 million excess in the 2019 budget which will go towards the trust for the unfunded liability. School District #31 in Nye joined PERS and Sweetgrass County joined the Deferred Compensation (457) Plan.

Member Jeff Greenfield stated the TRS Board met on May 10. The Board reviewed the 2020 budget, which will be higher due to the one-time cost of moving to the new office facility. Associated costs are mostly due to remodeling and construction, as well as IT people/materials. The move to the new facility is expected to be at the end of July instead of July 1st to ensure the space is ready. The move is from the Capitol area to the Park Avenue building. TRS owns the current building, which will undergo some remodeling and be leased to another state agency, at least for the immediate future.

The TRS Board also reviewed external contracts for tax counsel and for peer review of the actuary audit of the system audit which will cost around \$35,000. Tax counsel Ice Miller has been on board for decades and sometimes provides services during legislative years. The next TRS Board meeting is scheduled at the start of August and will mostly focus on long range strategic planning.

Legislative Liaisons Comments

Representative Jim Hamilton reported the 2019 legislative session wrapped up on April 25. There were a few bills of interest to BOI: HB 299 and HB 476 and a sleeper bill HB 715 which is a study bill stress testing of pensions. Personal services budgeting generated a lot of discussion this session.

Vice Chair Mark Noennig asked for more information on personal services.

Executive Director Villa explained for state agencies, several members of the legislative finance committees were upset with automatic adjustments; they understood that only the legislature delegated raises and they want to look at it further. It will be the third or fourth time the legislature has reviewed the issue.

Representative Hamilton noted he serves on the Legislative Finance Committee and was reappointed as BOI legislative liaison. As of the end of the session, Senator Sales had not yet appointed anyone to fill the second legislative liaison to the BOI Board.

Director Villa added the Senate liaison appointment differs from the House. The political parties have to be different and discussions are ongoing as to who the Senate republican should be.

Senator Scott Sales was absent.

**EXECUTIVE DIRECTOR'S REPORT**

Overall Comments

Director Villa asked Mr. Dan Zarling to introduce the new BOI intern.

Mr. Zarling introduced Nathan Finch who is attending MSU Bozeman and has just completed his sophomore year studying for his finance degree; he is from Missoula.

Director Villa noted the monthly snapshot is included in the packet along with his memo on the Montana properties. Responding to a question from Member Prothero on the vacant lot adjacent to the Colonial Building, Director Villa confirmed there is no return coming from the lot. It is a challenge and staff are looking at how the lot can be leveraged to generate some return. The lot is used within the neighborhood as a walking path.

Director Villa reviewed the budget expenditures for fiscal year to date. The issues within the investment side have been resolved for the most part. There were several personal payouts due to staff retirements. The fiscal year 2020 budget will have some changes within personal services and on the operations side. Staffing and the revised organizational chart were reviewed earlier. The web site traffic is included in the memo.

Director Villa noted this is the meeting where principal investment partners have been invited for lunch to chat with staff and Board Members.

### Non-Pension Client Review – Fixed Income Asset Class

Mr. Jon Putnam provided an overview of internally managed fixed income, noting he would focus on non-pension clients. These clients have individual policy statements, and include separately managed investments, Coal Severance Tax Trust, and State Fund.

Staff manages 39 clients with unique investment policy statements and these clients encompass 60+ separate accounts as some clients have several accounts. Staff work with clients for policy and portfolio construction. With any new account, the process includes talking to clients to determine their needs and which investment options are available, with a focus on cash flows and any uncertainty of those flows over time. Each staff member has assigned clients, along with a backup. Staff uses a work flow of monitoring and rebalancing which is done at least monthly. Staff met with clients or presented to client boards more than a dozen times over the course of the year including presentations to State Fund, Noxious Weed Management Advisory Council, Butte Area Redevelopment Trust, NRD/DEQ, Montana State and MUS Work Comp.

Mr. Putnam provided information on the types of investments within the separate accounts and why they are used. For the Trust Funds Investment Pool (TFIP) one main consideration for staff is any allocation includes a stable investment allocation for five years or more. TFIP offers better returns over the long term but has increased interest rate and credit risk. Individual holdings are considered if there are specific cash flow needs. For example, environmental remediation accounts may need cash on certain dates. STIP is the cash alternative and provides immediate liquidity. It can make up a heavy portfolio weight if cash flow needs are uncertain or short term.

Mr. John Romasko stated the main objectives of the TFIP are to diversify risk and provide decent returns. The large majority of the TFIP is internally managed and includes investment grade securities, as well as some high yield which increases yield and diversification. Staff attempts to overweight corporates vs. the index as they provide a little better yield for clients. The secular decline in interest rates over the last 30+ years has caused TFIP distribution yields to decline. Staff expects the rate to continue to decline modestly going forward.

Mr. Putnam stated Montana State Fund is the largest non-pension client and has the most complex structure. The goal is to provide income, but also to grow assets. It is the only account which can hold common equities and the small allocation has been important in growing assets over time. Core real estate was also added and has provided good returns while diversifying the portfolio. The majority of investments are investment grade fixed income; the total portfolio market value is almost \$1.5 billion.

Ms. Kirsten Haswell provided an overview of the Short Term Investment Pool (STIP) and noted that staff did a deep dive recently. STIP includes almost 500 accounts resulting in significant day to day work for accounting staff. One characteristic of the STIP portfolio is \$650 million in current daily liquidity, more than our top five cities and counties, meaning all five could pull their money out at once and staff would be prepared.

Current market expectations have changed slightly and there could be a slight decrease in the STIP yield going forward. The internal fixed income team manages approximately \$9.5 billion in assets. About a quarter of the assets are in pensions and the other three quarters are in separate accounts. There are a

lot of transactions over a year, mostly with STIP. Given the short-term nature of the STIP portfolio, there is a high volume of daily transactions. Average daily transactions within STIP are approximately \$100 million.

Responding to a question from Member Cohea, Ms. Feldman stated all STIP requests are received electronically through the STIP Portal. If the transaction is received by 2:00 pm, the participant receives the money the following day.

Mr. Romasko explained fixed income is a contractual obligation for principal and interest over time. If you purchase a bond at par and hold it to maturity, the return will equal the coupon paid on the bond. The return is fixed by the coupon.

Mr. Romasko discussed the objectives of fixed income: total return, diversification and liquidity. Mr. Romasko gave an example of how interest rates can be viewed to comprise the various fixed income risk factors in a bond: risk-free rate, inflation risk, maturity risk, default risk and liquidity risk. He noted that bonds are sensitive to changes in interest rates and bond prices move inversely to interest rate.

Mr. Putnam discussed the investment philosophy at MBOI and how the team focuses on the long-term. Pension funds, permanent trust funds and State Fund all have long time horizons. Staff aims to avoid credit problems; the worst-case scenario is zero if you suffer a default.

Staff receives a lot of help from the operations and risk management teams. Managing internally keeps costs low; if external managers were used, fees would be a lot more expensive. Internal fixed income management has been successful over the years, with good returns and appropriate risk management. Internal fixed income management continues to be a core competency of MBOI.

Fixed income staff then provided a demonstration on Bloomberg.

Mr. Putnam showed the yield curve which is a graphic representation of treasury rates and is a key factor in determining overall bond returns. Rates have come down over the course of the year. At the beginning of 2018, the curve had a more typical upward slope. The US Treasury yield curve inverted in the first quarter of 2019. An inverted curve is a traditional recession indicator throughout history, although it doesn't always trigger a recession. Mr. Putnam demonstrated a variety of Bloomberg screens that showed how the team evaluates information from the Federal Reserve, the probability of interest rate changes in the future, current valuation of corporate securities based on spreads and the current health of the bond market based on new issuance and secondary trading levels.

Mr. Romasko gave a demonstration of the Bloomberg Portfolio and Risk Analytics screen (PORT) in Bloomberg. He used the Trust Fund bond portfolio as an example and demonstrated the key characteristics that staff looks at to manage the portfolio consistent with the guidelines.

Member Prothero asked if automation streamlines the process.

Mr. Romasko noted staff do not speak to brokers as frequently as in the past and the process is significantly more efficient.

Ms. Haswell discussed how staff evaluates individual corporate credits. Staff has an approved list of companies that can be purchased in the portfolios. She demonstrated the internal credit matrix that staff has developed to assist in evaluating credits. In addition, she demonstrated some of the screens that staff uses in Bloomberg to assist in the evaluation.

Mr. Putnam added it helps to have something a little more structured for staff as we go through the process. Staff opinions can vary from those of the rating agencies.

Ms. Haswell stated Credit Sights is another tool used by staff. They listen to all earnings calls, have tear sheets on companies and provide updates, and analysis information is attached to pieces they write. Gimme Credit is a competitor to Credit Sights, which staff also subscribes to.

Mr. Putnam demonstrated some of the trading platforms that staff uses. Bloomberg AIM is the primary trading platform. All buy/sell tickets run through Bloomberg. This allows all potential trades to be screened by compliance in order to prevent transactions that would violate policy. Mr. Putnam also demonstrated MarketAxess. This platform has quickly become one of the preferred methods for staff to execute corporate and agency trades because staff can reach a large number of broker/dealers as well as other asset managers in an easy to use format. Execution levels have generally been very good relative to engaging individual broker/dealers over the Bloomberg chat.

## **MONTANA LOAN PROGRAMS**

### **In-State Loan Program**

Mr. Doug Hill presented a summary of the commercial and residential loans for the In-State Loan Program. As of April 10, 2019, the Commercial loan portfolio balance was \$169,618,524 for 109 individual loans or participations. Staff has funded seven IRP (Intermediary Relending Program) loans since the last meeting for \$190,019 and three Participation Loans totaling \$1,269,352. There are three loan reservations totaling \$12,200,000 and six committed loans totaling \$39,041,500, the largest is for The Springs of Bozeman at \$28 million.

The Commercial loan portfolio has a return of 3.07%, excluding the Science & Technology and Veterans Home Loan Program (VA) loans. The buyer for the On the Border property has asked for a one month extension past May 15 for the liquor license transfer. The closing is now scheduled for June 14, if the license transfer goes through. The Intermediary Relending Program (IRP) portfolio balance as of April 19, 2019 was \$4,019,393 representing 32 loans. The portfolio has a yield of 2.0% with no past due loans. The legislature increased the allocation from \$5 to \$10 million.

The Residential loan portfolio as of April 19, 2019 had an outstanding balance of \$3,959,486 representing 97 loans. There is one past due property and the Board of Housing (BOH) is filing a claim with the FHA. BOI will receive all interest except for 60 days' worth and will be reimbursed for 2/3 of foreclosure costs.

The Veterans Home Loan Mortgage portfolio as of April 29, 2019 was \$38,263,798 representing 225 loans. Portfolio yield is 1.88% and there is one loan over 90 days past due totaling \$176,377. The 2019 Legislature increased the VA allotment from \$40 to \$50 million which will go into effect as of July 1.

Director Villa noted the legislature passed a new affordable housing bill.

Mr. Hill explained the legislature set aside \$15 million for low income housing; BOH will administer the program. BOI will be involved in the administrative rule process setting up policies and rules. BOI will purchase the loans.

Director Villa added BOI will try to interject into the process, the program has some unique items.

## **BOND PROGRAM REPORTS**

### **Activity Report**

Ms. Louise Welsh reviewed the Activity Summary noting the City of Billings loan and the policy changes were covered in the Loan Committee. Activity is a bit slower this year, but there is about \$28 million in pending commitments.

Member Prothero asked if the slowdown is due to the increase in bond program interest rates.

Ms. Welsh replied the more likely factors are the slowdown in construction and winter weather delays. There are some interim financing projects which have been delayed. Staff expects to see things pick up, but fundings will be less for this fiscal year. The variable rate, which changes each February, is set at 3.37%.

### **CONSULTANT REPORT**

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

Mr. Mark Higgins noted RVK provides education to the Board as part of its mandate. A survey was sent to Board Members on cognitive biases affecting investment decision making, an issue that has become more prominent in the last 5-10 years. Biases are very real when it comes to decision making.

The survey results showed Members were independent, and results were positive on most responses. Cognitive bias shows ways of thinking that are inconsistent with logic or rationality and are systemic. A lot of times those decisions are not in your best interest. For each question in the survey, there were two different versions, framing the question in different ways. Framing can affect answers. Even an unrelated reference number will anchor an answer to a separate subsequent question on a different topic. The strongest bias is the endowment effect – if you own something you value it at much higher value than if you were looking to buy it. Mental accounting is a concept where people think of assets in different accounts and treat them separately, rather than as a whole portfolio.

This plays out on assets without future prospects. Investors don't want to sell until the value gets back to even. Individuals are reluctant to sell and have trouble letting go when something they own has done well, but the future outlook is unfavorable.

Another factor is loss aversion which is one of the strongest biases. Comparing the pain of loss vs. the pleasure of a gain, loss is more important; people hate loss and will take risks to avoid it. In the real world this leads to excessive use of active managers in efficient markets; they choose to take the risk.

Biases are driven by emotion, not through analyzing data and have real applications. Herd behaviors happen in the investment world. The obvious example is bubbles, as happened with cryptocurrency, the technology bubble, and bitcoin which ran up in 2017, from 2,000 to 20,000. Some choices are not so obvious, such as investing in assets that do not fit within your objectives.

Optimism bias is the tendency to overestimate your ability, or to overestimate favorable outcomes. This plays out in tactical allocation, drastic responses to market conditions, or underestimating the probability of negative outcomes.

Confirmation bias is the tendency to seek out information that confirms what you already believe; politics and media are the most pernicious out there. The best defense is by being objective as to your goals and collecting unbiased information.

Another factor is hindsight bias: to see past events as more predictable than they were by judging the outcome rather than the quality of decisions. We see it in confusing bad luck with absence of skill or confusing good luck with the presence of skill. In the financial crisis, a few hedge funds crushed it by making bets that paid off, but it was also right place/right time. A lot of funds did not repeat performance; just because you've hit a home run, doesn't mean it can be repeated, but it is hard to predict

Lastly there is familiarity bias, to favor choices familiar to the decision maker. By building brand recognition, they associate the brand with success, but there must be data independent of familiarity.

The best solution to biases is to be aware of them and to manually correct for them. Tips for managing bias include having a systemic way of clarifying objectives, determine the necessary information and collect data to analyze. Investors must put a lot of thought into facing hard decisions and determine what the honest motivation is for each decision. If you think through a decision, you may reveal motivations which are not really stated.

Ms. Becky Gratsinger reviewed the Executive Summary for the quarter ending March 31, 2019. The first quarter was a tremendous quarter, inverse of the last quarter of 2018 and nearly every asset class recovered. Investors are embracing risks again. The S&P 500 was up 13.6% over the first quarter, small caps were up 14.6%, international equities were up 10%, emerging markets were up nearly 10% and even the fixed income market was up at 2.9% for the Bloomberg US Aggregate Index.

Some factors driving investor behavior include renewed optimism of U.S./China talks. Although the last couple of weeks has been a different story, there was a bit brighter outlook in the first quarter. The Fed also kept rates the same. The Fed has given themselves some room to react if the economy begins to weaken. Negative global economic growth seems to be slowing. We saw a lot of strength in the U.S. corporate world, including some advantages due to the tax breaks. Speculation remains on Brexit in Europe, and on China. The yield curve inversion saw the kink. The probability of recession has increased, but there are no doomsday predictions so far and we have yet to see the data pointing that way.

It's hard to remember how good things are when they're good. The unemployment rate is at 3.6% now, inflation is in the middle of the pack, and consumers are confident, people are spending.

All regions were positive for the quarter. Bond market returns were smaller, but still positive. The best performing asset class was high yield, providing a good contribution to overall return. For alternative investments, the NAREIT REIT Index saw much more modest returns for illiquid assets. Natural resources also had a good quarter. For the current quarter, REITs were at the top; it was a risk embracing quarter.

Ms. Gratsinger reviewed the quarterly performance report. The total pension fund had a net quarterly return of 7.31%, underperforming the benchmark a bit for the quarter. Reviewing the overall CAPP performance, the Trust Funds Investment Pool had a return of 3.17% for the quarter and STIP returned 62 basis points. The CAPP overall structure has 60% equity exposure. Domestic equity returned 14.47%, international equity 10.97%, broad fixed income 2.69%, investment grade credit 3.72%, U.S. Treasury & Agency 1.69%, mortgage backed securities 2.33% and TIPS returned 2.59% for the quarter. Many asset classes outperformed their benchmarks.

Member Bruce Nelson noted if asset allocation is the most important thing, and we're accomplishing what we set out to do, not all assets will go up or down the same.

Ms. Gratsinger replied yes, that is correct and also applies to managers. Actual performance has had less volatility and more return over 10 years; asset allocation is working relative to peers and benchmarks.

Member Cohea asked if RVK was in contact with staff before the most recent manager changes.

Ms. Gratsinger replied yes, RVK looks at all managers and collaborates with BOI staff; we are a resource. There was a batch of managers, a collection of underperformers, and RVK has quarterly calls with managers and shares the information with BOI staff.

Member Jack Prothero asked if RVK could provide that information to the Board, as he wanted to be sure there is a process working with RVK to avoid any surprises.

Ms. Gratsinger replied yes, RVK would be happy to.

Executive Director Villa added staff have instituted first and second readings of Investment Policy Statements and manager terminations, whether it is for performance issues or strategic restructuring.

The meeting adjourned for the day at 5:00 p.m.

**CALL TO ORDER**

Vice Chair Mark Noennig called the regular meeting of the Board of Investments (Board) to order at 8:32 a.m. As noted above a quorum of Board Members was present. Vice Chair Noennig advised of video and audio recording of the meeting and asked for public comment on issues within Board jurisdiction. Laurel Fish representing Unite Here, Local 2, and Vicky Juarez, employee at Irvine (CA) Marriott provided the Board with public comment. Their written statements are provided below.

**Laurel Fish**

*Good morning. My name is Laurel Fish with UNITE HERE. I'm here representing UNITE HERE's San Francisco Local 2, and Los Angeles, Orange County and Arizona Local 11. Together, Locals 2 and 11 represent 42,000 hotel and hospitality industry workers in California and Arizona. On behalf of Locals 2 and 11, I want to thank you for welcoming us to your meeting and for taking the time to hear our concerns regarding your investments in our industry via CBRE.*

*We are here for 2 reasons: First, because we represent workers in the hotel industry who are impacted by your investment. Second, because we believe in and fight every day for the right of hospitality workers and all workers to retire with dignity. Defined benefit plans like the ones you invest for are essential to securing that right. We are here to share with you information about your investments in our industry that we believe will help you protect and strengthen your fund for the benefit of Montana public employees, their families, their communities and your state.*

*Sexual assault and harassment are serious challenges we face in the hospitality industry. Between 2005-2015, the accommodation and food services sector ranked #1 among all industries in sexual harassment charges filed with the EEOC.*

*Every day, hotel housekeepers, many of whom are immigrant women, enter into the most intimate of guest areas: their bedrooms and bathrooms. In surveys that our union and its partners conducted in 2016, half of hotel workers who responded in Seattle and Chicago reported incidents of sexual misconduct and harassment at the hands of guests, managers, and co-workers.*

*There is hope for change. Women who serve and clean in hotels and office buildings are standing up together and saying "ENOUGH." Two of TIME Magazine's Silence Breakers, Juana Melara and Sandra Pezqueda, are hotel workers. And you are about to hear from Vicky Juarez, one of four Silence Breakers from the CBRE-owned Irvine Marriot, where your fund is invested. On February 15, Vicky stood in front of CBRE's Irvine Marriott together with several fellow silence breakers to denounce alleged sexual assault and harassment at the hotel.*

*In the MeToo era, we have seen how sexual assault and harassment claims can affect the public's perception of companies. Examples include The Weinstein Company bankruptcy, and Wynn Resorts sudden loss of \$2 billion in value following allegations of sexual abuse.*

*CBRE has been in the headlines as well. Just this last week, Shareholders of CBRE voted on a shareholder resolution calling upon CBRE to eliminate their policy of mandatory arbitration for claims of sexual assault and harassment—a policy that CBRE pioneered a decade ago.*

*On April 24th, Vicky and her fellow silence breakers from CBRE's Irvine Marriott stood with California State Treasurer Fiona Ma and Trustees from CalSTRS, CalPERS, and other pension funds, who announced their support of investment principles intended to address what the trustees called the "looming threat" posed by "the recent wave of sexual harassment and misconduct that leave[s] companies open to significant operational, financial and reputational risks." I encourage you to look at those guidelines and to consider adopting them.*

*During our prior visits, you heard reports about the labor disputes at the CBRE-owned Pullman San Francisco Bay and Irvine Marriott Hotels. You should know that those disputes are escalating: just last week workers picketed the Irvine Marriott to protest unsafe working conditions, including lack of training*

*and exposure to hypodermic needles and blood. The California Division of Occupational Safety and Health has issued citations against the Irvine Marriott, carrying proposed penalties totaling \$45,750 for 5 separate health and safety violations. The Pullman hotel remains off the market, to our knowledge, and the hotel's general manager told workers in January that seven potential buyers had toured the property but none had come back.*

*Companies like CBRE will not meaningfully move to mitigate sexual harassment unless they are held accountable by their investors, shareholders, and employees. The way CBRE-owned hotels have handled claims of sexual assault and harassment and the ongoing labor disputes at their properties, especially when combined with criticisms of CBRE's own forced arbitration policy, should be of great concern to you.*

*We respectfully suggest that you not reward CBRE with an investment in fund 9, unless and until the labor disputes and sexual harassment claims are resolved.*

*I have the pleasure of introducing Vicky Juarez, Silence Breaker from CBRE's Irvine Marriott, who will tell you her story.*

#### Vicky Juarez

*Good afternoon. My name is Vicky Juarez. I have been working at CBRE's Irvine Marriott for the last 16 years as a banquet server.*

*One of my coworkers was harassing me, calling me and pressuring me to be with him, and following me home. I reported this to the company and they didn't do anything to stop him. This escalated to the point the police had to get involved to stop him. But the company suspended me and made me feel that I was a bad person.*

*Management made me feel that I had done something wrong for reporting sexual harassment. When they suspended me, I was pregnant, and I got very anxious and depressed because I thought I was going to lose my health insurance.*

*What I went through is going to stay with me for the rest of my life. Nobody knew what I went through and I kept quiet for many years because I felt embarrassed. I decided to speak out because when we organized the Union I started talking to co-workers who told me they had similar experiences. Also, I was inspired by the #MeToo movement and my sisters who work in other hotels who are speaking out. I couldn't keep it inside anymore. It was to time for ME speak out.*

*On February 15, I stood with 3 co-workers: Liliana Rodriguez, Gloria Garcia, and Leticia Vallejo, and broke my silence. We spoke for ourselves and for our co-workers who are still too afraid to speak. We supported Leticia, who is also suing the hotel.*

*And we demanded changes. Because if CBRE and Marriott don't know what they need to do to stop sexual assault and harassment, WE DO. We have proposed protections, like so called panic buttons, closing public restrooms while we clean them, and kicking out guests who harass workers. Marriott has still not agreed to our demands. So we are going to keep fighting until CBRE and Marriott learn to listen.*

Vice Chair Noennig asked if there was further public comment. There was none.

### **INVESTMENTS – NEW COMMITMENTS**

#### Private Investments

Mr. Michael Nguyen stated on April 22, 2019, staff made a commitment of \$50 million to Golden Tree Distressed Fund III LP, a private vehicle focused on distressed and stressed investments. Golden Tree stood out for their historical performance and long history with distressed and stressed investments. They have done well on an absolute and a relative return basis. Responding to a question from Member

Cohea, Mr. Nguyen stated investments include bonds or corporate loans and restructuring, possibly through a bankruptcy. They do not manage or own controlling stakes of the companies, they trade in and out of positions, and possibly serve on a board through a restructuring process.

Ms. Teri Kolnik stated on April 26, 2019, staff made a commitment of \$30 million to Sterling United Properties II, LP. Sterling invests in integrated retail investments, including grocery-anchored shopping centers. The basic parameters are grocery anchors with number #1 or #2 in the top 30 U.S. markets. Other tenants are service providers. Cash flows provide 75% of return. Competition is high, and Sterling has a full team of managers and experts. They attract strong tenants and traffic flow. BOI staff were on the lookout for a retail specialist, and although retail has suffered, grocery is less volatile.

Ms. Emily Kovarik presented two fund commitments. The first is for Kimmeridge Energy Exploration Fund V, LP, a reup with an existing manager with a good track record. On April 5, 2019, staff committed \$50 million. BOI's investment in Fund IV has already had 40% of invested capital returned. That fund has a 1.2 net multiple and a 36% net IRR so far. Kimmeridge has delivered throughout the commodity cycle and without leverage. The team has deep technical knowledge.

Ms. Kovarik reviewed the second commitment to CenterSquare U.S. Real Estate Securities. The initial funding amount was \$40 million. Staff sought a REIT strategy to add publicly traded real estate exposure to the real estate asset class. Staff narrowed the search down to three managers. CenterSquare was chosen due to the depth of the team, their performance and lower fee structure compared to peers.

#### Consolidated Asset Pension Pool (CAPP) – US Equity Transition

Mr. Joe Cullen shared a few thoughts on the transition staff made within the U.S. equity asset class at the start of April. U.S. equity has been the largest asset class for a long time, which has benefited the portfolio. Staff has gradually reduced the size of the asset class, although it is still close to 31%. The transition did not take dollars out of U.S. equity, although going forward, staff plans to take further dollars out to pay benefits for the retirement plans and to further diversify. The public markets team is considering emerging market debt, which is a public market.

Staff has a process for due diligence and made a top down decision to have fewer active managers. With that in mind, U.S. equity is getting smaller on the margin, and the team has worked on restructuring.

Mr. Rande Muffick added as staff looked to structure, the plan was to consolidate the number of active managers. Staff looked at two firms, BlackRock and Northern Trust. Reviewing the structure beforehand to see what the profile would be regarding tracking error, after analysis, staff liked it. The risks are similar to the previous structure and the small cap bias is built in as it was previously. The tracking error is projected to be 80 basis points, vs. 120 basis points prior. Comparable public plan pools vary from 50 to 150 basis points.

Mr. Muffick explained tracking error measures how far the portfolio returns deviate from the return of the benchmark in any given year. Lower is better if the goal is to mirror the return of the benchmark.

Mr. Muffick stated staff terminated five managers TimesSquare, Iridian, Artisan, Congress and AllianceBernstein, and reduced the allocation of T. Rowe Price. The terminated managers were in the small/midcap space. The cash went into Northern Trust MSCI USA Equity Index, BlackRock MSCI USA Equity Index, Jacobs Levy Large Cap Long/Short and iShares Russell 2000 ETF.

Mr. Cullen noted regarding behavioral bias, one thing you look for is great performance; however, if you only seek managers who have done well and the market environment which has been favorable to them changes, that manager could fall out of favor. There are aspects of team, process and execution. Staff did not terminate managers due to mistakes at hiring; staff are looking forward. By shifting resources and varying the approach, staff is looking to improve structure and process to achieve longer term goals.

Mr. Muffick added the legacy structure was a good one; the new structure can do well too.

Mr. Cullen stated the focus is on the overall portfolio and for retirement plans, U.S. equity is a component. Staff have to decide how to allocate our many resources. As staff expand into other areas, we need to shift things a bit. The risk/return profile is to take risk out over the near term within U.S. equities and move assets to other areas. We have lowered the tracking error for now. The overall portfolio is better positioned from a risk standpoint and we have reduced the number of managers.

Mr. Muffick added he wouldn't say there was a shift to value, the managers retained are more core. Staff took some growth out but went more to core rather than value. Core is a blend of value/growth. On the spectrum of stocks, you look at different valuations. The cheaper stocks are, the more expected value; the more expensive, the more growth is expected.

Mr. Mike Pettit reviewed the transition memo included in the packet. Once staff decided on the new structure, the transition was made from the legacy portfolio to the new one. Staff looked at estimates from two different transition managers and chose State Street Global Management (SSGM).

Mr. Pettit explained the size of the transition was about \$796 million and staff used as many legacy assets as possible to target and minimize the need to buy/sell securities. There was approximately 16% of overlap of assets which moved them directly from the legacy to the target portfolio. Of the remaining assets, 12% were in external crossing venues, and 70% were traded on the open market with 2% in cash. The external crossing helps to reduce tracking error. Staff developed a process for trading the 70% assets on the open market to maximize exposure to the markets. The trading began on April 4th, two hours before market close, not trading too much at one time. Then a large amount was done at the end of market day one. On day two additional trading continued, and on day three there was some residual trading.

The pre-trade fee estimate from SSGM was 12 basis points; the other manager's estimate was a bit higher. BOI received a discount in commissions. Moving AllianceBernstein to the ETF helped reduce costs. The pre-transition estimate was ~\$958,000; the final cost was approximately \$303,982, much lower.

Staff negotiated the commission fees down 15%. Costs included the bid ask spread, market impact, and trying to match volumes of what was trading each day. The taxes and fees are SEC fees mostly and there were opportunity costs as well. The total transition took about three days and the market moved during that time. The overall cost equaled 3.82 basis points, compared to the 12 basis point estimate.

Staff took recommendations from the transition managers. The biggest decision was to trade to market on close, given the market volumes. The longer a transition takes, the greater the chance of the market moving. Trading into the close helps avoid the costs of transition. The transition managers cannot estimate the opportunity costs; the markets worked in our favor.

Mr. Muffick added he was happy with the final result, we were lucky.

## **INVESTMENT UPDATE**

### **CIO Update**

Mr. Joe Cullen noted the report information is for the one year ending March 31, 2019. Pension plan assets increased over \$140 million over the last year, after paying out plan benefits of approximately \$351 million. Markets overall worked in our favor and a total of over \$491 million was value added.

Returns over 3-year and 10-year periods are good vs. the actuarial rate of return; the 15-year and 20-year periods are positive, although below the actuarial rate. Since inception, plan returns are around 7.5%. The 10-year number is 10.43%, which is good but covers the period after the Great Financial Crisis of 2008 (GFC) when markets recovered. The down markets such as in the last quarter of 2018 tend to happen once a decade, whereas the 20-year number covers two market crises, the Tech Bubble and the GFC. It is reasonable to expect another crisis in the next 10 years.

Staff will continue to diversify. The challenge today is interest rates that are well below where they were 20 years ago. Inflation is not an issue today and it is below the Fed target; it was higher years ago. Until interest rates rise, there will be challenges for the fixed income portion of the portfolio.

Domestic equity reached near the top of the range at 38%; it is now near 31%, near the midpoint of the range. About \$820 million came out of U.S. equity gradually over the year. The decision to pull equities out has hurt performance, but over the long term was the right decision. Staff expects markets to remain volatile. Some cash out went into real estate, private equity, high yield and diversifying strategies. Cash was also added to cash equivalents, which is providing more return than previously. The cash provides more flexibility within the CAPP structure. A net of \$449 million came out of CAPP to the plans. The liquidity position has improved; there is enough cash to make payments for a year if needed.

Over one year, MSCI US REITs and U.S. equity were the best performing asset classes. The portfolio has good exposure. The worst performer was the MSCI ACWI US which is non-U.S. developed and emerging markets. The gap is huge; the non-U.S. equity returns are influenced partially due to currencies. The U.S. dollar has done better than foreign currency, hurting returns. While staff don't expect to increase non-U.S., we recognize that U.S. equities have had an extremely strong period.

Mr. Cullen stated all asset classes are in compliance with approved policy ranges. BOI actual asset class returns all contributed to overall return, except for non-U.S. international equity.

### Risk Management

Mr. Dan Zarling stated portfolio exposure ties into policy and compliance. The portfolio liquidity position is very strong. There is enough cash at the pension level to cover a years' worth of pension benefits, if needed, a strong position. Anything under three months, would be an uncomfortable position. Looking back in time, there was a different strategy; one day liquidity is strong, by design. Staff is much more comfortable holding cash to avoid the need to sell assets to raise cash.

Concentration and asset class exposures/sectors are all within established ranges. Overall, sectors look reasonable and are stable; they have not changed much over time. If there was a GIG sector that was higher than 25%, it would be uncomfortable. Back in the late 1990's with the tech bubble, when it went north of 30%, managers were overweighting to keep up with the index. Staff is always comparing sectors to the relevant benchmarks and if one is out of range, staff would look into it. For active manager positions, there is a hard 5% limit with each of the managers. If any was getting close to the limit, staff would investigate.

Staff monitor international country and currency exposure and there are established limits on international foreign currency; there is a home currency preference. If a region is higher than 30% relative to the benchmark, staff would take action to reduce the position.

Staff monitors the top issuers/parent companies and tracks how much is invested in them. Typical top companies are blue chip, high quality names. If an individual parent company is above 2%, staff would investigate. The limit applies to actively managed assets and not for passive managers, such as BlackRock.

Mr. Zarling stated there are no compliance issues to report. Staff is forward looking, and the team has been working with RVK on different scenarios. Mr. Zarling and Mr. Eron Krpan recently attended a risk conference which allowed the sharing of ideas with other pension funds.

Member Jack Prothero asked if staff was slightly uncomfortable with anything.

Mr. Zarling replied staff has no concerns about the portfolio structure currently, although emerging markets are reminiscent of the tech bubble. On an international basis, emerging markets make up 25% of the index and is expected to grow, so it could reach 30%, which is a concern. In a general sense, index funds are less risky, and track the index composition. Passive funds mimic the return and risk of

the index. Staff will stick with high conviction managers to provide some extra return. Having both index and active managers together provides for better tracking error.

### Private Equity

Mr. Michael Nguyen stated the private equity narrative is a similar story. U.S. IPOs have had a strong market and there is a lot coming up; the market is watching. The portfolio has some venture capital exposure including through fund of funds. Fundraising continues to be strong; Thoma Bravo raised nearly \$13 billion for its latest fund focusing on enterprise software and technology. This is a sector staff has been looking at for a while now. Their next five closest peers have raised \$50 billion, and all have done fairly well.

Staff has been moving towards more international exposure over the last couple of years and will continue to move towards direct fund exposure vs. fund of funds. Staff is also selectively focused on buyout and venture capital strategies. Buyout remains strong and a lot of BOI managers are back in the market. Staff will continue to look at Asia exposure and credit strategies.

## Real Estate and Natural Resources

### Real Estate

Mr. Ethan Hurley stated commercial real estate remains stable and robust and is supported by continued solid fundamentals. Debt is very available and there is a crush of capital. The interest rate environment and consumer confidence have continued and are expected to remain strong. The upturn has lasted several years, which is a reason to be cautious. Staff expects to continue to focus on retail, grocery anchors, multifamily and industrial.

Responding to a question from Vice Chair Noennig, Mr. Hurley stated retail investments being considered do not include malls, which have been going bust. There is a lot of concern with online consumerism which continues to grow and gain market share. Other retail is what staff is looking at. There will always be a market for grocery. There is income protection and less risk on those properties. The demographics of the internet and Amazon are here to stay. Some of these properties are being purchased to repurpose for industrial distribution needs; last mile industrial exposure will continue to grow. Risk should be spread between property types. There is a bit of a housing crisis as younger folks with student debt are unable to purchase homes, so they need rental housing. Secondary cities and gateway cities are seeing lots of multifamily development. Rent growth levels and occupancy rates are healthy.

Representative Hamilton asked if REITs have been performing near the top for years, are they about due for a return to mean?

Mr. Hurley replied looking at the growth rate, there will always be a demand for basic needs to live and buy goods, and jobs will continue to grow. The demand for real estate should continue along with stability and consistency. The argument against REITs is they are correlated with the equity market, although capital appreciation and income makes them favorable over the long term. The BOI REITs manager invests in class A trophy assets and they tend to outperform core private funds. Additionally, REITs are currently fairly valued.

Mr. Hurley noted staff is looking at direct lending to diversify equity exposure as well as looking at several re-ups; CBRE is back in the market with Fund IX.

### Natural Resources

Mr. Hurley reported prices in the South are up a bit, although that is hampered by heavy inventory and natural disasters. Demand and exports are down a bit in the Northwest. Housing is hampered, although commercial construction is up a bit. Fundraising is at the status quo; on the energy side, capital markets seem to be depressed. The U.S continues to lead as the largest producer of oil in the world and exports are growing. Production is off for Venezuela, although Saudi Arabia may make up the difference.

Staff is facing a number of re-ups this year and next year in the energy space and a number of them are high conviction managers. However, staff is putting a lot of focus on diversifying other strategies in the natural resource space, looking at aggregates strategy, like mining/hard rock/sand and gravel. There is a very stable return profile.

The team spent time in Seattle touring a quarry, looking at mitigation banking, and the environmental sustainability aspect. The manager focus is on remediation projects which have private equity-like returns that are non-correlated.

#### Fixed Income

Mr. Jon Putnam stated the fixed income presentation was covered on day one. The important item of note in the fourth quarter was the Fed's shift from raising interest rates to a more neutral position. Markets think the Fed may actually cut rates. The inverted yield curve is an indication of recession, and it has been a reasonably good indicator over time. The time frame can vary a lot, although the inversion is informative.

#### U.S. Treasury/Agency

Mr. Putnam stated returns were positive for the year at 3.89% outperforming the benchmark by 9 basis points. Portfolio duration was slightly shorter than the benchmark at quarter end and slightly underweight the 2-year to 5-year portion of the curve compared to the benchmark.

#### TIPS

Mr. Putnam stated TIPS returned 2.83% for the year. Inflation has been low. Tariffs should be somewhat inflationary.

Member Jack Prothero asked Mr. Putnam why he liked the TIPS asset class and if it needs to be a separate asset class or if it is available in other areas of fixed income.

Mr. Putnam replied TIPS is a diversifier tied to the CPI (Consumer Price Index) and would see movement in a higher inflationary environment. Mr. Putnam added he thinks it makes sense to be in its own asset class. It's a mixed bag of how investors treat it; some include it in their regular fixed income portfolio. The Barclays Aggregate Index does not include TIPS, which requires it to be measured on its own merits.

#### Broad Fixed Income

Mr. Rande Muffick reviewed broad fixed income. Reams is the lone manager for broad fixed income. Since the portfolio is structured defensively, it did well in the fourth quarter with the yearend downturn. Reams has been defensive for a while; this last quarter gave back the fourth quarter gains.

#### High Yield

Mr. Muffick stated it was the same situation with the high yield asset class. The outperformance in the fourth quarter was given back this quarter. The portfolio is positioned to provide downside protection. A new commitment of \$25 million was invested in the Shenkman portfolio in early January to take advantage of the wider spreads.

#### Domestic Equity

Mr. Muffick reviewed the domestic equity asset class. The first quarter rallied. When the Fed put themselves on hold, the markets reacted positively. There was some improvement, at the time, on the China trade situation, although that has now reversed. Domestic equity is valued at 16.7x estimated next 12-month earnings. The 10-year average is 16.5x, but the long-term average is around 15x. Amazon is trading at 70 times earnings and is a large position in the index which helps to skew the number. The high value is due to long term growth prospects and dominance in the market. Everything is expensive at this point.

### International Equities

Mr. Muffick stated international equities are 2-3 multiples below domestic equities and they have traded at a discount for years vs. domestic. There is a lot going on, such as Brexit and China, so there are reasons for it. While international equities generally follow domestics, they have lagged for the last year and over the first quarter as well. Companies with more international exposure have suffered vs. those with less. The portfolio is doing relatively well since January 1st; international equity has returned 121 basis points vs. the benchmark. Staff is satisfied with the current managers. Staff raised some cash over the quarter and purchased emerging market ETFs which rallied along with the market. Cash levels are at 2.5% for international equity and 1.5% for domestic equity currently, a bit higher for both. There was no cash in/out over the quarter for international equity. Managers are doing well on the active side and the combination of managers is working well together.

Mr. Cullen added staff believe indexing is appropriate for equity markets, both non-U.S. and U.S. Those indices are weighted by size of the companies; the ones who have done the best are overweighted. It is the exact opposite for fixed income; the ones issuing debt are the worst performing. It does not make sense to index high yield. There will be environments where equities and high yield are generally up. The better option for high yield, if you don't have good managers, is to get out of high yield.

### STIP

Ms. Kirsten Haswell reported treasuries and agencies have grown as a percentage of STIP as investments in commercial paper have been unattractive given the lower risk premium for commercial paper.

Member Prothero asked if there were any trends with local government STIP participants.

Ms. Haswell responded the state budget looks good and agencies have a little more money in STIP. Pensions have also increased allocations to STIP, and there have been some big inflows lately.

Executive Director Villa added we may see more school district participation in STIP. Individual school districts may put money into STIP and banks, segregating them from their county governments. We could see new participants joining over the summer.

Ms. Haswell noted staff see in/out of about \$100 million in trades daily; there are a lot of maturities each day.

Ms. Julie Feldman added cash flow is cyclical over the year.

Director Villa stated there are some big outflows such as OPI (Office of Public Instruction) and others at certain times of the year. Although cash flow is predictable within state government, it will change with the new budget.

### State Fund

Mr. Jon Putnam stated he and Mr. Cullen will have a board presentation to State Fund in a couple of weeks. There may be some upcoming modest policy statement updates; staff are looking at some other asset classes, such as high yield, but there will be ongoing discussions with State Fund staff. Staff sold some equities at the end of the first quarter and took some off at the end of the third quarter, but the fourth quarter drop had an effect.

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

1. Preliminary responses for the Investment Consultant RFP will be presented and staff will answer submitted questions.
2. The FY 2020 budget and a rundown of the of the FY 2019 budget will be presented.
3. A draft of the SOC Audit will be presented.
4. Staff will present the proposed revised CAPP investment policy for a second time for Board approval.
5. Staff will present a review of the Montana owned properties.
6. There will be new staff to introduce.
7. There will be an all staff/Board Bar-B-Q in the Cupola area.
8. The executive director’s one-year contract is up for review in August.

Member Jim Edwards requested the week of September 2-6 for the RFP review, later in the week if possible.

Director Villa stated the draft schedule is published with the RFP, and staff will advise the Board if the schedule changes.

Having no further business before the Board, the meeting adjourned at 11:41 a.m.

Next Meeting

The next regular meeting of the Board will be August 20-21, 2019 in Helena, Montana. Complete copies of reports presented to the Board are on file with the Board of Investments.

**BOARD OF INVESTMENTS**

APPROVE: \_\_\_\_\_  
Karl J. Englund, Chair

ATTEST: \_\_\_\_\_  
Dan Villa, Executive Director

DATE: \_\_\_\_\_

**MONTANA BOARD OF INVESTMENTS**  
**2401 Colonial Drive, 3<sup>rd</sup> Floor**  
**Helena, MT**

**Minutes of the Special Board Meeting Conference Call**  
**July 19, 2019**

**BOARD MEMBERS PRESENT VIA CONFERENCE CALL:**

- Karl Englund, Board Chairman
- Mark Noennig, Board Vice Chairman
- Jack Prothero, Board Member
- Jeff Greenfield, Board Member
- Bruce Nelson, Board Member

**BOARD MEMBER PRESENT AT BOI:**

- Terry Cohea, Board Member

**LEGISLATIVE LIASION PRESENT VIA CONFERENCE CALL:**

- Senator Fred Thomas

**LEGISLATIVE LIASION ABSENT:**

- Representative Jim Hamilton

**STAFF PRESENT:**

- Dan Villa, Executive Director
- Dana Chapman, Board Secretary (*Excluding Executive Session*)

Board Chairman Karl Englund called the meeting to order at 10:02 a.m. As noted above a quorum of Board Members was present. Chairman Englund advised audio recording of the meeting was underway. The secretary called the roll and Chairman Englund called for public comment. There was none.

Chairman Englund, as presiding officer, determined that the demands of individual privacy clearly exceeded the merits of public disclosure, and as such, the regular meeting was adjourned, and the Board went into Closed Executive Session at 10:08 a.m.

Chairman Englund reconvened the public meeting of the Board at 10:42 a.m.

Executive Director Dan Villa provided a summary of the next steps relative to the July 26, 2019 departure of Chief Investment Officer Joe Cullen from MBOI.

- Executive Director Villa will serve as acting CIO as authorized by Resolution 234, which delegates the duties of the CIO to the executive director. Directors from the individual portfolios, as well as the Directors of Operations and Risk Management will serve as advisors.
- Management will be conducted using a consensus process. On items that can wait, or those where a consensus is not reached, staff will wait until a new Chief Investment Officer has been secured.
- For those items that staff can execute, Director Villa will act as CIO per Resolution 234.

Executive Director Villa will present three proposals to the Board at the August 20-21, 2019 Board Meeting.

1. Post the position internally, which includes options of internal within BOI, internal to the Department of Commerce and/or internal to state government.
2. Post the position internal and external, with the recruitment process managed by BOI.
3. Secure an executive search firm to manage the national search for BOI.

Chairman Englund asked if there were questions, comments, or further business items before the Board. With none, the meeting was adjourned at 10:45 a.m.

Next Meeting

The next regular meeting of the Board will be August 20-21, 2019 in Helena, Montana. Complete copies of reports presented to the Board are on file with the Board of Investments.

**BOARD OF INVESTMENTS**

APPROVE: \_\_\_\_\_  
Karl J. Englund, Chair

ATTEST: \_\_\_\_\_  
Dan Villa, Executive Director

DATE: \_\_\_\_\_

# MONTANA BOARD OF INVESTMENTS

Department of Commerce

Street Address:  
2401 Colonial Drive, 3<sup>rd</sup> Floor  
Helena, MT 59601

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

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



TO: Members of the Board of Directors  
FROM: Dan Villa, Executive Director *Dan Villa*  
DATE: August 9, 2019  
RE: August Executive Directors Report

1. Member Requests or Follow Up from Prior Meeting
  - a. Briefing on Active vs Passive Management – attached
2. Monthly Snap Shot & Briefing on New Format – attachment
3. Monthly Website Traffic:

Profile Snapshot <span>?</span> <span>AGF</span>			
<b>3,020</b> Visits	<b>5,611</b> Pageviews	<b>72.70%</b> Bounce Rate	<b>18:35</b> Engagement

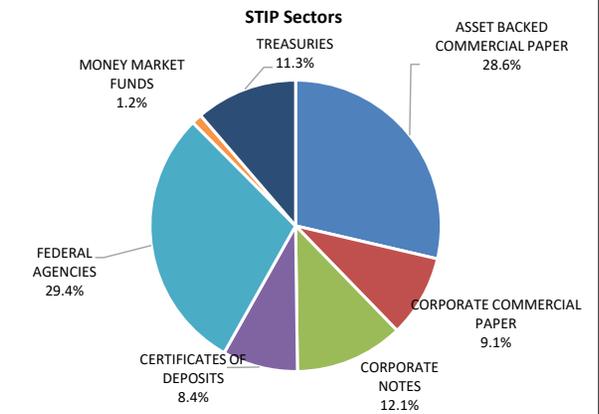
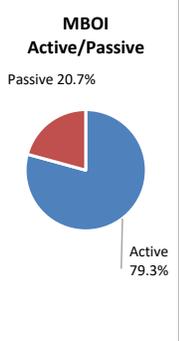
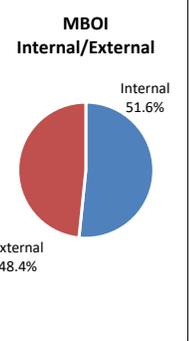
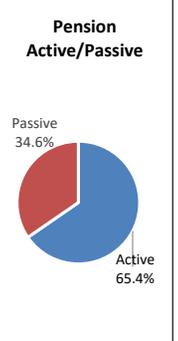
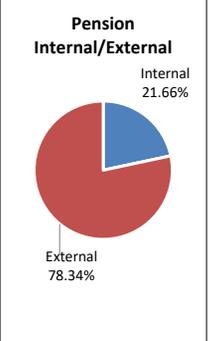
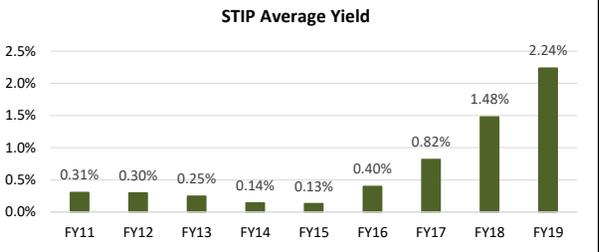
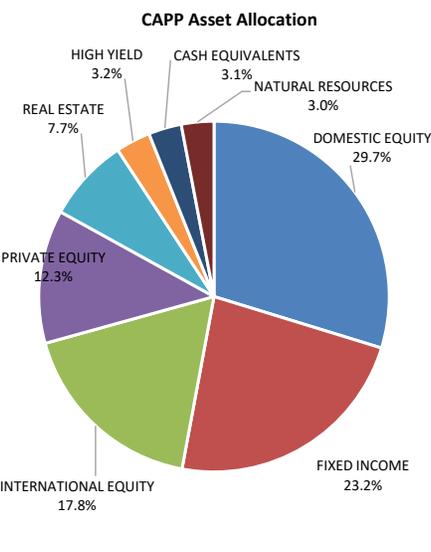
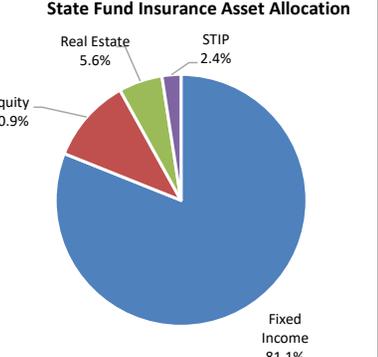
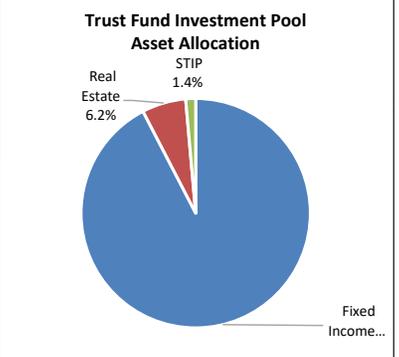
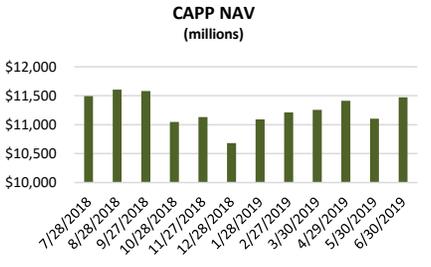
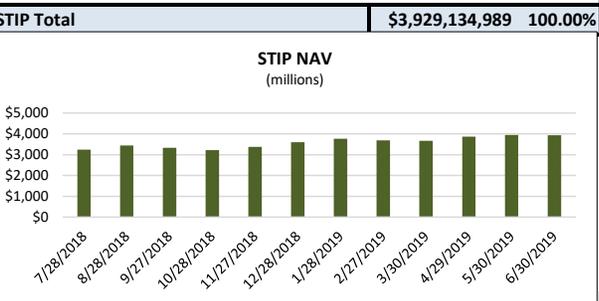
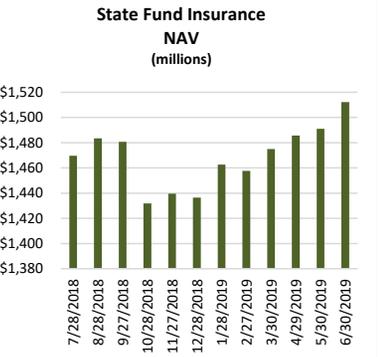
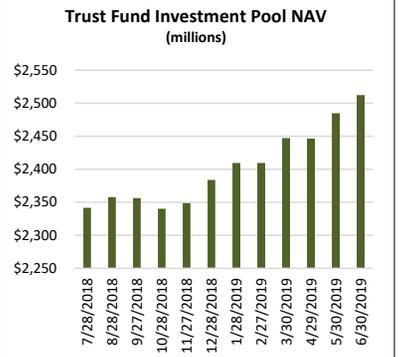
	Pages	Pageview	Unique Views
1	/	1,145	1,027
2	/meetings	529	479
3	/investments	358	290
4	/meetings/2019meetings	323	218
5	/unfundedinvestments/quarterlyperformancereports	314	235
6	/stip	311	271
7	/meetings/2018meetings	293	271
8	/home	206	198
9	/stip/dailyfactoryield	194	166
10	/annualreportsaudits	171	146

4. FY19 Expenditure Report and FY20 Budget – attachment
5. CIO Recruitment – separate mailing
6. Executive Director Performance Review and Contract Consideration – separate mailing

**MBOI Snapshot**  
**Asset Management View**  
**6/30/2019 Unaudited**  
**Assets Under Management \$19,588,751,694**



CAPP	NAV	%	TFIP	NAV	%	State Fund	NAV	%	Non-Pool Fixed Income & Pending Activity	\$ 160,982,635	
DOMESTIC EQUITY	\$ 3,412,460,162	29.7%	Fixed Income	\$ 2,321,176,193	92.39%	Fixed Income	\$ 1,225,796,582	81.06%			
INTERNATIONAL EQUITY	\$ 2,039,192,056	17.8%	Real Estate	\$ 155,965,730	6.21%	Equity	\$ 164,530,778	10.88%			
PRIVATE EQUITY	\$ 1,413,489,160	12.3%	STIP	\$ 35,201,901	1.40%	Real Estate	\$ 85,053,316	5.62%			
US TREASURY AGENCY	\$ 955,285,651	8.3%				STIP	\$ 36,830,488	2.44%			
REAL ESTATE	\$ 886,429,201	7.7%	<b>Total</b>	<b>\$ 2,512,343,823</b>	<b>100.00%</b>	<b>State Fund Total</b>	<b>\$ 1,512,211,164</b>	<b>100.00%</b>			
TIPS	\$ 507,464,973	4.4%							<b>STIP*</b>	<b>NAV</b>	<b>%</b>
MORTGAGE BACKED	\$ 464,792,826	4.1%							FEDERAL AGENCIES	\$1,153,584,591	29.36%
INVESTMENT GRADE CREDIT	\$ 413,730,377	3.6%							ASSET BACKED COMMERCIAL PAPER	\$1,125,273,025	28.64%
HIGH YIELD	\$ 367,557,787	3.2%							CORPORATE NOTES	\$473,696,602	12.06%
CASH EQUIVALENTS	\$ 350,129,945	3.1%							TREASURIES	\$444,583,625	11.32%
NATURAL RESOURCES	\$ 344,271,603	3.0%							CORPORATE COMMERCIAL PAPER	\$357,788,040	9.11%
DIVERSIFYING STRATEGIES	\$ 162,956,110	1.4%							CERTIFICATES OF DEPOSITS	\$328,868,348	8.37%
BROAD FIXED INCOME	\$ 156,319,232	1.4%							MONEY MARKET FUNDS	\$45,340,759	1.15%
<b>CAPP Total</b>	<b>\$ 11,474,079,083</b>	<b>100.0%</b>							<b>STIP Total</b>	<b>\$3,929,134,989</b>	<b>100.00%</b>



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 \$78,279,432 is attributable the portion of STIP held within CAPP (\$43,136,482) and and TFIP (\$35,142,950) as a cash investment. Such value is represented in the NAV for the CAPP and STIP columns.

**MBOI Snapshot**  
**Asset Ownership View**  
**6/30/2019 Unaudited**



	CAPP Holdings	CAPP %	STIP Holdings*	STIP %	TFIP Holdings	TFIP %	Other Holdings <sup>1</sup>	Other %	Total Net Asset Value
<b>Total Fund</b> <small>\$(000)</small>	<b>\$ 11,474,079</b>	<b>58.57%</b>	<b>\$ 3,850,856</b>	<b>19.66%</b>	<b>\$ 2,512,344</b>	<b>12.83%</b>	<b>\$ 1,751,473</b>	<b>8.94%</b>	<b>\$ 19,588,752</b>

**Pensions**

	CAPP	%	STIP	%	TFIP	%	Other	%	Total
--	------	---	------	---	------	---	-------	---	-------

FIREFIGHTER'S RETIREMENT	\$ 430,646	97.05%	\$ 13,079	2.95%	\$ -	0.00%	\$ 27	0.01%	\$ 443,753
GAME WARDEN'S RETIREMENT	\$ 199,466	97.03%	\$ 6,083	2.96%	\$ -	0.00%	\$ 13	0.01%	\$ 205,562
HIGHWAY PATROL RETIREMENT	\$ 147,047	97.07%	\$ 4,437	2.93%	\$ -	0.00%	\$ 9	0.01%	\$ 151,493
JUDGE'S RETIREMENT	\$ 101,339	97.05%	\$ 3,077	2.95%	\$ -	0.00%	\$ 6	0.01%	\$ 104,423
PUBLIC EMPLOYEES' RETIREMENT	\$ 5,716,675	97.04%	\$ 174,033	2.95%	\$ -	0.00%	\$ 364	0.01%	\$ 5,891,073
SHERRIF'S RETIREMENT	\$ 364,915	96.99%	\$ 11,292	3.00%	\$ -	0.00%	\$ 24	0.01%	\$ 376,230
POLICE RETIREMENT	\$ 410,397	97.07%	\$ 12,367	2.93%	\$ -	0.00%	\$ 26	0.01%	\$ 422,789
TEACHER'S RETIREMENT	\$ 4,065,251	97.00%	\$ 125,438	2.99%	\$ -	0.00%	\$ 273	0.01%	\$ 4,190,962
VOL. FIREMANS' RETIREMENT	\$ 38,342	96.65%	\$ 1,326	3.34%	\$ -	0.00%	\$ 2	0.01%	\$ 39,671
<b>Total</b>	<b>\$ 11,474,079</b>	<b>97.02%</b>	<b>\$ 351,132</b>	<b>2.97%</b>	<b>\$ -</b>	<b>0.00%</b>	<b>\$ 744</b>	<b>0.01%</b>	<b>\$ 11,825,955</b>

**Trust Funds** \$(000)

	CAPP	%	STIP	%	TFIP	%	Other	%	Total
--	------	---	------	---	------	---	-------	---	-------

ABANDONED MINE TRUST	\$ -	0.00%	\$ 6,419	89.39%	\$ -	0.00%	\$ 762	10.61%	\$ 7,181
BELT WATER TREATMENT PLANT	\$ -	0.00%	\$ 1,291	5.10%	\$ 23,960	94.59%	\$ 78	0.31%	\$ 25,329
BPA MITIGATION TRUST FUND	\$ -	0.00%	\$ 2,779	24.39%	\$ 5,092	44.69%	\$ 3,522	30.91%	\$ 11,393
BUTTE AREA ONE RESTORATION	\$ -	0.00%	\$ 2,961	23.16%	\$ 8,785	68.73%	\$ 1,036	8.10%	\$ 12,782
BUTTE SILVER BOW	\$ -	0.00%	\$ 1,569	11.07%	\$ 12,562	88.63%	\$ 43	0.30%	\$ 14,174
CLARK FORK RIVER RESTORATION	\$ -	0.00%	\$ 6,019	19.69%	\$ 22,958	75.11%	\$ 1,587	5.19%	\$ 30,565
CLARK FORK SITE RAA	\$ -	0.00%	\$ 9,200	11.93%	\$ 67,670	87.77%	\$ 232	0.30%	\$ 77,102
COAL TAX CULTURAL TRUST FUND	\$ -	0.00%	\$ 598	3.84%	\$ 14,944	95.85%	\$ 48	0.31%	\$ 15,590
COAL TAX PARK ACQUISITION	\$ -	0.00%	\$ 1,042	3.64%	\$ 27,475	96.05%	\$ 88	0.31%	\$ 28,605
EAST HELENA COMPENSATION	\$ -	0.00%	\$ 2,952	49.42%	\$ 3,005	50.32%	\$ 15	0.26%	\$ 5,972
ENDOWMENT FOR CHILDREN	\$ -	0.00%	\$ 65	4.82%	\$ 1,289	94.88%	\$ 4	0.31%	\$ 1,358
FWP REAL PROPERTY TRUST	\$ -	0.00%	\$ 193	2.75%	\$ 6,816	96.94%	\$ 22	0.31%	\$ 7,031
HAROLD HAMM ENDOWMENT	\$ -	0.00%	\$ 3	6.60%	\$ 44	93.10%	\$ 0	0.31%	\$ 47
MONTANA HISTORICAL SOCIETY	\$ -	0.00%	\$ 493	12.74%	\$ 3,365	86.96%	\$ 12	0.30%	\$ 3,869
MONTANA POLE	\$ -	0.00%	\$ 5,500	19.55%	\$ 22,549	80.16%	\$ 82	0.29%	\$ 28,131
OLDER MONTANANS TRUST	\$ -	0.00%	\$ 57	4.38%	\$ 1,239	95.32%	\$ 4	0.31%	\$ 1,300
POTTER TRUST FUND	\$ -	0.00%	\$ 15	6.39%	\$ 216	93.31%	\$ 1	0.31%	\$ 232
RESOURCE INDEMNITY TRUST	\$ -	0.00%	\$ 23	0.02%	\$ 113,612	99.67%	\$ 357	0.31%	\$ 113,992
SMELTER HILL UP RESTORATIVE	\$ -	0.00%	\$ 3,720	37.81%	\$ 5,091	51.76%	\$ 1,026	10.43%	\$ 9,837
STREAMSIDE TAILINGS OPERABLE UNIT	\$ -	0.00%	\$ 2,000	10.67%	\$ 16,694	89.03%	\$ 57	0.31%	\$ 18,751
TOBACCO TRUST FUND	\$ -	0.00%	\$ 9,118	3.67%	\$ 238,888	96.03%	\$ 768	0.31%	\$ 248,775
TRUST AND LEGACY ACCOUNT	\$ -	0.00%	\$ -	0.00%	\$ 754,948	99.69%	\$ 2,381	0.31%	\$ 757,329
UCFRB ASSESS/LITIG COST REC.	\$ -	0.00%	\$ 1,196	5.85%	\$ 19,196	93.84%	\$ 63	0.31%	\$ 20,455
UCFRB RESTORATION FUND	\$ -	0.00%	\$ 1,774	1.82%	\$ 95,165	97.86%	\$ 307	0.32%	\$ 97,246
UPPER BLACKFOOT RESPONSE	\$ -	0.00%	\$ 1,994	48.93%	\$ 1,569	38.51%	\$ 512	12.56%	\$ 4,075
WEED CONTROL TRUST	\$ -	0.00%	\$ -	0.00%	\$ 11,068	99.69%	\$ 35	0.31%	\$ 11,103
WILDLIFE HABITAT TRUST	\$ -	0.00%	\$ 712	4.73%	\$ 14,290	94.96%	\$ 46	0.31%	\$ 15,048
Z/L LT H2O TRUST FD	\$ -	0.00%	\$ 19,927	99.80%	\$ -	0.00%	\$ 40	0.20%	\$ 19,967
ZORTMAN/LANDUSKY LT H2O	\$ -	0.00%	\$ 15,322	99.80%	\$ -	0.00%	\$ 31	0.20%	\$ 15,353
<b>Total</b>	<b>\$ -</b>	<b>0.00%</b>	<b>\$ 96,943</b>	<b>6.05%</b>	<b>\$ 1,492,488</b>	<b>93.13%</b>	<b>\$ 13,159</b>	<b>0.82%</b>	<b>\$ 1,602,590</b>

**Coal Severance** \$(000)

	CAPP	%	STIP	%	TFIP	%	Other	%	Total
--	------	---	------	---	------	---	-------	---	-------

BIG SKY ECON DEV FD	\$ -	0.00%	\$ 3,552	3.04%	\$ 112,847	96.65%	\$ 362	0.31%	\$ 116,761
PERMANENT COAL TRUST FUND	\$ -	0.00%	\$ 22,877	3.94%	\$ 389,324	67.04%	\$ 168,566	29.02%	\$ 580,768
SCHOOL FACILITIES FUND	\$ -	0.00%	\$ 5,380	12.78%	\$ 36,594	86.92%	\$ 126	0.30%	\$ 42,099
TREASURE ST. REG. WATER SYSTEM	\$ -	0.00%	\$ 1,192	1.18%	\$ 99,432	98.51%	\$ 315	0.31%	\$ 100,938
TREASURE STATE ENDOWMENT	\$ -	0.00%	\$ 3,203	1.10%	\$ 287,043	98.54%	\$ 1,049	0.36%	\$ 291,295
<b>Total</b>	<b>\$ -</b>	<b>0.00%</b>	<b>\$ 36,204</b>	<b>3.20%</b>	<b>\$ 925,240</b>	<b>81.75%</b>	<b>\$ 170,418</b>	<b>15.06%</b>	<b>\$ 1,131,861</b>

**Operating Funds** \$(000)

	CAPP	%	STIP	%	TFIP	%	Other	%	Total
--	------	---	------	---	------	---	-------	---	-------

FWP LICENSE ACCOUNT	\$ -	0.00%	\$ 29,376	74.24%	\$ 7,111	17.97%	\$ 3,081	7.79%	\$ 39,568
LOCAL AGENCIES	\$ -	0.00%	\$ 1,374,014	99.79%	\$ -	0.00%	\$ 2,922	0.21%	\$ 1,376,936
MONTANA STATE UNIVERSITY	\$ -	0.00%	\$ 121,336	87.30%	\$ 17,304	12.45%	\$ 354	0.25%	\$ 138,995
MT TECH-UM AGENCY FUNDS	\$ -	0.00%	\$ 10,538	95.42%	\$ 483	4.37%	\$ 23	0.20%	\$ 11,044
STATE AGENCIES	\$ -	0.00%	\$ 350,634	99.74%	\$ -	0.00%	\$ 904	0.26%	\$ 351,537
TREASURER'S FUND	\$ -	0.00%	\$ 1,313,528	96.54%	\$ -	0.00%	\$ 47,090	3.46%	\$ 1,360,618
UNIV OF MONTANA	\$ -	0.00%	\$ -	0.00%	\$ 31,182	70.99%	\$ 12,741	29.01%	\$ 43,923
<b>Total</b>	<b>\$ -</b>	<b>0.00%</b>	<b>\$ 3,199,426</b>	<b>96.29%</b>	<b>\$ 56,080</b>	<b>1.69%</b>	<b>\$ 67,115</b>	<b>2.02%</b>	<b>\$ 3,322,622</b>

**Insurance Reserves** \$(000)

	CAPP	%	STIP	%	TFIP	%	Other	%	Total
--	------	---	------	---	------	---	-------	---	-------

MUS WORKERS COMPENSATION	\$ -	0.00%	\$ 9,090	65.61%	\$ 4,730	34.14%	\$ 34	0.25%	\$ 13,854
PERS DEFINED CONT DISABILITY	\$ -	0.00%	\$ 379	7.42%	\$ -	0.00%	\$ 4,735	92.58%	\$ 5,115
STATE FUND INSURANCE	\$ -	0.00%	\$ 36,761	2.43%	\$ -	0.00%	\$ 1,475,450	97.57%	\$ 1,512,211
SUBSEQUENT INJURY FUND	\$ -	0.00%	\$ 706	99.78%	\$ -	0.00%	\$ 2	0.22%	\$ 707
GROUP BENEFITS	\$ -	0.00%	\$ 54,358	60.88%	\$ 20,269	22.70%	\$ 14,655	16.41%	\$ 89,283
MUS GROUP INSURANCE	\$ -	0.00%	\$ 65,858	77.89%	\$ 13,536	16.01%	\$ 5,161	6.10%	\$ 84,554
<b>Total</b>	<b>\$ -</b>	<b>0.00%</b>	<b>\$ 167,151</b>	<b>9.80%</b>	<b>\$ 38,535</b>	<b>2.26%</b>	<b>\$ 1,500,037</b>	<b>87.94%</b>	<b>\$ 1,705,724</b>

**Short Term Investment Pool**

Account	# Accounts	Total Market Value	%
Total State	349	\$ 2,555,121,006	65.0%
Total Local	683	\$ 1,374,013,983	35.0%
<b>Total STIP</b>	<b>1032</b>	<b>\$ 3,929,134,989</b>	<b>100.0%</b>
STIP Reserve		\$ 47,527,462	
Average Current Month STIP Yield		2.4139%	

**InterCap Statistics**

Loans Outstanding	\$ 79,637,758
Bonds Outstanding	\$ 105,065,000
Number of Borrowers	175
Loan Rate	3.37%

# MONTANA BOARD OF INVESTMENTS

Department of Commerce

Street Address:  
2401 Colonial Drive, 3<sup>rd</sup> Floor  
Helena, MT 59601

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

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



TO: Members of the Board of Directors  
FROM: Dan Villa, Executive Director   
DATE: August 9, 2018  
RE: FY19 Expenditure Report and FY20 Budget

## Fiscal Year 2019 Expenditure Report

Fiscal Year 2019 was a financially challenging one for the Board's internal operations. During FY18, the Board did not charge the statutorily authorized rates for nearly 2.5 months, thus leading to a significant draw on working capital. This drawdown of working capital was in response to a finding within the Department of Commerce Legislative Audit which found the Board was holding cash greater than the maximum 60 day working capital.

To your credit, you acted quickly to resolve the issue. During the November Board meeting you revised the budget to reduce expenditures and improve efficiencies. To the staff's credit, they made it work under very difficult circumstances.

At fiscal year end we are ahead of schedule to rebuild working capital by nearly 33%. Barring unforeseen circumstances (which can't be barred) we could rebuild a full fiscal year early.

Attached is the final budget expenditure report for FY19.

## FY20 Budget Proposal – Decision

Attached is the proposed budget for the current biennium for your consideration. There are a few highlights that I'd like to draw to your attention:

1. The commitment I made to the Legislature when they proposed and passed HB612, "Revising number of professional staff positions at the Board of Investments," (Rep Dan Bartel, R-Lewistown on behalf of the Joint Appropriations Subcommittee on General Government) was that we would cover the costs associated with the bill from the existing revenues available. This is reflected in the budget.
2. The personal services budget is reflective of the snapshot taken in July of 2018 as part of the Title 17 budget development process. Clearly changes have taken place since then. The current salaries for all staff and statutory vacancy savings fit within this number.

3. The operation budget reflects the actual or best guess projections for contracts in FY20. The RFP for investment consulting services will be reviewed soon, including cost proposals.

I'm happy to answer any questions.

Attachments:

1. FY19 Working Capital
2. FY19 Final Expenditure Budget
3. FY20 Budget Proposal
4. 2021 Biennium Investment Budget
5. 2021 Biennium Bond Budget

**65010 Department of Commerce**  
**Standard Budget Summary By Org, Account**

Data Selected for Month/FY: 00 (Beg)/2020 through 12 (Jun)/2020

08/05/2019

Business Unit	(All)
Program Year	2020
FY BudPer	(All)
Month	(All)
Source of Auth	(All)
OBPP Program	75 BOARD OF INVESTMENTS
Fund Type	(All)
Org	(All)
Account	(All)
Account Type	(All)
Project	(All)
Ledger	(All)

[Return to Menu](#)

Subclass	Fund	Acct Lvl 1	Acct Lvl 2	Standard Budget	Actuals Amt	A Accrual Amt	Balance
<b>765N1 INVESTMENTS DIVISION - HB576</b>				<b>7,504,059.00</b>	<b>592,184.98</b>	<b>0.00</b>	<b>6,911,874.02</b>
06014 BOI Municipal Finance Programs				618,221.00	34,351.28	0.00	583,869.72
61000 Personal Services				429,456.00	21,969.90	0.00	407,486.10
61100 Salaries				321,263.00	17,362.44	0.00	303,900.56
61300 Other Compensation				2,060.00	0.00	0.00	2,060.00
61400 Employee Benefits				114,768.00	4,607.46	0.00	110,160.54
61600 Vacancy Savings				(8,635.00)	0.00	0.00	(8,635.00)
62000 Operating Expenses				188,765.00	12,381.38	0.00	176,383.62
62100 Other Services				75,153.00	0.00	0.00	75,153.00
62200 Supplies & Materials				6,320.00	68.98	0.00	6,251.02
62300 Communications				2,521.00	649.31	0.00	1,871.69
62400 Travel				4,280.00	0.00	0.00	4,280.00
62500 Rent				51,333.00	8,526.22	0.00	42,806.78
62700 Repair & Maintenance				75.00	12.75	0.00	62.25
62800 Other Expenses				49,083.00	3,124.12	0.00	45,958.88
06527 Investment Division				6,885,838.00	557,833.70	0.00	6,328,004.30
61000 Personal Services				3,803,704.00	206,924.06	0.00	3,596,779.94
61100 Salaries				3,042,614.00	166,376.24	0.00	2,876,237.76
61300 Other Compensation				7,960.00	0.00	0.00	7,960.00
61400 Employee Benefits				830,145.00	40,547.82	0.00	789,597.18
61600 Vacancy Savings				(77,015.00)	0.00	0.00	(77,015.00)
62000 Operating Expenses				3,082,134.00	350,909.64	0.00	2,731,224.36
62100 Other Services				1,968,011.00	237,798.39	0.00	1,730,212.61
62200 Supplies & Materials				28,366.00	321.05	0.00	28,044.95
62300 Communications				34,963.00	2,473.44	0.00	32,489.56
62400 Travel				241,288.00	1,251.10	0.00	240,036.90
62500 Rent				208,438.00	29,718.25	0.00	178,719.75
62700 Repair & Maintenance				1,068.00	59.50	0.00	1,008.50
62800 Other Expenses				600,000.00	79,287.91	0.00	520,712.09
<b>765N3 LEGISLATIVE AUDIT (RST/BIEN)</b>				<b>105,198.00</b>	<b>0.00</b>	<b>0.00</b>	<b>105,198.00</b>
06014 BOI Municipal Finance Programs				21,040.00	0.00	0.00	21,040.00
62000 Operating Expenses				21,040.00	0.00	0.00	21,040.00
62100 Other Services				21,040.00	0.00	0.00	21,040.00
06527 Investment Division				84,158.00	0.00	0.00	84,158.00
62000 Operating Expenses				84,158.00	0.00	0.00	84,158.00
62100 Other Services				84,158.00	0.00	0.00	84,158.00
<b>765S1 MEDB DEBT SERVICE - SA</b>				<b>3,033,115.00</b>	<b>0.00</b>	<b>0.00</b>	<b>3,033,115.00</b>
06014 BOI Municipal Finance Programs				3,033,115.00	0.00	0.00	3,033,115.00
62000 Operating Expenses				17,000.00	0.00	0.00	17,000.00
62800 Other Expenses				17,000.00	0.00	0.00	17,000.00
69000 Debt Service				3,016,115.00	0.00	0.00	3,016,115.00
69100 Bonds				3,016,115.00	0.00	0.00	3,016,115.00
<b>Grand Total</b>				<b>10,642,372.00</b>	<b>592,184.98</b>	<b>0.00</b>	<b>10,050,187.02</b>

7/2/2019

**Division/Program:** 75 **Board of Investments - 06527 - NA**  
**Authorizing Bill:** **NAPROP**

**ORG** 750100 **BCD REQUIRED!!!**

**Operating Plan**

FTE	Budget Level	FY 2020		FY 2021	
		27.54	27.54		
Salaries	61100	\$ 3,075,894	\$ 3,091,213		
Per Diem	61300	\$ 7,960	\$ 7,960		
Employee Benefits	61400	\$ 841,239	\$ 857,171		
Vacancy Savings	61600	\$ (77,015)	\$ (76,951)		
Personal Services	61000	\$ 3,848,078	\$ 3,879,393		
Unallocated Operating	62000	\$ -	\$ -		
Contracted Services	62100	\$ 2,007,794	\$ 1,921,750		
Supplies & Materials	62200	\$ 28,366	\$ 28,366		
Communications	62300	\$ 34,963	\$ 34,963		
Travel	62400	\$ 241,288	\$ 241,328		
Rent	62500	\$ 208,438	\$ 208,438		
Utilities	62600	\$ -	\$ -		
Repairs & Maintenance	62700	\$ 1,068	\$ 1,068		
Other Expenses	62800	\$ 600,000	\$ 600,000		
Operating Expenses	62000	\$ 3,121,917	\$ 3,035,913		
Equipment	63000	\$ -	\$ -		
Capital Outlay	64000	\$ -	\$ -		
Local Assistance	65000	\$ -	\$ -		
Grants	66000	\$ -	\$ -		
Benefits & Claims	67000	\$ -	\$ -		
Transfers	68000	\$ -	\$ -		
Debt Service	69000	\$ -	\$ -		
Total Costs:		\$ 6,969,995	\$ 6,915,306		

**Funding**

Investment Division	06527	\$ 6,885,837	\$ 6,915,306	765N1
LEGISLATIVE AUDIT (RST/BIEN)	06527	\$ 84,158	\$ -	765N3
ITSD RST	06527	\$ -	\$ -	765NX
WCOMP Reduction	06527	\$ -	\$ -	765Z3
Total Funding		\$ 6,969,995	\$ 6,915,306	

7/2/2019

**Division/Program:** 75 Board of Investments - 06014 - NA  
**Authorizing Bill:** NAPROP  
**ORG** 750200

**Operating Plan**

FTE	Budget Level	FY 2020		FY 2021	
		4.46		4.46	
Salaries	61100	\$ 321,263	\$	324,154	
Per Diem	61300	\$ 2,060	\$	2,060	
Employee Benefits	61400	\$ 114,768	\$	118,193	
Vacancy Savings	61600	\$ (8,635)	\$	(8,651)	
Personal Services	61000	\$ 429,456	\$	435,756	
Unallocated Operating	62000	\$ -	\$	-	
Contracted Services	62100	\$ 96,193	\$	111,456	
Supplies & Materials	62200	\$ 6,320	\$	6,320	
Communications	62300	\$ 2,521	\$	2,521	
Travel	62400	\$ 4,280	\$	4,280	
Rent	62500	\$ 51,333	\$	15,583	
Utilities	62600	\$ -	\$	-	
Repairs & Maintenance	62700	\$ 75	\$	75	
Other Expenses	62800	\$ 49,083	\$	49,176	
Operating Expenses	62000	\$ 209,805	\$	189,411	
Equipment	63000	\$ -	\$	-	
Capital Outlay	64000	\$ -	\$	-	
Local Assistance	65000	\$ -	\$	-	
Grants	66000	\$ -	\$	-	
Benefits & Claims	67000	\$ -	\$	-	
Transfers		\$ -	\$	-	
Debt Service	69000	\$ -	\$	-	
Total Costs:		\$ 639,261	\$	625,167	

**Funding**

Investment Division	06014	\$ 618,221	\$	625,167	765N1
LEGISLATIVE AUDIT (RST/BIEN)	06014	\$ 21,040	\$	-	765N3
WCOMP Reduction	06014	\$ -	\$	-	765Z3
Total Funding		\$ 639,261	\$	625,167	

## All Business Units

### Standard Budget Summary By Org, Account

Data Selected for Month/FY: 01 (Jul)/2019 through 12 (Jun)/2019

Business Unit	(All)
Program Year	2019
FY_BudPer	(All)
Month	(All)
Source of Auth	(All)
OBPP Program	(All)
Fund Type	(All)
Account	(All)
Org	(All)
Account Type	E
Project	(All)
Ledger	(All)

[Return to Menu](#)

Fund	Subclass	Acct Lvl 1	Acct Lvl 2	Standard Budget	Actuals Amt	A Accrual Amt	Balance
<b>06014 BOI Municipal Finance Programs</b>				<b>3,017,706.56</b>	<b>2,947,979.60</b>	<b>0.00</b>	<b>69,726.96</b>
<b>765N1 INVESTMENTS DIVISION - HB576</b>				<b>703,459.00</b>	<b>661,505.04</b>	<b>0.00</b>	<b>41,953.96</b>
<b>61000 Personal Services</b>				<b>450,246.00</b>	<b>445,123.64</b>	<b>0.00</b>	<b>5,122.36</b>
61100 Salaries				349,978.00	338,123.28	0.00	11,854.72
61300 Other Compensation				2,500.00	2,060.00	0.00	440.00
61400 Employee Benefits				121,241.00	104,940.36	0.00	16,300.64
61600 Vacancy Savings				(23,473.00)	0.00	0.00	(23,473.00)
<b>62000 Operating Expenses</b>				<b>253,213.00</b>	<b>216,381.40</b>	<b>0.00</b>	<b>36,831.60</b>
62100 Other Services				101,724.00	80,729.12	0.00	20,994.88
62200 Supplies & Materials				7,820.00	7,518.81	0.00	301.19
62300 Communications				10,021.00	7,449.51	0.00	2,571.49
62400 Travel				4,280.00	4,007.91	0.00	272.09
62500 Rent				51,315.00	51,028.60	0.00	286.40
62700 Repair & Maintenance				325.00	146.25	0.00	178.75
62800 Other Expenses				77,728.00	65,501.20	0.00	12,226.80
<b>765N3 LEGISLATIVE AUDIT (RST/BIEN)</b>				<b>4,697.56</b>	<b>4,697.56</b>	<b>0.00</b>	<b>0.00</b>
<b>62000 Operating Expenses</b>				<b>4,697.56</b>	<b>4,697.56</b>	<b>0.00</b>	<b>0.00</b>
62100 Other Services				4,697.56	4,697.56	0.00	0.00
<b>765S1 MEDB DEBT SERVICE - SA</b>				<b>2,309,513.00</b>	<b>2,281,777.00</b>	<b>0.00</b>	<b>27,736.00</b>
<b>62000 Operating Expenses</b>				<b>34,000.00</b>	<b>27,095.45</b>	<b>0.00</b>	<b>6,904.55</b>
62800 Other Expenses				34,000.00	27,095.45	0.00	6,904.55
<b>69000 Debt Service</b>				<b>2,275,513.00</b>	<b>2,254,681.55</b>	<b>0.00</b>	<b>20,831.45</b>
69100 Bonds				2,275,513.00	2,254,681.55	0.00	20,831.45
<b>765Z3 WC REDUCTION - HB576</b>				<b>37.00</b>	<b>0.00</b>	<b>0.00</b>	<b>37.00</b>
<b>61000 Personal Services</b>				<b>37.00</b>	<b>0.00</b>	<b>0.00</b>	<b>37.00</b>
61400 Employee Benefits				37.00	0.00	0.00	37.00
<b>06527 Investment Division</b>				<b>6,589,784.32</b>	<b>6,258,582.64</b>	<b>0.00</b>	<b>331,201.68</b>
<b>590H1 STATE ACCOUNTING BUREAU</b>				<b>55,373.00</b>	<b>55,369.18</b>	<b>0.00</b>	<b>3.82</b>
<b>61000 Personal Services</b>				<b>55,373.00</b>	<b>55,369.18</b>	<b>0.00</b>	<b>3.82</b>
61100 Salaries				39,485.00	38,896.43	0.00	588.57
61400 Employee Benefits				15,888.00	16,472.75	0.00	(584.75)
<b>765N1 INVESTMENTS DIVISION - HB576</b>				<b>6,449,385.00</b>	<b>6,118,502.80</b>	<b>0.00</b>	<b>330,882.20</b>
<b>61000 Personal Services</b>				<b>3,717,383.00</b>	<b>3,704,277.71</b>	<b>0.00</b>	<b>13,105.29</b>
61100 Salaries				3,089,240.00	2,907,838.75	0.00	181,401.25
61300 Other Compensation				8,700.00	8,240.00	0.00	460.00
61400 Employee Benefits				837,871.00	788,198.96	0.00	49,672.04
61600 Vacancy Savings				(218,428.00)	0.00	0.00	(218,428.00)
<b>62000 Operating Expenses</b>				<b>2,732,002.00</b>	<b>2,414,225.09</b>	<b>0.00</b>	<b>317,776.91</b>
62100 Other Services				1,630,795.00	1,517,284.41	0.00	113,510.59
62200 Supplies & Materials				17,686.00	16,653.39	0.00	1,032.61
62300 Communications				15,324.00	10,218.93	0.00	5,105.07
62400 Travel				241,125.00	114,630.49	0.00	126,494.51
62500 Rent				208,438.00	178,898.60	0.00	29,539.40
62700 Repair & Maintenance				1,068.00	682.50	0.00	385.50
62800 Other Expenses				617,566.00	575,856.77	0.00	41,709.23
<b>765N3 LEGISLATIVE AUDIT (RST/BIEN)</b>				<b>18,791.32</b>	<b>18,791.32</b>	<b>0.00</b>	<b>0.00</b>
<b>62000 Operating Expenses</b>				<b>18,791.32</b>	<b>18,791.32</b>	<b>0.00</b>	<b>0.00</b>
62100 Other Services				18,791.32	18,791.32	0.00	0.00
<b>765NX ITSD RST</b>				<b>65,922.00</b>	<b>65,919.34</b>	<b>0.00</b>	<b>2.66</b>
<b>62000 Operating Expenses</b>				<b>65,922.00</b>	<b>65,919.34</b>	<b>0.00</b>	<b>2.66</b>
62100 Other Services				35,311.00	35,309.96	0.00	1.04
62200 Supplies & Materials				10,232.00	10,231.98	0.00	0.02
62300 Communications				20,379.00	20,377.40	0.00	1.60
<b>765Z3 WC REDUCTION - HB576</b>				<b>313.00</b>	<b>0.00</b>	<b>0.00</b>	<b>313.00</b>
<b>61000 Personal Services</b>				<b>313.00</b>	<b>0.00</b>	<b>0.00</b>	<b>313.00</b>
61400 Employee Benefits				313.00	0.00	0.00	313.00
<b>Grand Total</b>				<b>9,607,490.88</b>	<b>9,206,562.24</b>	<b>0.00</b>	<b>400,928.64</b>

Working Capital Analysis

	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	FYE
Working Capital	417,408.94	315,857.03	371,044.51	245,868.49	293,642.91	299,066.62	299,131.23	404,775.30	490,338.64	561,203.97	679,529.34	546,189.93	565,097.74
60 Day Working Capital	761,570.84	1,027,670.33	1,011,877.23	1,094,162.44	1,073,621.05	1,074,655.31	1,076,925.23	1,052,232.06	1,037,491.83	1,029,158.37	1,013,238.84	1,055,865.05	1,052,713.74
Excess Working Capital	(344,161.90)	(711,813.30)	(640,832.72)	(848,293.94)	(779,978.14)	(775,588.69)	(777,794.00)	(647,456.76)	(547,153.19)	(467,954.40)	(333,709.50)	(509,675.12)	(487,616.00)
Months to rebate	-0.903821107	-1.385295029	-1.266621488	-1.550581372	-1.452985931	-1.443418521	-1.444471684	-1.230634923	-1.05476144	-0.9093924	-0.6586986	-0.965417157	-0.926398095
Revenues	346,181.02	1,024,968.00	1,570,301.00	2,115,634.00	2,659,122.00	3,204,459.00	3,749,810.18	4,295,144.18	4,840,492.50	5,385,826.50	5,931,173.66	6,544,054.66	6,544,054.66
Expense	380,785.42	1,027,670.33	1,517,815.85	2,188,324.87	2,684,052.63	3,223,965.92	3,769,238.31	4,208,928.24	4,668,713.22	5,145,791.85	5,572,813.64	6,335,190.27	6,316,282.46
Revenue over Expense	(34,604.40)	(2,702.33)	52,485.15	(72,690.87)	(24,930.63)	(19,506.92)	(19,428.13)	86,215.94	171,779.28	240,034.65	358,360.02	208,864.39	227,772.20
Average Revenue	346,181.02	512,484.00	523,433.67	528,908.50	531,824.40	534,076.50	535,687.17	536,893.02	537,832.50	538,582.65	539,197.61	545,337.89	545,337.89
Average Expenses	380,785.42	513,835.17	505,938.62	547,081.22	536,810.53	537,327.65	538,462.62	526,116.03	518,745.91	514,579.19	506,619.42	527,932.52	526,356.87
Rev over Exp	(34,604.40)	(1,351.16)	17,495.05	(18,172.72)	(4,986.13)	(3,251.15)	(2,775.45)	10,776.99	19,086.59	24,003.47	32,578.18	17,405.37	18,981.02



# Executive Summary and Capital Markets Review

Montana Board of Investments

Period Ended: June 30, 2019



# Table Of Contents

1	Executive Summary	Page 3
2	Capital Markets Review	Page 9

# Executive Summary



# CAPITAL MARKETS REVIEW & TOTAL FUND PERFORMANCE HIGHLIGHTS

## Economic and Capital Market Review

During the second quarter, most global risk assets added to gains realized during the first quarter, albeit with considerable bouts of volatility tied to heightened geopolitical tensions and the evolving China-US trade dispute. Global central banks collectively reacted to the decline in inflation expectations and weakening global growth with accommodative guidance that eased concerns and brought about renewed optimism in June. Specific sub asset class returns included 4.3% for US large cap equities, 2.1% for US small cap equities, 3.7% for developed international equity markets, and 0.6% for emerging markets. Fixed income markets, as represented by the Bloomberg US Aggregate Index finished with another strong quarter, returning 3.1%. Markets were aided by declining US Treasury rates, which continued to decline dramatically in August. Finally, real estate and private equity contributed positive returns for the quarter. The MBOI real estate portfolio returned 1.3% and the private equity portfolio returned 3.3%. Several of the key macroeconomic factors driving Q2 performance are outlined in greater detail in **Figure 1**. Index returns representative of major asset class performance are presented in **Figure 2**.

**Figure 1: Drivers of 2<sup>nd</sup> Quarter Asset Class Performance**

Positive Drivers	Negative Drivers
<ol style="list-style-type: none"> <li><b>Evolving US/China Trade Negotiations</b> – The ongoing US-China trade dispute led to considerable bouts of volatility during the second quarter. US equity markets realized a mid-quarter drawdown as the US threatened to impose additional tariffs on \$300B worth of Chinese goods. In spite of this, the quarter ended strongly, buoyed by the potential for a short-term resolution in the China-US trade dispute. Although this was a positive driver in the second quarter, it is important to note that an escalation of tariffs and currency disputes between the two countries led to a sharp drawdown in equities and drop in long term interest rates during the third quarter.</li> <li><b>Accommodative Central Bank Policy</b> – US interest rate markets, which were pricing in a rate increase as recently as six months ago, have turned dramatically. In fact, at one point in June, market based indicators discounted 100 basis points of easing over the coming year. The European Central Bank (“ECB”) and Bank of Japan both reaffirmed guidance maintaining low interest rates into 2020, and the ECB signaled the potential for additional interest rate cuts and quantitative easing, should economic conditions deteriorate further.</li> </ol>	<ol style="list-style-type: none"> <li><b>Slowing of Economic Growth</b> – Economic data released during the quarter was largely consistent with slowing economic growth. Non-farm payroll growth in the US averaged 171,000 new jobs per month, well below the 223,000 per month rate from 2018. The Purchasing Managers’ Indexes for manufacturing and services sectors fell from the mid-50s to just above 50, indicating slower expansion in those sectors.</li> <li><b>Sustained Yield Curve Inversion</b> – The inversion of the yield curve (i.e., short term rates higher than longer term rates) often portends recessions. While we have not yet experienced a full yield curve inversion, we have experienced an ongoing partial inversion across various maturities.</li> </ol>

**Figure 2: Key Market Index Returns**  
Period Ending June 30, 2019

Index	Asset Class	Q2	CYTD	FYTD/ 1 Year	5 Year	10 Year
S&P 500 (Cap Wtd)	US Large Cap Equity	4.30	18.54	10.42	10.71	14.70
Russell 2000	US Small Cap Equity	2.10	16.98	-3.31	7.06	13.45
MSCI EAFE (Net)	Int'l Developed Markets	3.68	14.03	1.08	2.25	6.90
MSCI Emerging Markets (Net)	Int'l Emerging Markets	0.61	10.59	1.21	2.49	5.81
Bloomberg US Agg Bond	US Fixed Income	3.08	6.11	7.87	2.95	3.90
NCREIF ODCE (Gross)	Private Real Estate	1.00	2.43	6.41	7.76	9.88
Bloomberg Commodity (TR)	Commodities	-1.19	5.06	-6.75	-9.15	-3.74

### MBOI Performance Highlights: 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 June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years
<b>Total Fund Composite (Net)</b>	<b>2.90</b>	<b>10.41</b>	<b>5.70</b>	<b>8.80</b>	<b>6.57</b>	<b>8.94</b>	<b>9.87</b>
Public Employees Benchmark	2.71	13.30	5.61	8.89	6.90	9.28	N/A
<i>Difference</i>	<i>0.19</i>	<i>-2.89</i>	<i>0.09</i>	<i>-0.09</i>	<i>-0.33</i>	<i>-0.34</i>	<i>N/A</i>
Rank	56	37	52	43	6	11	5

<sup>1</sup> Fiscal year to date covers the trailing period beginning July 1, 2018.

### RVK Commentary

- **Positive Returns Across most Asset Classes** – The portfolio posted a positive return of 2.90% net of fees, largely driven by strong returns in domestic and international public equity markets. The Diversifying Strategies and Investment Grade Credit Pools also contributed strong single-digit returns over the quarter, returning 3.40% and 3.14%, respectively. The remaining fixed income sub-asset classes provided returns ranging from 2.12% to 2.92% over the quarter. Private Equity and Real Estate provided positive returns as well, while only the Natural Resources Pool delivered modestly negative returns.
- **Continued Strength of Peer Rankings** – MBOI rankings versus peers remain strong across all time periods beyond the 1-year. 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.
- **Mixed Relative Performance for Asset Class Composites** – The asset class composites posted mixed returns relative to their respective benchmarks over the quarter. The Broad Fixed Income Pool underperformed its benchmark by 16 basis points, the Investment Grade Credit Pool outperformed its benchmark by 1 basis point, and the High Yield Pool underperformed its benchmark by 2 basis points. On the other hand, the International Equity, Mortgage-Backed, and

Diversifying Strategies pools outperformed respective benchmarks by 57, 16, and 104 basis points.

In the illiquid asset pools (i.e., Private Equity, Real Estate, and Natural Resources), relative returns were mixed. Private Equity outperformed its benchmark by 105 basis points, the Natural Resources Pool underperformed by 41 basis points, and the Real Estate Pool trailed by 4 basis points. As we have discussed in past meetings, over short periods of time, illiquid asset pools can deviate substantially from public market indices. This issue is most acute in extreme up markets (MBOI composites underperform) or extreme down markets (MBOI composites outperform). During the first six months of 2019, the strong public equity, REIT, and commodity markets led to significant underperformance of the corresponding MBOI asset pools.

Finally, the Trust Funds Investment Pool outperformed its index by 2 basis points, while the Short Term Investment Pool kept pace with its respective benchmark posting an absolute return of 0.62%.

### **MBOI Performance Highlights: 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 June 30, 2019, CAPP assets totaled approximately \$11.5 billion, and STIP assets totaled approximately \$3.9 billion.

The performance relative to benchmarks and peers for the major asset class composites held within the CAPP are summarized on **pages 16-19** 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 several asset class pools (e.g., TIPS, Natural Resources, Diversifying Strategies), historical performance remains limited to 27 months or less, as these asset pools were only recently established by the MBOI.

- **Montana Domestic Equity Pool** – The MBOI Domestic Equity Pool returned 3.96% for the quarter, underperforming the Domestic Equity Custom Index by 7 basis points. Relative to peers, the pool ranked in the 38<sup>th</sup> percentile for the quarter. While the past few quarters have been more supportive of active management opportunities, the strategy as a whole has lagged relative to the Domestic Equity Custom Index over all trailing periods of 1 year and beyond.

At the individual manager level, active management results were mixed, with small- and mid-cap segments showing improvement during the quarter, while active large-cap managers generally lagged their respective benchmark returns. For example, Vaughan Nelson, Jacobs Levy, and DFA US Small Cap Trust outperformed respective benchmarks by 163, 10, and 5 basis points during the quarter, while J.P. Morgan trailed its benchmark by 14 basis points. Despite mixed relative performance, the domestic equity portfolio has performed reasonably well versus peers, ranking near or above median over all trailing periods out to the 10-year period.

- **Montana International Equity Pool** – The MBOI International Equity Pool returned 3.31% for the quarter, outperforming the International Equity Custom Benchmark by 57 basis points. Relative to peers, the pool ranked in the 48<sup>th</sup> percentile for the quarter, and has outperformed its benchmark over all trailing periods out to the 10-year period. Relative to peers, the pool has lagged over longer term trailing periods, although it has been gradually improving over

the last 3 years.

- **Montana Broad Fixed Income** – Broad Fixed Income returned 2.92% for the quarter, underperforming the Bloomberg US Aggregate Bond Index by 16 basis points. The composite has performed well relative to the index across all trailing periods beyond 1 year. Recent performance, however, predominantly reflects the performance of Reams, which is the one remaining asset manager in the composite.
- **Trust Funds Investment Pool** – The Trust Funds Investment Pool returned 3.10% for the quarter, outperforming the Bloomberg US Aggregate Bond Index by 2 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.
- **Investment Grade Credit** – The Investment Grade Credit Pool returned 3.14% for the quarter, performing in line with the Bloomberg US Corporate Intermediate Bond Index. As a newer investment pool in the CAPP, relative performance for this pool only extends back 27 months. While this remains a relatively brief period of time, the pool has outperformed by 10 basis points during this time period.
- **US Treasury & Agency** – The US Treasury & Agency pool returned 2.39% for the quarter, performing in line with the Bloomberg US Treasury Intermediate Term Index. As a new investment pool in the CAPP, relative performance for this pool only extends back 27 months, while this remains a relatively brief period of time, the pool has outperformed by 14 basis points during this time period.
- **High Yield** – The High Yield Bond Pool returned 2.48% for the quarter, performing in line with the Bloomberg US High Yield 2% Issuer Cap Index. During 2018, MBOI added two new high yield investment managers, Oaktree and Shenkman. As both managers have a little over one year of experience in the portfolio, it remains early from a performance assessment perspective. During Q2, Post High Yield Plus was terminated, and the proceeds were transferred to Shenkman and Oaktree.
- **Mortgage Backed** – The Mortgage-Backed Securities pool returned 2.12% for the quarter, outperforming the Bloomberg US MBS Index by 16 basis points. As a new investment pool in the CAPP, relative performance for this pool only extends back 27 months, while this remains a relatively brief period of time, the pool has outperformed by 42 basis points during this time period.
- **TIPS** – The TIPS pool returned 2.55% for the quarter, performing in-line the Bloomberg US Treasury Inflation Notes 1-10 Year Index. As a new investment pool in the CAPP, relative performance for this pool only extends back 27 months, while this remains a relatively brief period of time, the pool has outperformed by 6 basis points during this time period. It should be noted, however, that the TIPS market is highly efficient, and material outperformance is not anticipated for this segment of the market.
- **Natural Resources** – The Natural Resources pool returned -0.21% for the quarter, underperforming the MSCI ACW Commodity Producers Index (USD) (Net) by 41 basis points. As a new investment pool in the CAPP, relative performance for this pool only extends back 27 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 1.25% for the quarter, modestly underperforming the Real Estate Custom Index by 4 basis points. Relative to peers, the pool has ranked 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.
- **Diversifying Strategies** – The Diversifying Strategies Pool returned 3.40% for the quarter, representing the fifth full quarter of performance as it was established during the first quarter of 2018. As a new investment pool in the CAPP, a meaningful assessment of relative performance of this pool will take additional time.
- **Short Term Investment Pool** – The Short Term Investment Pool returned 0.62% for the quarter, marginally underperforming the iMoneynet Money Fund Median<sup>1</sup>, but performing in-line with the Federal Reserve US Treasury 1-Month Constant Maturity Rate. Over the past year, the pool returned 2.36%. As of the writing of this executive summary, the Federal Reserve has cut the target range for the Federal Funds Rate by 25 bps to 2.00% – 2.25%. As such, returns for the Short Term Investment Pool should be expected to be marginally lower throughout the rest of 2019.
- **Private Equity Pool** – The Private Equity Pool returned 3.32% for the quarter, which outperformed the MSCI US Small Cap Index by 105 basis points. As we have discussed in past meetings, private equity provides valuable diversification and return enhancement for the MBOI pension plans. Over the last 10 years, the portfolio has returned 13.10% net of fees, which continues to exceed all but the Domestic Equity asset class over the long run. In addition, during major market drawdowns (particularly those that are short-lived), private equity can provide substantial volatility reduction.

---

<sup>1</sup> The iMoneynet Money Fund Median is reported on a gross of fees basis.

# Capital Markets Review

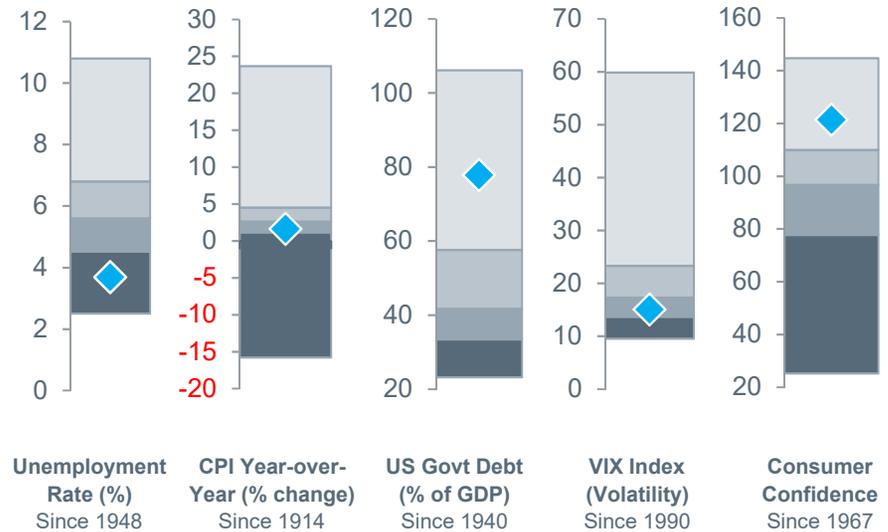


Second Quarter Economic Environment

Key Economic Indicators

The second quarter of 2019 saw global risk assets add to the gains realized during the first quarter, albeit with considerable bouts of volatility tied to heightened geopolitical tensions and the evolving China-US trade dispute. The strong equity returns realized in April were erased in May as confidence in the steady pace of global economic expansion waned and the US threatened to impose additional tariffs on \$300B worth of Chinese goods. The World Bank lowered its global GDP growth estimate for CY 2019 from 2.9% to 2.6%. Global central banks collectively reacted to the negative market sentiment with a flurry of dovish guidance that cooled the market's concern and brought about renewed optimism coming into June. The European Central Bank ("ECB") and Bank of Japan ("BoJ") both reaffirmed guidance to keep interest rates low into 2020. Yields on the 10-year Treasury note fell from 2.41% ending Q1, to 2.00% at the end of the second quarter, providing a strong pass-through to higher equity valuations via the lower discount rate. The economic data released during the quarter was largely consistent with a slowing economy, but one that doesn't necessarily appear on the verge of recession.

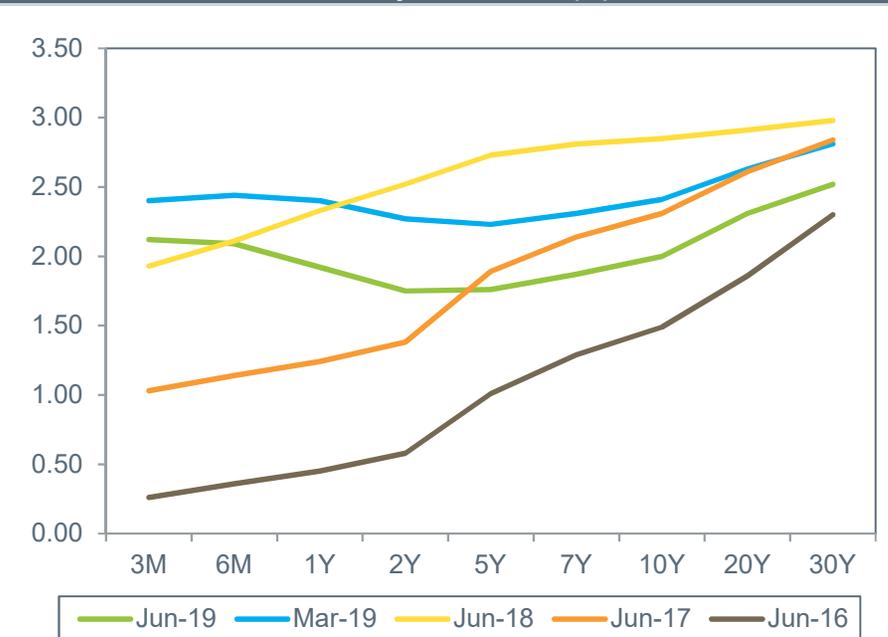
Key Economic Indicators



Economic Indicators

	Jun-19	Mar-19	Jun-18	Jun-16	20 Yr
Federal Funds Rate (%)	2.40 ▼	2.43	1.91	0.30	1.88
Breakeven Infl. - 5 Yr (%)	1.54 ▼	1.79	2.08	1.40	1.86
Breakeven Infl. - 10 Yr (%)	1.70 ▼	1.87	2.13	1.44	2.04
CPI YoY (Headline) (%)	1.6 ▼	1.9	2.9	1.0	2.2
Unemployment Rate (%)	3.7 ▼	3.8	4.0	4.9	5.9
Real GDP YoY (%)	2.3 ▼	2.7	3.2	1.3	2.2
PMI - Manufacturing	51.7 ▼	55.3	60.0	52.5	52.8
USD Total Wtd Idx	90.86 ▼	92.07	89.97	90.58	86.19
WTI Crude Oil per Barrel (\$)	58.5 ▼	60.1	74.2	48.3	61.1
Gold Spot per Oz (\$)	1,409 ▲	1,292	1,253	1,322	905

Treasury Yield Curve (%)



Market Performance (%)

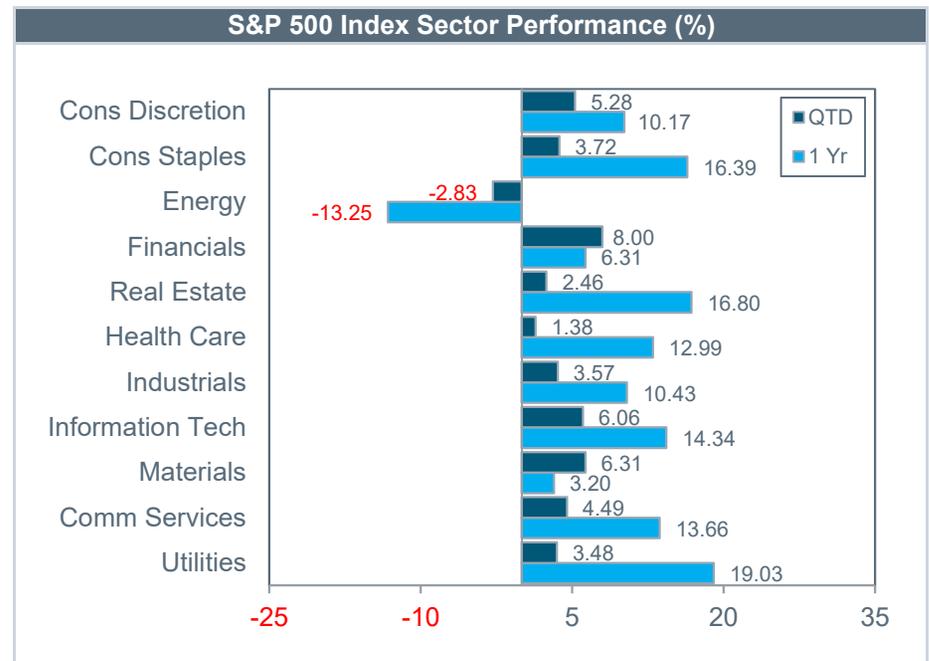
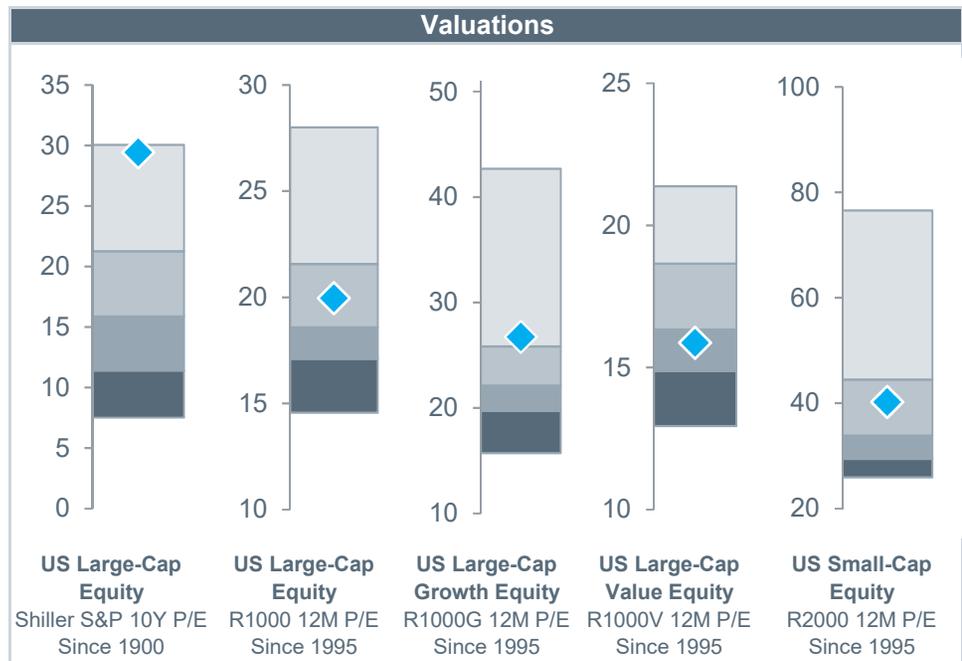
	QTD	CYTD	1 Yr	5 Yr	10 Yr
S&P 500 (Cap Wtd)	4.30	18.54	10.42	10.71	14.70
Russell 2000	2.10	16.98	-3.31	7.06	13.45
MSCI EAFE (Net)	3.68	14.03	1.08	2.25	6.90
MSCI EAFE SC (Net)	1.71	12.55	-6.35	4.40	9.67
MSCI Emg Mkts (Net)	0.61	10.59	1.21	2.49	5.81
Bloomberg US Agg Bond	3.08	6.11	7.87	2.95	3.90
ICE BofAML 3 Mo US T-Bill	0.64	1.24	2.31	0.87	0.49
NCREIF ODCE (Gross)	1.00	2.43	6.41	9.76	9.88
FTSE NAREIT Eq REIT (TR)	1.24	17.78	11.21	7.92	15.46
HFRI FOF Comp	1.50	6.17	1.16	2.19	3.21
Bloomberg Cmdbt (TR)	-1.19	5.06	-6.75	-9.15	-3.74

### Second Quarter Review

**Broad Market**  
 US equity markets sustained the strong performance trends from the first quarter into the second quarter, with all major indices finishing in positive territory, mostly buoyed by a dovish Federal Reserve and confidence surrounding a potential trade deal. The quarter finished strongly, with the strongest monthly S&P 500 return since 1955, at 7.0%, and finishing 4.3% for the quarter.

**Market Cap**  
 Larger-capitalization names outperformed their small-cap counterparts, with the Russell 1000 Index outperforming the Russell 2000 Index by 2.2%.

**Style and Sector**  
 All sectors, with the exception of energy, posted positive returns, with Financials taking the lead, as the S&P Financials returned 8.0% for the quarter. Both growth and value managers in the small and mid-cap segments experienced improved success rates during the quarter.



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.



**Second Quarter Review**

**Developed Markets**

Developed international markets lagged domestic equities, but did have positive returns during the quarter. Quarterly returns were positive across almost every country with only Israel ending the quarter in negative territory. However, economic growth has been disappointing across multiple developed international countries.

**Emerging Markets**

Emerging markets did not fare as well as developed markets, but broadly remained in positive territory despite emerging market small cap stocks having slightly negative returns. Yet again, headlines and actions related to trade negotiations dominated the emerging markets landscape.

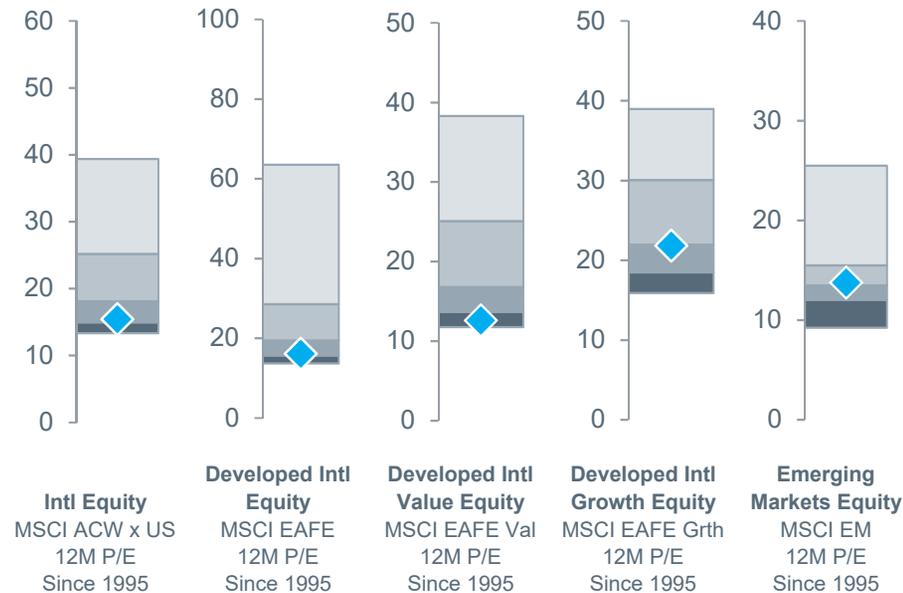
**Market Cap & Style**

Large cap stocks outperformed their smaller counterparts. Additionally, growth stocks continued to outperform value stocks in the developed international markets, but emerging markets value stocks outperformed growth stocks during the quarter.

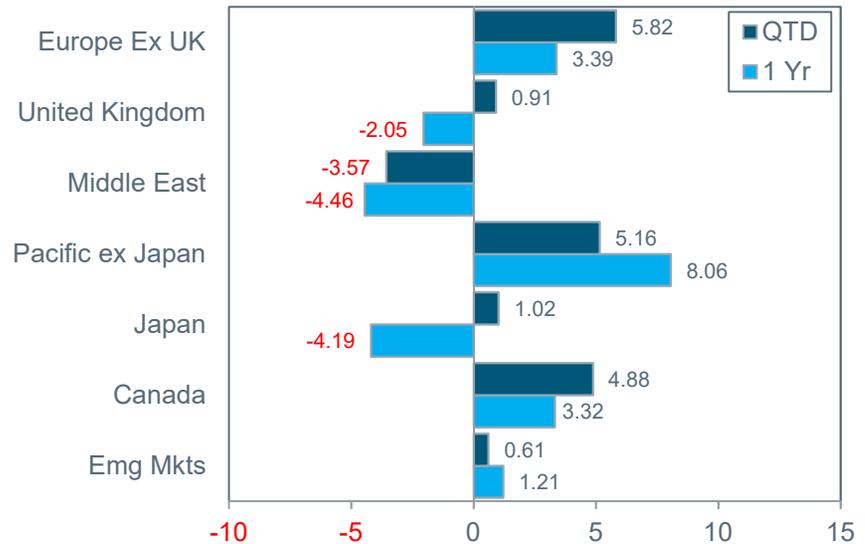
**MSCI Style and Capitalization Market Performance (%)**



**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.



**Second Quarter Review**

**Broad Market**

US Treasury rates held relatively steady for the first half of the quarter, but weakened later in the quarter in response to trade war escalations, signs of moderating economic and job growth, and the potential for US interest rate cuts. US Treasury yields fell most in the belly of the curve, leading to a slight curve steepening with the spread between 2- and 10-year maturities increasing to 0.25%. Despite a sluggish start, the Bloomberg US Aggregate Index finished with another strong quarter, returning 3.1%.

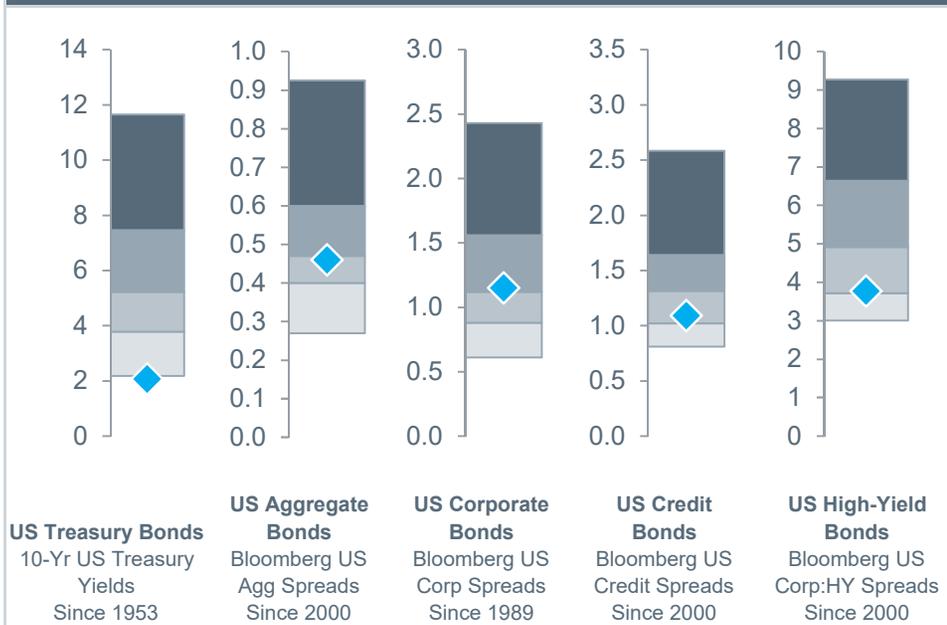
**Credit Market**

Though investment-grade corporate spreads widened for much of the quarter, they reversed course in June to finish slightly tighter, and the decline in US Treasury yields helped propel the Bloomberg US Corporate Bond Index to a 4.5% return.

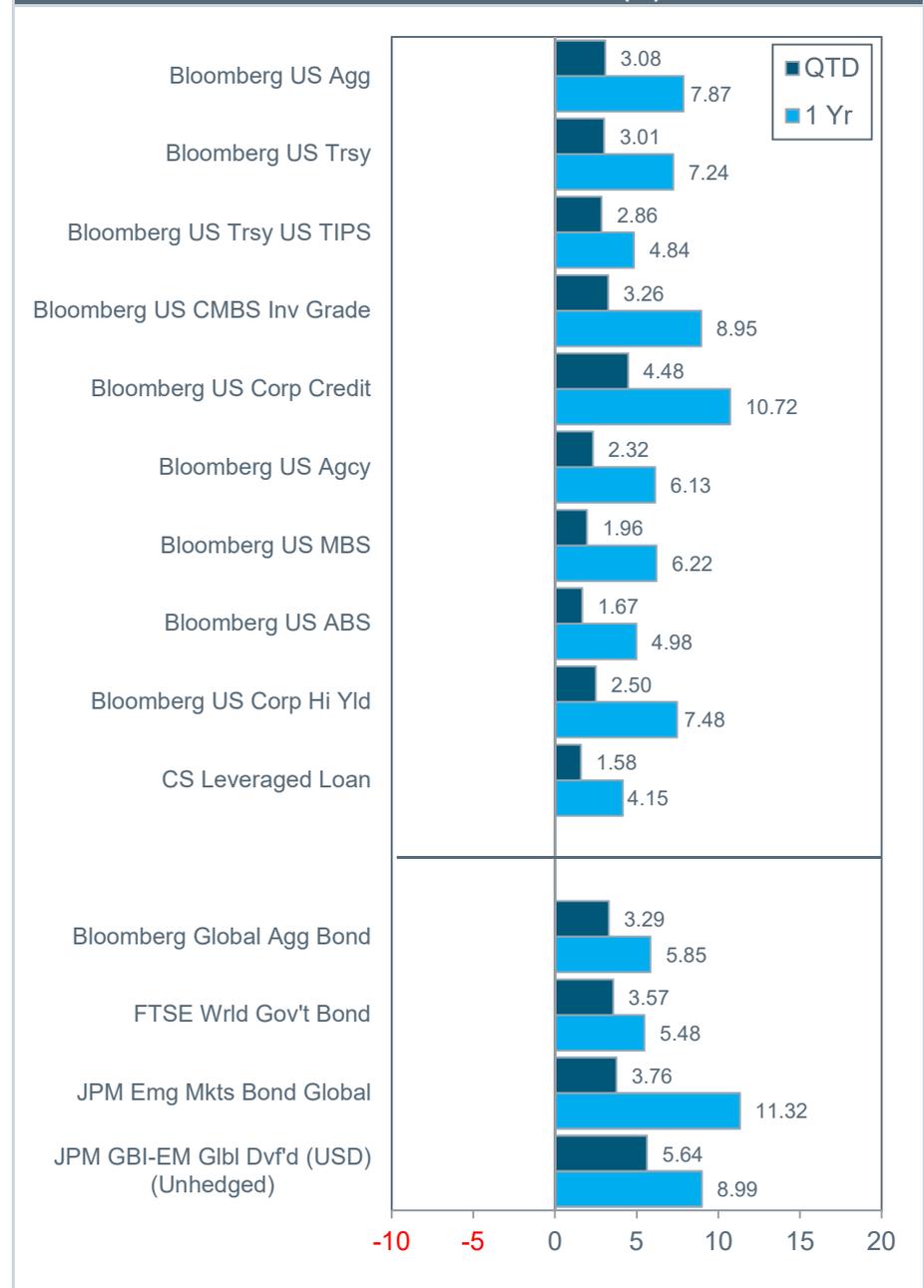
**Emerging Market Debt**

The JPM EMBI Global Diversified Index returned 4.1%, and has been one of the best performing areas of the bond market, returning 11.3% year to date.

**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.



**Second Quarter Review - Absolute Return**

**General Market - Hedge Funds**

Hedge funds produced positive returns across all major strategy groups during the second quarter and are enjoying their best start to the year as an industry since 2009. The HFRI Equity Hedge Index reported YTD net returns of +9.4% through Q2, and remains the strongest performing broad hedge fund category.

**General Market - Global Tactical Asset Allocation (GTAA)**

GTAA managers posted positive absolute returns during the second quarter, however most still underperformed a blend of 60% US equity and 40% US fixed income given the positive US equity returns as well as positive relative performance of fixed income versus other asset classes. Similar to the first quarter, performance across managers varied. Those with a greater reliance on a benchmark-aware investment processes provided stronger peer relative performance in a quarter where US large cap equity, developed international equity, and US fixed income contributed to performance.

**Second Quarter Review - Real Assets**

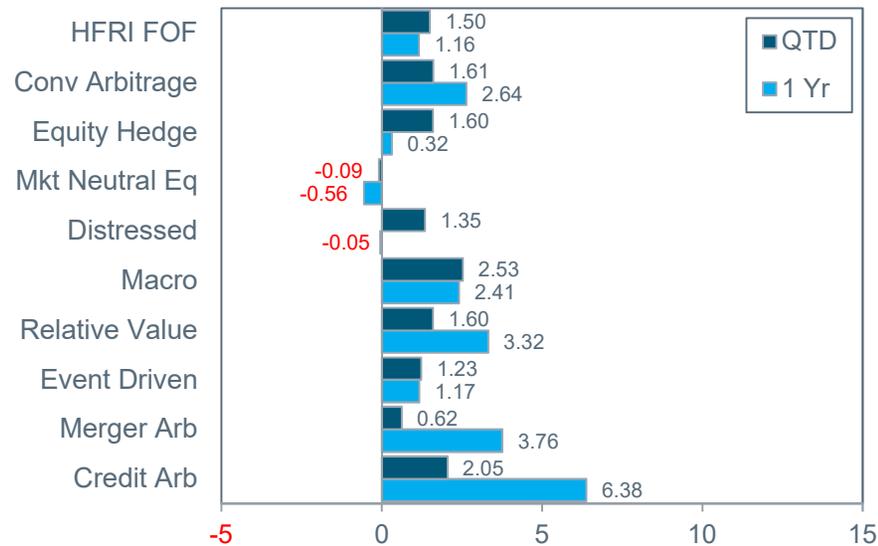
**General Market - Diversified Inflation Strategies (DIS)**

Despite low levels of inflation, most DIS managers posted moderately positive returns during the second quarter. Those who outperformed peers tended to deploy investment processes that do not explicitly track CPI-relative performance and generally held larger allocations to global listed infrastructure. DIS managers that trailed peers held larger exposures to commodities, natural resources equities, and, to a lesser extent, REITs.

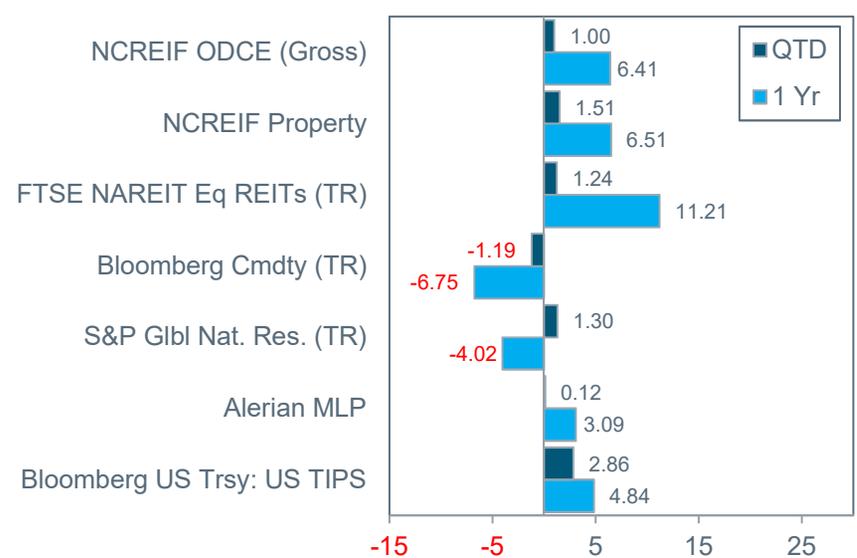
**General Market - Real Estate**

Core private real estate returned 1.0% during the second quarter, as reported by the NCREIF-ODCE Index, with the total return comprised of 1.01% income and -0.01% price appreciation. Investors in publicly traded real estate outperformed their private market counterparts during the second quarter. Publicly traded real estate experienced a more modest second quarter return of 1.8%, as measured by FTSE/NAREIT All REITs Index.

**HFRI Hedge Fund Performance (%)**



**Real Asset Performance (%)**



Annual Asset Class Performance

As of June 30, 2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	YTD
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	18.54
	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	17.78
	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	16.98
	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	14.03
	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	13.46
	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	12.55
	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	10.59
	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	9.94
	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	6.17
	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	6.15
	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	6.11
	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	5.06
	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	2.43
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	1.24
	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.



PORTLAND

BOISE

CHICAGO

NEW YORK

**Disclaimer of Warranties and Limitation of Liability** - This document was prepared by RVK, Inc. (RVK) and may include information and data from some or all of the following sources: client staff; custodian banks; investment managers; specialty investment consultants; actuaries; plan administrators/record-keepers; index providers; as well as other third-party sources as directed by the client or as we believe necessary or appropriate. RVK has taken reasonable care to ensure the accuracy of the information or data, but makes no warranties and disclaims responsibility for the accuracy or completeness of information or data provided or methodologies employed by any external source. This document is provided for the client's internal use only and does not constitute a recommendation by RVK or an offer of, or a solicitation for, any particular security and it is not intended to convey any guarantees as to the future performance of the investment products, asset classes, or capital markets.





# Quarterly Investment Performance Analysis

Montana Board of Investments

Period Ended: June 30, 2019



Montana Board of Investments  
Comparative Performance  
Retirement Plans

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Public Employees' Retirement - Net</b>	<b>2.90</b>	<b>10.41</b>	<b>5.70</b>	<b>8.80</b>	<b>6.57</b>	<b>8.94</b>	<b>9.87</b>	<b>5.80</b>	<b>-2.63</b>	<b>14.80</b>	<b>7.32</b>	<b>1.86</b>	<b>8.07</b>	<b>7.66</b>	<b>07/01/1994</b>
Public Employees' Benchmark	2.71	13.30	5.61	8.89	6.90	9.28	N/A	N/A	-5.57	15.35	9.09	1.40	9.08	N/A	
Difference	0.19	-2.89	0.09	-0.09	-0.33	-0.34	N/A	N/A	2.94	-0.55	-1.77	0.46	-1.01	N/A	
<b>Public Employees' Retirement - Gross</b>	<b>3.12</b>	<b>10.79</b>	<b>6.37</b>	<b>9.39</b>	<b>7.11</b>	<b>9.49</b>	<b>10.44</b>	<b>6.18</b>	<b>-2.03</b>	<b>15.34</b>	<b>7.78</b>	<b>2.31</b>	<b>8.61</b>	<b>7.97</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	3.24	10.39	6.39	9.28	6.21	8.34	9.32	6.21	-2.48	16.05	7.94	0.58	6.81	7.97	
Rank	56	37	52	43	6	11	5	51	45	63	56	7	5	51	
<b>Teachers' Retirement - Net</b>	<b>2.89</b>	<b>10.40</b>	<b>5.69</b>	<b>8.78</b>	<b>6.57</b>	<b>8.94</b>	<b>9.87</b>	<b>5.80</b>	<b>-2.64</b>	<b>14.76</b>	<b>7.33</b>	<b>1.86</b>	<b>8.09</b>	<b>7.67</b>	<b>07/01/1994</b>
Teachers' Benchmark	2.70	13.28	5.60	8.87	6.89	9.28	N/A	N/A	-5.57	15.32	9.08	1.40	9.11	N/A	
Difference	0.19	-2.88	0.09	-0.09	-0.32	-0.34	N/A	N/A	2.93	-0.56	-1.75	0.46	-1.02	N/A	
<b>Teachers' Retirement - Gross</b>	<b>3.11</b>	<b>10.78</b>	<b>6.36</b>	<b>9.37</b>	<b>7.11</b>	<b>9.49</b>	<b>10.45</b>	<b>6.18</b>	<b>-2.03</b>	<b>15.31</b>	<b>7.80</b>	<b>2.32</b>	<b>8.63</b>	<b>7.98</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	3.24	10.39	6.39	9.28	6.21	8.34	9.32	6.21	-2.48	16.05	7.94	0.58	6.81	7.97	
Rank	56	37	53	48	6	11	5	51	46	64	55	7	5	49	
<b>Police Retirement - Net</b>	<b>2.89</b>	<b>10.41</b>	<b>5.72</b>	<b>8.79</b>	<b>6.57</b>	<b>8.94</b>	<b>9.86</b>	<b>5.73</b>	<b>-2.63</b>	<b>14.79</b>	<b>7.32</b>	<b>1.86</b>	<b>8.07</b>	<b>7.52</b>	<b>07/01/1994</b>
Police Benchmark	2.71	13.30	5.62	8.88	6.90	9.27	N/A	N/A	-5.57	15.33	9.08	1.41	9.10	N/A	
Difference	0.18	-2.89	0.10	-0.09	-0.33	-0.33	N/A	N/A	2.94	-0.54	-1.76	0.45	-1.03	N/A	
<b>Police Retirement - Gross</b>	<b>3.11</b>	<b>10.79</b>	<b>6.39</b>	<b>9.39</b>	<b>7.11</b>	<b>9.49</b>	<b>10.43</b>	<b>6.11</b>	<b>-2.02</b>	<b>15.33</b>	<b>7.78</b>	<b>2.31</b>	<b>8.61</b>	<b>7.83</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	3.24	10.39	6.39	9.28	6.21	8.34	9.32	6.21	-2.48	16.05	7.94	0.58	6.81	7.97	
Rank	56	37	51	46	6	11	6	52	45	63	56	7	5	64	

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 June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Firefighters' Retirement - Net</b>	<b>2.89</b>	<b>10.42</b>	<b>5.72</b>	<b>8.80</b>	<b>6.57</b>	<b>8.94</b>	<b>9.85</b>	<b>5.73</b>	<b>-2.62</b>	<b>14.79</b>	<b>7.32</b>	<b>1.87</b>	<b>8.07</b>	<b>7.52</b>	<b>07/01/1994</b>
Firefighters' Benchmark	2.71	13.30	5.62	8.89	6.90	9.27	N/A	N/A	-5.57	15.33	9.09	1.41	9.10	N/A	
Difference	0.18	-2.88	0.10	-0.09	-0.33	-0.33	N/A	N/A	2.95	-0.54	-1.77	0.46	-1.03	N/A	
<b>Firefighters' Retirement - Gross</b>	<b>3.11</b>	<b>10.79</b>	<b>6.39</b>	<b>9.39</b>	<b>7.11</b>	<b>9.49</b>	<b>10.42</b>	<b>6.11</b>	<b>-2.01</b>	<b>15.34</b>	<b>7.78</b>	<b>2.32</b>	<b>8.61</b>	<b>7.82</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	3.24	10.39	6.39	9.28	6.21	8.34	9.32	6.21	-2.48	16.05	7.94	0.58	6.81	7.97	
Rank	56	37	50	43	6	11	6	52	45	63	56	7	5	64	
<b>Sheriffs' Retirement - Net</b>	<b>2.89</b>	<b>10.41</b>	<b>5.71</b>	<b>8.80</b>	<b>6.58</b>	<b>8.93</b>	<b>9.85</b>	<b>5.76</b>	<b>-2.62</b>	<b>14.80</b>	<b>7.33</b>	<b>1.86</b>	<b>8.05</b>	<b>7.55</b>	<b>07/01/1994</b>
Sheriffs' Benchmark	2.71	13.29	5.61	8.89	6.90	9.28	N/A	N/A	-5.56	15.34	9.10	1.40	9.07	N/A	
Difference	0.18	-2.88	0.10	-0.09	-0.32	-0.35	N/A	N/A	2.94	-0.54	-1.77	0.46	-1.02	N/A	
<b>Sheriffs' Retirement - Gross</b>	<b>3.11</b>	<b>10.78</b>	<b>6.38</b>	<b>9.40</b>	<b>7.11</b>	<b>9.48</b>	<b>10.42</b>	<b>6.13</b>	<b>-2.02</b>	<b>15.34</b>	<b>7.79</b>	<b>2.32</b>	<b>8.59</b>	<b>7.86</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	3.24	10.39	6.39	9.28	6.21	8.34	9.32	6.21	-2.48	16.05	7.94	0.58	6.81	7.97	
Rank	56	37	52	42	6	11	6	52	45	63	55	7	5	59	
<b>Highway Patrol Retirement - Net</b>	<b>2.90</b>	<b>10.42</b>	<b>5.72</b>	<b>8.80</b>	<b>6.58</b>	<b>8.94</b>	<b>9.88</b>	<b>5.76</b>	<b>-2.62</b>	<b>14.79</b>	<b>7.30</b>	<b>1.87</b>	<b>8.08</b>	<b>7.55</b>	<b>07/01/1994</b>
Highway Patrol Benchmark	2.72	13.31	5.62	8.89	6.91	9.29	N/A	N/A	-5.56	15.34	9.09	1.41	9.10	N/A	
Difference	0.18	-2.89	0.10	-0.09	-0.33	-0.35	N/A	N/A	2.94	-0.55	-1.79	0.46	-1.02	N/A	
<b>Highway Patrol Retirement - Gross</b>	<b>3.12</b>	<b>10.80</b>	<b>6.38</b>	<b>9.40</b>	<b>7.12</b>	<b>9.49</b>	<b>10.46</b>	<b>6.14</b>	<b>-2.01</b>	<b>15.33</b>	<b>7.77</b>	<b>2.32</b>	<b>8.62</b>	<b>7.85</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	3.24	10.39	6.39	9.28	6.21	8.34	9.32	6.21	-2.48	16.05	7.94	0.58	6.81	7.97	
Rank	56	37	51	42	6	10	5	52	45	63	56	7	5	60	

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 June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	20 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Game Wardens' Retirement - Net</b>	<b>2.90</b>	<b>10.42</b>	<b>5.72</b>	<b>8.81</b>	<b>6.58</b>	<b>8.93</b>	<b>9.84</b>	<b>5.74</b>	<b>-2.62</b>	<b>14.81</b>	<b>7.31</b>	<b>1.88</b>	<b>8.03</b>	<b>7.57</b>	<b>07/01/1994</b>
Game Wardens' Benchmark	2.72	13.30	5.62	8.90	6.91	9.28	N/A	N/A	-5.56	15.36	9.11	1.41	9.06	N/A	
Difference	0.18	-2.88	0.10	-0.09	-0.33	-0.35	N/A	N/A	2.94	-0.55	-1.80	0.47	-1.03	N/A	
<b>Game Wardens' Retirement - Gross</b>	<b>3.12</b>	<b>10.79</b>	<b>6.38</b>	<b>9.41</b>	<b>7.12</b>	<b>9.48</b>	<b>10.41</b>	<b>6.11</b>	<b>-2.01</b>	<b>15.35</b>	<b>7.78</b>	<b>2.33</b>	<b>8.57</b>	<b>7.87</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	3.24	10.39	6.39	9.28	6.21	8.34	9.32	6.21	-2.48	16.05	7.94	0.58	6.81	7.97	
Rank	56	37	51	40	6	11	6	52	45	62	56	7	5	59	
<b>Judges' Retirement - Net</b>	<b>2.90</b>	<b>10.43</b>	<b>5.71</b>	<b>8.81</b>	<b>6.58</b>	<b>8.94</b>	<b>9.86</b>	<b>5.77</b>	<b>-2.64</b>	<b>14.82</b>	<b>7.32</b>	<b>1.86</b>	<b>8.06</b>	<b>7.56</b>	<b>07/01/1994</b>
Judges' Benchmark	2.71	13.32	5.62	8.90	6.91	9.28	N/A	N/A	-5.58	15.37	9.10	1.40	9.08	N/A	
Difference	0.19	-2.89	0.09	-0.09	-0.33	-0.34	N/A	N/A	2.94	-0.55	-1.78	0.46	-1.02	N/A	
<b>Judges' Retirement - Gross</b>	<b>3.11</b>	<b>10.80</b>	<b>6.38</b>	<b>9.40</b>	<b>7.12</b>	<b>9.48</b>	<b>10.43</b>	<b>6.14</b>	<b>-2.03</b>	<b>15.36</b>	<b>7.79</b>	<b>2.32</b>	<b>8.60</b>	<b>7.86</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	3.24	10.39	6.39	9.28	6.21	8.34	9.32	6.21	-2.48	16.05	7.94	0.58	6.81	7.97	
Rank	56	37	52	41	6	11	5	52	46	62	55	7	5	59	
<b>Volunteer Firefighters' Retirement - Net</b>	<b>2.89</b>	<b>10.42</b>	<b>5.70</b>	<b>8.80</b>	<b>6.56</b>	<b>8.93</b>	<b>9.83</b>	<b>6.18</b>	<b>-2.64</b>	<b>14.79</b>	<b>7.16</b>	<b>1.91</b>	<b>8.09</b>	<b>7.35</b>	<b>07/01/1994</b>
Volunteer Firefighters' Benchmark	2.70	13.31	5.60	8.88	6.90	9.29	N/A	N/A	-5.59	15.33	9.08	1.42	9.11	N/A	
Difference	0.19	-2.89	0.10	-0.08	-0.34	-0.36	N/A	N/A	2.95	-0.54	-1.92	0.49	-1.02	N/A	
<b>Volunteer Firefighters' Retirement - Gross</b>	<b>3.11</b>	<b>10.79</b>	<b>6.37</b>	<b>9.39</b>	<b>7.09</b>	<b>9.48</b>	<b>10.40</b>	<b>6.56</b>	<b>-2.04</b>	<b>15.34</b>	<b>7.63</b>	<b>2.36</b>	<b>8.63</b>	<b>7.65</b>	<b>07/01/1994</b>
All Public Plans > \$3B Total Fund Median	3.24	10.39	6.39	9.28	6.21	8.34	9.32	6.21	-2.48	16.05	7.94	0.58	6.81	7.97	
Rank	56	37	52	44	6	11	6	18	46	63	63	7	5	75	

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.

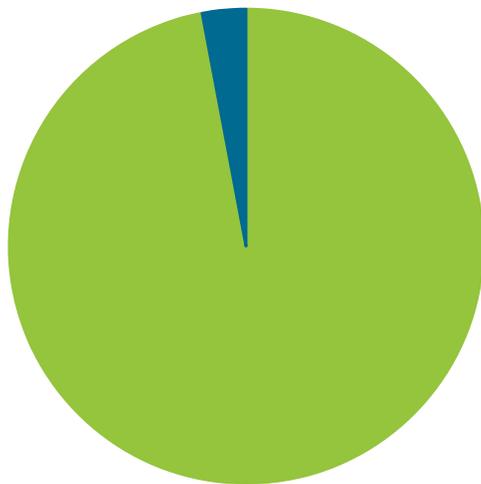


Montana Board of Investments  
 Asset Allocation by Segment  
 Retirement Plans

As of June 30, 2019

	Consolidated Asset Pension Pool (CAPP)		Short Term Investment Pool (STIP)		Total Fund	
	(\$)	%	(\$)	%	(\$)	%
Public Employees' Retirement	5,716,675,412	49.82	174,397,106	49.56	5,891,072,517	49.81
Teachers' Retirement	4,065,250,746	35.43	125,710,757	35.73	4,190,961,503	35.44
Police Retirement	410,396,571	3.58	12,392,527	3.52	422,789,098	3.58
Firefighters' Retirement	430,646,377	3.75	13,106,416	3.72	443,752,792	3.75
Sheriffs' Retirement	364,914,804	3.18	11,315,415	3.22	376,230,219	3.18
Highway Patrol Retirement	147,047,314	1.28	4,446,164	1.26	151,493,478	1.28
Game Wardens' Retirement	199,466,319	1.74	6,095,664	1.73	205,561,983	1.74
Judges' Retirement	101,339,145	0.88	3,083,544	0.88	104,422,689	0.88
Volunteer Firefighters' Retirement	38,342,398	0.33	1,328,320	0.38	39,670,718	0.34
<b>Retirement Plans Total Fund Composite</b>	<b>11,474,079,084</b>	<b>97.02</b>	<b>351,875,913</b>	<b>2.98</b>	<b>11,825,954,997</b>	<b>100.00</b>

June 30, 2019 : \$11,825,954,997



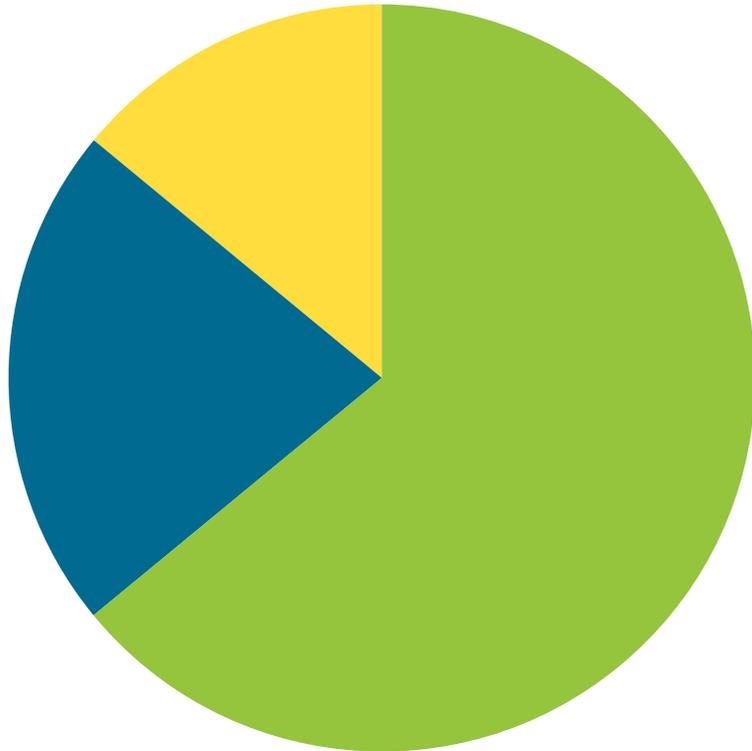
Segments

	Market Value (\$)	Allocation (%)
Consolidated Asset Pension Pool (CAPP)	11,474,079,084	97.02
Short Term Investment Pool (STIP)	351,875,913	2.98

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.



June 30, 2019 : \$17,915,636,860



	Market Value (\$)	Allocation (%)
Consolidated Asset Pension Pool (CAPP)	11,474,079,083	64.05
Short Term Investment Pool	3,929,122,712	21.93
Trust Funds Investment Pool	2,512,435,065	14.02

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 June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Consolidated Asset Pension Pool (CAPP)</b>	<b>2.96</b>	<b>10.66</b>	<b>5.81</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-2.74</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>8.01</b>	<b>04/01/2017</b>
CAPP Custom Benchmark	2.77	13.62	5.72	N/A	N/A	N/A	N/A	-5.74	N/A	N/A	N/A	N/A	7.89	
Difference	0.19	-2.96	0.09	N/A	N/A	N/A	N/A	3.00	N/A	N/A	N/A	N/A	0.12	
<b>Trust Funds Investment Pool</b>	<b>3.10</b>	<b>6.37</b>	<b>8.04</b>	<b>3.00</b>	<b>3.80</b>	<b>3.80</b>	<b>5.31</b>	<b>0.45</b>	<b>4.01</b>	<b>4.02</b>	<b>1.83</b>	<b>6.96</b>	<b>6.18</b>	<b>04/01/1997</b>
Bloomberg US Agg Bond Index	3.08	6.11	7.87	2.31	2.95	2.62	3.90	0.01	3.54	2.65	0.55	5.97	5.21	
Difference	0.02	0.26	0.17	0.69	0.85	1.18	1.41	0.44	0.47	1.37	1.28	0.99	0.97	
<b>Short Term Investment Pool</b>	<b>0.62</b>	<b>1.24</b>	<b>2.36</b>	<b>1.56</b>	<b>1.04</b>	<b>0.80</b>	<b>0.65</b>	<b>1.98</b>	<b>1.11</b>	<b>0.61</b>	<b>0.22</b>	<b>0.10</b>	<b>2.46</b>	<b>04/01/1997</b>
Short Term Custom Index	0.59	1.19	2.27	1.53	1.02	0.78	0.62	1.95	1.15	0.52	0.21	0.16	2.39	
Difference	0.03	0.05	0.09	0.03	0.02	0.02	0.03	0.03	-0.04	0.09	0.01	-0.06	0.07	
iMoney.net Money Fund (Gross) Median	0.66	1.34	2.54	1.68	1.13	0.87	0.71	2.15	1.21	0.61	0.25	0.17	2.45	
Difference	-0.04	-0.10	-0.18	-0.12	-0.09	-0.07	-0.06	-0.17	-0.10	0.00	-0.03	-0.07	0.01	

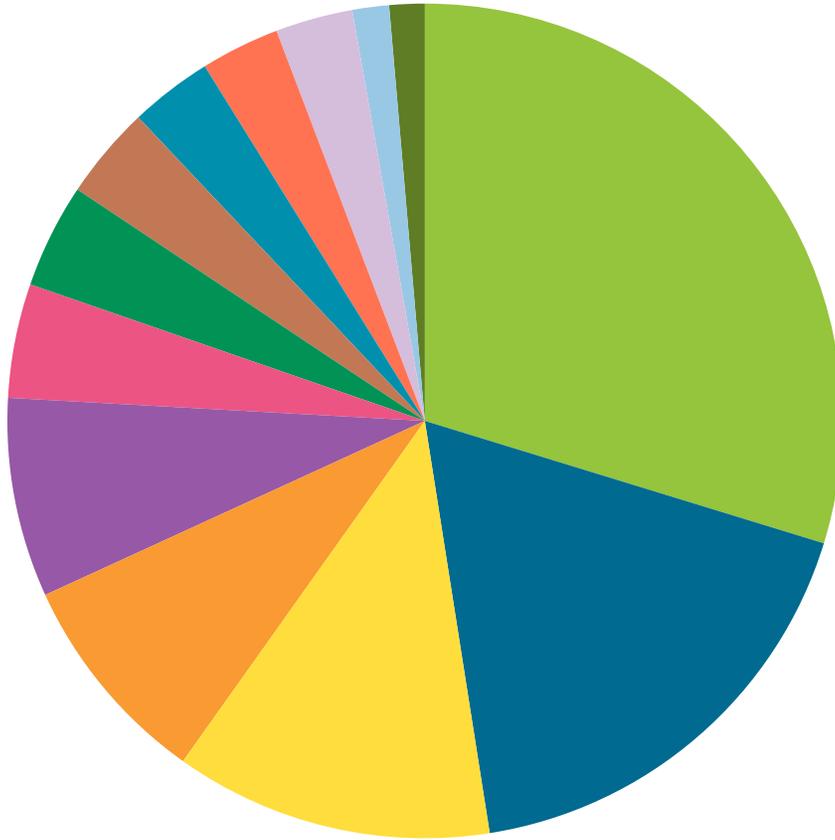
Performance shown is net of all manager fees and expenses (Net-All). Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on 06/30. See the Addendum for custom index specification. Since inception performance may vary from State Street reported performance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



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

As of June 30, 2019

June 30, 2019 : \$11,474,079,089



	Market Value (\$)	Allocation (%)
Domestic Equity	3,412,460,150	29.74
International Equity	2,039,192,053	17.77
Private Equity	1,413,489,157	12.32
US Treasury & Agency	955,285,658	8.33
Real Estate	886,429,195	7.73
TIPS	507,464,972	4.42
Mortgage - Backed	464,792,825	4.05
Investment Grade Credit	413,730,398	3.61
High Yield	367,557,785	3.20
Cash Pension	350,129,945	3.05
Natural Resources	344,271,602	3.00
Diversifying Strategies	162,956,111	1.42
Broad Fixed Income	156,319,238	1.36

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



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

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Equity</b>	<b>3.96</b>	<b>19.00</b>	<b>6.81</b>	<b>13.10</b>	<b>9.56</b>	<b>13.40</b>	<b>14.28</b>	<b>-7.09</b>	<b>20.80</b>	<b>11.46</b>	<b>0.86</b>	<b>12.28</b>	<b>9.12</b>	<b>05/01/2003</b>
Domestic Equity Custom Index	4.03	18.77	8.96	13.91	10.45	13.88	14.73	-5.20	21.05	13.03	1.01	13.08	9.91	
Difference	-0.07	0.23	-2.15	-0.81	-0.89	-0.48	-0.45	-1.89	-0.25	-1.57	-0.15	-0.80	-0.79	
<b>International Equity</b>	<b>3.31</b>	<b>14.64</b>	<b>0.78</b>	<b>9.47</b>	<b>2.74</b>	<b>6.88</b>	<b>6.82</b>	<b>-14.99</b>	<b>28.67</b>	<b>3.87</b>	<b>-3.57</b>	<b>-4.00</b>	<b>4.71</b>	<b>04/01/1997</b>
International Equity Custom Index	2.74	13.33	0.26	9.17	2.25	6.48	6.70	-14.76	27.81	4.41	-4.60	-4.03	5.00	
Difference	0.57	1.31	0.52	0.30	0.49	0.40	0.12	-0.23	0.86	-0.54	1.03	0.03	-0.29	
<b>Broad Fixed Income</b>	<b>2.92</b>	<b>5.69</b>	<b>7.86</b>	<b>2.55</b>	<b>3.18</b>	<b>3.24</b>	<b>5.14</b>	<b>1.44</b>	<b>2.41</b>	<b>3.98</b>	<b>0.48</b>	<b>6.19</b>	<b>5.92</b>	<b>04/01/1997</b>
Bloomberg US Agg Bond Index	3.08	6.11	7.87	2.31	2.95	2.62	3.90	0.01	3.54	2.65	0.55	5.97	5.21	
Difference	-0.16	-0.42	-0.01	0.24	0.23	0.62	1.24	1.43	-1.13	1.33	-0.07	0.22	0.71	
<b>Investment Grade Credit</b>	<b>3.14</b>	<b>6.98</b>	<b>8.66</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-0.06</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>4.32</b>	<b>04/01/2017</b>
Bloomberg US Corp Int Bond Index	3.13	7.08	8.57	3.21	3.29	3.49	5.13	-0.23	3.92	4.04	1.08	4.35	4.22	
Difference	0.01	-0.10	0.09	N/A	N/A	N/A	N/A	0.17	N/A	N/A	N/A	N/A	0.10	
<b>US Treasury &amp; Agency</b>	<b>2.39</b>	<b>4.11</b>	<b>6.31</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.41</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>2.80</b>	<b>04/01/2017</b>
Bloomberg US Trsy Int Trm Index	2.36	3.99	6.19	1.31	1.95	1.51	2.44	1.41	1.14	1.06	1.18	2.57	2.66	
Difference	0.03	0.12	0.12	N/A	N/A	N/A	N/A	0.00	N/A	N/A	N/A	N/A	0.14	
<b>High Yield</b>	<b>2.48</b>	<b>9.36</b>	<b>7.20</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-2.27</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>4.66</b>	<b>04/01/2017</b>
Bloomberg US HY 2% Issuer Cap Index	2.50	9.94	7.48	7.52	4.71	6.36	9.22	-2.08	7.50	17.13	-4.43	2.46	5.45	
Difference	-0.02	-0.58	-0.28	N/A	N/A	N/A	N/A	-0.19	N/A	N/A	N/A	N/A	-0.79	
<b>Mortgage - Backed</b>	<b>2.12</b>	<b>4.49</b>	<b>6.76</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.45</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>3.60</b>	<b>04/01/2017</b>
Bloomberg US MBS Index	1.96	4.17	6.22	2.06	2.56	2.32	3.23	0.99	2.47	1.67	1.51	6.08	3.18	
Difference	0.16	0.32	0.54	N/A	N/A	N/A	N/A	0.46	N/A	N/A	N/A	N/A	0.42	
<b>TIPS</b>	<b>2.55</b>	<b>5.21</b>	<b>4.77</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-0.15</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>2.59</b>	<b>04/01/2017</b>
Bloomberg US Trsy Infl Notes 1-10 Yr Index	2.53	5.17	4.67	1.93	1.42	1.06	2.93	-0.25	1.90	4.01	-0.52	0.91	2.53	
Difference	0.02	0.04	0.10	N/A	N/A	N/A	N/A	0.10	N/A	N/A	N/A	N/A	0.06	
<b>Natural Resources</b>	<b>-0.21</b>	<b>0.35</b>	<b>3.80</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>5.55</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>5.32</b>	<b>04/01/2017</b>
MSCI ACW Cmnty Producers Index (USD) (Net)	0.20	13.48	-4.60	7.87	-2.70	0.83	2.35	-11.75	13.70	32.44	-25.83	-14.69	6.68	
Difference	-0.41	-13.13	8.40	N/A	N/A	N/A	N/A	17.30	N/A	N/A	N/A	N/A	-1.36	

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

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

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Real Estate</b>	<b>1.25</b>	<b>3.67</b>	<b>8.41</b>	<b>8.66</b>	<b>10.22</b>	<b>10.19</b>	<b>7.79</b>	<b>9.19</b>	<b>9.17</b>	<b>8.82</b>	<b>14.27</b>	<b>12.13</b>	<b>4.05</b>	<b>06/01/2006</b>
Real Estate Custom Index	1.29	17.77	11.06	7.32	9.37	9.89	7.83	-4.57	5.99	9.08	13.86	11.36	6.07	
Difference	-0.04	-14.10	-2.65	1.34	0.85	0.30	-0.04	13.76	3.18	-0.26	0.41	0.77	-2.02	
<b>Diversifying Strategies</b>	<b>3.40</b>	<b>8.68</b>	<b>3.88</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>5.67</b>	<b>03/01/2018</b>
Bloomberg US Trsy Int Trm Index	2.36	3.99	6.19	1.31	1.95	1.51	2.44	1.41	1.14	1.06	1.18	2.57	5.07	
Difference	1.04	4.69	-2.31	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.60	
<b>Cash Pension</b>	<b>0.65</b>	<b>1.35</b>	<b>2.33</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>2.00</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.86</b>	<b>05/01/2017</b>
Short Term Custom Index	0.59	1.19	2.27	1.53	1.02	0.78	0.62	1.95	1.15	0.52	0.21	0.16	1.85	
Difference	0.06	0.16	0.06	N/A	N/A	N/A	N/A	0.05	N/A	N/A	N/A	N/A	0.01	

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

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

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Private Equity Pool*</b>	<b>3.32</b>	<b>4.98</b>	<b>9.29</b>	<b>12.60</b>	<b>10.37</b>	<b>11.53</b>	<b>13.10</b>	<b>11.55</b>	<b>15.20</b>	<b>7.37</b>	<b>7.20</b>	<b>15.47</b>	<b>12.16</b>	<b>05/01/2002</b>
Private Equity Custom Index	2.27	18.60	0.40	11.89	11.52	14.65	18.78	-9.99	20.59	20.11	3.68	23.31	11.20	
Difference	1.05	-13.62	8.89	0.71	-1.15	-3.12	-5.68	21.54	-5.39	-12.74	3.52	-7.84	0.96	

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.

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.



Montana Board of Investments  
Comparative Performance  
Investment Pools

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Equity</b>	<b>4.01</b>	<b>19.18</b>	<b>7.16</b>	<b>13.45</b>	<b>9.88</b>	<b>13.73</b>	<b>14.65</b>	<b>-6.78</b>	<b>21.16</b>	<b>11.76</b>	<b>1.14</b>	<b>12.59</b>	<b>9.41</b>	<b>05/01/2003</b>
All Public Plans-US Equity Segment Median	3.82	18.49	7.33	13.62	9.53	13.20	14.64	-5.86	20.40	12.90	0.14	11.22	9.50	
Rank	38	22	53	61	40	40	47	73	33	74	25	21	53	
Population	62	61	60	56	54	45	39	71	93	99	87	49	11	
<b>International Equity</b>	<b>3.39</b>	<b>14.82</b>	<b>1.10</b>	<b>9.80</b>	<b>3.02</b>	<b>7.19</b>	<b>7.16</b>	<b>-14.72</b>	<b>29.05</b>	<b>4.15</b>	<b>-3.35</b>	<b>-3.77</b>	<b>5.10</b>	<b>04/01/1997</b>
All Public Plans-Intl. Equity Segment Median	3.24	14.69	1.45	9.84	3.38	7.69	7.87	-13.66	28.59	3.95	-2.60	-2.99	N/A	
Rank	48	48	63	53	71	77	91	78	44	46	64	77	N/A	
Population	65	65	64	61	57	46	37	71	90	93	80	46	N/A	
<b>Broad Fixed Income</b>	<b>2.99</b>	<b>5.84</b>	<b>8.18</b>	<b>2.84</b>	<b>3.39</b>	<b>3.43</b>	<b>5.31</b>	<b>1.72</b>	<b>2.80</b>	<b>4.09</b>	<b>0.59</b>	<b>6.30</b>	<b>6.13</b>	<b>04/01/1997</b>
All Public Plans-US Fixed Income Segment Median	3.00	6.52	7.26	3.24	3.21	3.26	5.24	-0.24	4.54	4.53	0.22	6.01	N/A	
Rank	51	71	16	62	44	46	41	5	83	60	35	38	N/A	
Population	66	66	65	64	62	55	41	75	86	93	80	49	N/A	
<b>Trust Funds Investment Pool</b>	<b>3.12</b>	<b>6.41</b>	<b>8.14</b>	<b>3.09</b>	<b>3.89</b>	<b>3.89</b>	<b>5.41</b>	<b>0.53</b>	<b>4.10</b>	<b>4.12</b>	<b>1.89</b>	<b>7.08</b>	<b>6.19</b>	<b>10/01/1995</b>
All Public Plans-US Fixed Income Segment Median	3.00	6.52	7.26	3.24	3.21	3.26	5.24	-0.24	4.54	4.53	0.22	6.01	N/A	
Rank	33	56	17	57	22	29	36	22	61	59	5	26	N/A	
Population	66	66	65	64	62	55	41	75	86	93	80	49	N/A	
<b>Real Estate</b>	<b>2.26</b>	<b>4.89</b>	<b>10.38</b>	<b>10.43</b>	<b>11.87</b>	<b>11.78</b>	<b>9.49</b>	<b>11.12</b>	<b>10.91</b>	<b>10.26</b>	<b>15.68</b>	<b>13.51</b>	<b>5.53</b>	<b>06/01/2006</b>
All Public Plans-Real Estate Segment Median	1.71	3.48	7.72	8.24	10.54	11.50	9.36	8.64	8.77	9.98	13.44	14.67	N/A	
Rank	28	25	20	26	14	41	46	15	24	47	12	68	N/A	
Population	45	41	35	26	20	18	14	34	39	32	28	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.

Montana Board of Investments  
Comparative Performance  
Equity Composites

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Large Cap Equity - Net</b>	<b>4.30</b>	<b>18.40</b>	<b>9.65</b>	<b>14.02</b>	<b>10.56</b>	<b>14.00</b>	<b>14.65</b>	<b>-4.71</b>	<b>21.66</b>	<b>11.30</b>	<b>1.76</b>	<b>13.82</b>	<b>7.83</b>	<b>07/01/2007</b>
S&P 500 Index (Cap Wtd)	4.30	18.54	10.42	14.19	10.71	13.98	14.70	-4.38	21.83	11.96	1.38	13.69	8.03	
Difference	0.00	-0.14	-0.77	-0.17	-0.15	0.02	-0.05	-0.33	-0.17	-0.66	0.38	0.13	-0.20	
<b>Domestic Large Cap Equity - Gross</b>	<b>4.33</b>	<b>18.51</b>	<b>9.87</b>	<b>14.21</b>	<b>10.74</b>	<b>14.17</b>	<b>14.88</b>	<b>-4.52</b>	<b>21.82</b>	<b>11.45</b>	<b>1.91</b>	<b>13.99</b>	<b>8.06</b>	<b>07/01/2007</b>
IM U.S. Large Cap Equity (SA+CF) Median	4.24	18.28	9.00	13.79	10.22	13.82	14.58	-5.15	21.67	10.99	0.94	12.90	8.14	
Rank	45	47	43	42	39	38	38	44	49	47	40	32	55	
<b>Domestic Large Cap Active - Net</b>	<b>4.29</b>	<b>18.78</b>	<b>8.61</b>	<b>13.86</b>	<b>10.26</b>	<b>14.07</b>	<b>14.57</b>	<b>-5.88</b>	<b>21.85</b>	<b>9.63</b>	<b>2.40</b>	<b>14.01</b>	<b>7.60</b>	<b>07/01/2007</b>
S&P 500 Index (Cap Wtd)	4.30	18.54	10.42	14.19	10.71	13.98	14.70	-4.38	21.83	11.96	1.38	13.69	8.03	
Difference	-0.01	0.24	-1.81	-0.33	-0.45	0.09	-0.13	-1.50	0.02	-2.33	1.02	0.32	-0.43	
<b>Domestic Large Cap Active - Gross</b>	<b>4.44</b>	<b>19.12</b>	<b>9.24</b>	<b>14.44</b>	<b>10.81</b>	<b>14.63</b>	<b>15.12</b>	<b>-5.34</b>	<b>22.40</b>	<b>10.12</b>	<b>2.88</b>	<b>14.56</b>	<b>8.10</b>	<b>07/01/2007</b>
IM U.S. Large Cap Equity (SA+CF) Median	4.24	18.28	9.00	13.79	10.22	13.82	14.58	-5.15	21.67	10.99	0.94	12.90	8.14	
Rank	43	38	48	38	37	29	33	54	43	57	32	25	53	
<b>Domestic Mid Cap Equity - Net</b>	<b>10.78</b>	<b>28.31</b>	<b>11.65</b>	<b>14.30</b>	<b>8.42</b>	<b>13.32</b>	<b>14.42</b>	<b>-9.80</b>	<b>19.29</b>	<b>12.29</b>	<b>-3.31</b>	<b>6.45</b>	<b>9.05</b>	<b>01/01/2005</b>
Russell Mid Cap Index	4.13	21.35	7.83	12.16	8.63	13.37	15.16	-9.06	18.52	13.80	-2.44	13.22	9.28	
Difference	6.65	6.96	3.82	2.14	-0.21	-0.05	-0.74	-0.74	0.77	-1.51	-0.87	-6.77	-0.23	
<b>Domestic Mid Cap Equity - Gross</b>	<b>2.58</b>	<b>18.96</b>	<b>3.78</b>	<b>11.97</b>	<b>7.35</b>	<b>12.70</b>	<b>14.17</b>	<b>-9.33</b>	<b>20.01</b>	<b>12.96</b>	<b>-2.74</b>	<b>7.07</b>	<b>8.99</b>	<b>01/01/2005</b>
IM U.S. Mid Cap Equity (SA+CF) Median	4.54	20.65	6.94	12.87	8.81	13.60	15.22	-9.08	19.89	12.71	-1.12	9.78	9.86	
Rank	79	61	64	57	71	70	75	52	49	49	69	74	82	
<b>Domestic Small Cap Equity - Net</b>	<b>2.39</b>	<b>18.09</b>	<b>-0.83</b>	<b>12.43</b>	<b>7.79</b>	<b>12.62</b>	<b>13.92</b>	<b>-10.51</b>	<b>15.65</b>	<b>19.31</b>	<b>-1.61</b>	<b>5.44</b>	<b>11.69</b>	<b>03/01/2003</b>
Russell 2000 Index	2.10	16.98	-3.31	12.30	7.06	11.63	13.45	-11.01	14.65	21.31	-4.41	4.89	10.88	
Difference	0.29	1.11	2.48	0.13	0.73	0.99	0.47	0.50	1.00	-2.00	2.80	0.55	0.81	
<b>Domestic Small Cap Equity - Gross</b>	<b>2.50</b>	<b>18.34</b>	<b>-0.41</b>	<b>13.02</b>	<b>8.39</b>	<b>13.27</b>	<b>14.62</b>	<b>-10.09</b>	<b>16.27</b>	<b>19.97</b>	<b>-0.93</b>	<b>6.16</b>	<b>12.24</b>	<b>03/01/2003</b>
IM U.S. Small Cap Equity (SA+CF) Median	3.03	17.50	-1.90	12.47	7.84	12.84	14.78	-10.64	15.13	20.88	-2.32	5.36	12.31	
Rank	60	46	42	45	45	42	53	48	44	57	36	43	52	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. A peer group of similar managers may not exist for all 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 June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>International Large Cap Passive - Net</b>	<b>3.02</b>	<b>13.68</b>	<b>1.51</b>	<b>9.65</b>	<b>2.60</b>	<b>6.66</b>	<b>6.75</b>	<b>-14.04</b>	<b>27.79</b>	<b>4.87</b>	<b>-4.71</b>	<b>-3.70</b>	<b>6.61</b>	<b>06/01/2009</b>
MSCI ACW Ex US Index (USD) (Net)	2.98	13.60	1.29	9.39	2.16	6.36	6.54	-14.20	27.19	4.50	-5.66	-3.87	6.37	
Difference	0.04	0.08	0.22	0.26	0.44	0.30	0.21	0.16	0.60	0.37	0.95	0.17	0.24	
<b>International Large Cap Passive - Gross</b>	<b>3.04</b>	<b>13.72</b>	<b>1.57</b>	<b>9.73</b>	<b>2.68</b>	<b>6.74</b>	<b>6.83</b>	<b>-13.98</b>	<b>27.88</b>	<b>4.96</b>	<b>-4.63</b>	<b>-3.62</b>	<b>6.69</b>	<b>06/01/2009</b>
<b>International Equity Active - Net</b>	<b>4.03</b>	<b>16.61</b>	<b>0.55</b>	<b>9.71</b>	<b>3.77</b>	<b>8.00</b>	<b>7.52</b>	<b>-16.18</b>	<b>30.82</b>	<b>2.63</b>	<b>0.41</b>	<b>-4.39</b>	<b>3.59</b>	<b>04/01/1997</b>
MSCI ACW Ex US Index (USD) (Net)	2.98	13.60	1.29	9.39	2.16	6.36	6.54	-14.20	27.19	4.50	-5.66	-3.87	N/A	
Difference	1.05	3.01	-0.74	0.32	1.61	1.64	0.98	-1.98	3.63	-1.87	6.07	-0.52	N/A	
<b>International Equity Active - Gross</b>	<b>4.17</b>	<b>16.91</b>	<b>1.08</b>	<b>10.29</b>	<b>4.30</b>	<b>8.53</b>	<b>8.05</b>	<b>-15.73</b>	<b>31.50</b>	<b>3.17</b>	<b>0.90</b>	<b>-3.94</b>	<b>4.10</b>	<b>04/01/1997</b>
IM International Large Cap Core Equity (SA+CF) Median	3.61	14.84	0.87	9.11	3.18	8.13	8.31	-14.67	26.48	1.38	0.25	-3.72	6.56	
Rank	31	27	48	31	19	29	66	66	12	29	43	52	100	
<b>International Value - Net</b>	<b>3.73</b>	<b>14.31</b>	<b>1.53</b>	<b>10.45</b>	<b>3.12</b>	<b>7.62</b>	<b>7.08</b>	<b>-13.97</b>	<b>30.72</b>	<b>5.59</b>	<b>-5.94</b>	<b>-1.49</b>	<b>2.22</b>	<b>11/01/2006</b>
MSCI ACW Ex US Val Index (USD) (Net)	1.57	10.02	-0.07	8.93	0.29	5.16	5.43	-13.97	22.66	8.92	-10.06	-5.10	2.01	
Difference	2.16	4.29	1.60	1.52	2.83	2.46	1.65	0.00	8.06	-3.33	4.12	3.61	0.21	
<b>International Value - Gross</b>	<b>3.87</b>	<b>14.60</b>	<b>2.05</b>	<b>11.03</b>	<b>3.66</b>	<b>8.19</b>	<b>7.68</b>	<b>-13.52</b>	<b>31.39</b>	<b>6.17</b>	<b>-5.46</b>	<b>-0.94</b>	<b>2.80</b>	<b>11/01/2006</b>
IM International Large Cap Value Equity (SA+CF) Median	2.33	12.01	-1.33	8.33	2.17	7.40	7.96	-14.71	26.02	4.19	-1.97	-4.26	3.79	
Rank	16	24	31	19	30	39	53	40	12	28	82	15	84	
<b>International Growth - Net</b>	<b>5.55</b>	<b>20.42</b>	<b>5.01</b>	<b>9.23</b>	<b>4.13</b>	<b>7.48</b>	<b>7.37</b>	<b>-16.09</b>	<b>28.01</b>	<b>0.51</b>	<b>1.69</b>	<b>-6.15</b>	<b>3.18</b>	<b>11/01/2006</b>
MSCI ACW Ex US Grth Index (USD) (Net)	4.35	17.20	2.64	9.81	4.00	7.51	7.61	-14.43	32.01	0.12	-1.25	-2.65	3.98	
Difference	1.20	3.22	2.37	-0.58	0.13	-0.03	-0.24	-1.66	-4.00	0.39	2.94	-3.50	-0.80	
<b>International Growth - Gross</b>	<b>5.69</b>	<b>20.75</b>	<b>5.59</b>	<b>9.85</b>	<b>4.71</b>	<b>8.04</b>	<b>7.95</b>	<b>-15.61</b>	<b>28.74</b>	<b>1.12</b>	<b>2.21</b>	<b>-5.72</b>	<b>3.72</b>	<b>11/01/2006</b>
IM International Large Cap Growth Equity (SA+CF) Median	4.85	18.54	1.54	10.64	4.65	8.63	9.28	-13.98	31.38	-0.07	2.32	-3.26	5.00	
Rank	36	21	24	67	48	72	81	65	69	34	52	79	82	
<b>International Small Cap - Net</b>	<b>1.93</b>	<b>13.50</b>	<b>-6.06</b>	<b>8.67</b>	<b>3.30</b>	<b>8.71</b>	<b>8.97</b>	<b>-18.90</b>	<b>33.61</b>	<b>1.84</b>	<b>5.16</b>	<b>-4.87</b>	<b>4.31</b>	<b>09/01/2006</b>
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	1.21	11.60	-5.94	7.76	2.77	7.66	8.48	-18.20	31.65	3.91	2.60	-4.03	4.82	
Difference	0.72	1.90	-0.12	0.91	0.53	1.05	0.49	-0.70	1.96	-2.07	2.56	-0.84	-0.51	
<b>International Small Cap - Gross</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>09/01/2006</b>
IM International Small Cap Equity (SA+CF) Median	2.63	13.50	-6.22	9.56	4.61	10.12	11.27	-18.82	34.81	1.13	10.04	-3.38	6.53	
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	N/A	

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 June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Large Cap Passive - Net</b>	<b>4.29</b>	<b>18.21</b>	<b>10.36</b>	<b>14.12</b>	<b>10.56</b>	<b>13.88</b>	<b>14.68</b>	<b>-3.94</b>	<b>21.34</b>	<b>12.01</b>	<b>0.83</b>	<b>13.73</b>	<b>8.73</b>	<b>06/01/2005</b>
S&P 500 Index (Cap Wtd)	4.30	18.54	10.42	14.19	10.71	13.98	14.70	-4.38	21.83	11.96	1.38	13.69	8.88	
Difference	-0.01	-0.33	-0.06	-0.07	-0.15	-0.10	-0.02	0.44	-0.49	0.05	-0.55	0.04	-0.15	
<b>Domestic Large Cap Passive - Gross</b>	<b>4.29</b>	<b>18.21</b>	<b>10.37</b>	<b>14.13</b>	<b>10.57</b>	<b>13.89</b>	<b>14.67</b>	<b>-3.93</b>	<b>21.35</b>	<b>12.03</b>	<b>0.84</b>	<b>13.74</b>	<b>8.73</b>	<b>06/01/2005</b>
IM U.S. Large Cap Index Equity (SA+CF) Median	4.25	18.57	10.05	14.11	10.48	13.94	14.71	-4.78	21.71	12.03	0.95	13.27	8.97	
Rank	38	73	42	50	47	57	66	18	57	51	57	17	80	
<b>Domestic Large Cap Enhanced - Net</b>	<b>4.48</b>	<b>19.60</b>	<b>10.67</b>	<b>14.92</b>	<b>11.30</b>	<b>14.42</b>	<b>15.55</b>	<b>-4.20</b>	<b>24.21</b>	<b>9.73</b>	<b>3.18</b>	<b>13.19</b>	<b>8.64</b>	<b>06/01/2006</b>
S&P 500 Index (Cap Wtd)	4.30	18.54	10.42	14.19	10.71	13.98	14.70	-4.38	21.83	11.96	1.38	13.69	8.90	
Difference	0.18	1.06	0.25	0.73	0.59	0.44	0.85	0.18	2.38	-2.23	1.80	-0.50	-0.26	
<b>Domestic Large Cap Enhanced - Gross</b>	<b>4.55</b>	<b>19.77</b>	<b>10.98</b>	<b>15.22</b>	<b>11.62</b>	<b>14.75</b>	<b>15.89</b>	<b>-3.96</b>	<b>24.53</b>	<b>10.05</b>	<b>3.50</b>	<b>13.54</b>	<b>8.96</b>	<b>06/01/2006</b>
IM U.S. Large Cap Core Equity (SA+CF) Median	4.23	18.14	8.85	13.70	10.31	13.97	14.55	-5.20	21.83	10.52	1.43	13.42	8.98	
Rank	40	26	27	20	18	21	11	29	20	57	25	48	52	
<b>Domestic Large Cap 130/30 - Net</b>	<b>4.26</b>	<b>18.58</b>	<b>7.40</b>	<b>13.44</b>	<b>9.59</b>	<b>13.98</b>	<b>14.14</b>	<b>-7.10</b>	<b>20.28</b>	<b>9.54</b>	<b>1.61</b>	<b>14.84</b>	<b>9.40</b>	<b>03/01/2008</b>
S&P 500 Index (Cap Wtd)	4.30	18.54	10.42	14.19	10.71	13.98	14.70	-4.38	21.83	11.96	1.38	13.69	9.57	
Difference	-0.04	0.04	-3.02	-0.75	-1.12	0.00	-0.56	-2.72	-1.55	-2.42	0.23	1.15	-0.17	
<b>Domestic Large Cap 130/30 - Gross</b>	<b>4.42</b>	<b>18.99</b>	<b>8.23</b>	<b>14.26</b>	<b>10.34</b>	<b>14.76</b>	<b>14.91</b>	<b>-6.32</b>	<b>21.10</b>	<b>10.22</b>	<b>2.26</b>	<b>15.59</b>	<b>10.14</b>	<b>03/01/2008</b>
IM U.S. Large Cap Core Equity (SA+CF) Median	4.23	18.14	8.85	13.70	10.31	13.97	14.55	-5.20	21.83	10.52	1.43	13.42	9.62	
Rank	43	35	57	35	49	21	34	70	62	55	38	21	28	

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 June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Large Cap Equity</b>														
<b>BlackRock MSCI US Equity Index (SA) - Net</b>	4.26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.26	04/01/2019
MSCI US Index (USD) (Gross)	4.28	18.79	10.24	14.22	10.59	13.95	14.70	-4.50	21.90	11.61	1.32	13.36	4.28	
Difference	-0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.02	
<b>BlackRock MSCI US Equity Index (SA) - Gross</b>	4.26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.26	04/01/2019
<b>SPDR S&amp;P 500 ETF (SPY) - Net</b>	4.21	18.10	10.33	N/A	N/A	N/A	N/A	-5.30	N/A	N/A	N/A	N/A	11.65	07/01/2017
S&P 500 Index (Cap Wtd)	4.30	18.54	10.42	14.19	10.71	13.98	14.70	-4.38	21.83	11.96	1.38	13.69	12.38	
Difference	-0.09	-0.44	-0.09	N/A	N/A	N/A	N/A	-0.92	N/A	N/A	N/A	N/A	-0.73	
<b>Northern Trust MSCI US Index (SA) - Net</b>	4.32	18.85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10.24	11/01/2018
MSCI US Index (USD) (Gross)	4.28	18.79	10.24	14.22	10.59	13.95	14.70	-4.50	21.90	11.61	1.32	13.36	10.19	
Difference	0.04	0.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05	
<b>Northern Trust MSCI US Index (SA) - Gross</b>	4.33	18.85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10.24	11/01/2018
IM U.S. Large Cap Core Equity (SA+CF) Median	4.23	18.14	8.85	13.70	10.31	13.97	14.55	-5.20	21.83	10.52	1.43	13.42	9.95	
Rank	47	38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	42	
<b>Domestic Equity Pool STIF - Net</b>	0.60	1.25	2.44	1.52	N/A	N/A	N/A	2.01	1.00	0.50	N/A	N/A	1.14	04/01/2015
Short Term Custom Index	0.59	1.19	2.27	1.53	1.02	0.78	0.62	1.95	1.15	0.52	0.21	0.16	1.17	
Difference	0.01	0.06	0.17	-0.01	N/A	N/A	N/A	0.06	-0.15	-0.02	N/A	N/A	-0.03	
<b>T. Rowe U.S. Structured Research (SA) - Net</b>	4.48	19.60	10.67	15.23	11.36	14.52	14.91	-4.20	23.94	10.68	3.30	12.58	9.45	06/01/2006
S&P 500 Index (Cap Wtd)	4.30	18.54	10.42	14.19	10.71	13.98	14.70	-4.38	21.83	11.96	1.38	13.69	8.90	
Difference	0.18	1.06	0.25	1.04	0.65	0.54	0.21	0.18	2.11	-1.28	1.92	-1.11	0.55	
<b>T. Rowe U.S. Structured Research (SA) - Gross</b>	4.55	19.77	10.98	15.52	11.67	14.84	15.24	-3.96	24.24	10.98	3.61	12.92	9.77	06/01/2006
IM U.S. Large Cap Core Equity (SA+CF) Median	4.23	18.14	8.85	13.70	10.31	13.97	14.55	-5.20	21.83	10.52	1.43	13.42	8.98	
Rank	40	26	27	18	17	20	25	29	23	46	25	59	22	
<b>Jacobs Levy 130/30 (SA) - Net</b>	4.38	20.00	6.88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.96	04/01/2018
MSCI US Index (USD) (Gross)	4.28	18.79	10.24	14.22	10.59	13.95	14.70	-4.50	21.90	11.61	1.32	13.36	11.17	
Difference	0.10	1.21	-3.36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-2.21	
<b>Jacobs Levy 130/30 (SA) - Gross</b>	4.55	20.41	7.68	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.83	04/01/2018
IM U.S. Large Cap Core Equity (SA+CF) Median	4.23	18.14	8.85	13.70	10.31	13.97	14.55	-5.20	21.83	10.52	1.43	13.42	9.80	
Rank	39	17	63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	49	

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. 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.



Montana Board of Investments  
Comparative Performance  
Domestic Equity Managers

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>J.P. Morgan 130/30 (SA) - Net</b>	<b>4.16</b>	<b>17.88</b>	<b>7.71</b>	<b>14.82</b>	<b>9.82</b>	<b>14.43</b>	<b>14.50</b>	<b>-6.93</b>	<b>22.86</b>	<b>10.30</b>	<b>0.01</b>	<b>15.38</b>	<b>10.32</b>	<b>03/01/2008</b>
S&P 500 Index (Cap Wtd)	4.30	18.54	10.42	14.19	10.71	13.98	14.70	-4.38	21.83	11.96	1.38	13.69	9.57	
Difference	-0.14	-0.66	-2.71	0.63	-0.89	0.45	-0.20	-2.55	1.03	-1.66	-1.37	1.69	0.75	
<b>J.P. Morgan 130/30 (SA) - Gross</b>	<b>4.30</b>	<b>18.29</b>	<b>8.56</b>	<b>15.70</b>	<b>10.64</b>	<b>15.27</b>	<b>15.34</b>	<b>-6.13</b>	<b>23.79</b>	<b>11.09</b>	<b>0.72</b>	<b>16.21</b>	<b>11.13</b>	<b>03/01/2008</b>
IM U.S. Large Cap Core Equity (SA+CF) Median	4.23	18.14	8.85	13.70	10.31	13.97	14.55	-5.20	21.83	10.52	1.43	13.42	9.62	
Rank	50	49	54	17	41	12	24	67	27	45	59	15	8	
<b>Domestic Mid Cap Equity</b>														
<b>iShares:Core S&amp;P Md-Cp (IJH) - Net</b>	<b>3.04</b>	<b>18.10</b>	<b>1.40</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-13.95</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>5.61</b>	<b>07/01/2017</b>
S&P Mid Cap 400 Index (Cap Wtd)	3.05	17.97	1.36	10.90	8.02	12.68	14.64	-11.08	16.24	20.74	-2.18	9.77	7.26	
Difference	-0.01	0.13	0.04	N/A	N/A	N/A	N/A	-2.87	N/A	N/A	N/A	N/A	-1.65	

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. 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.



Montana Board of Investments  
Comparative Performance  
Domestic Equity Managers

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Domestic Small Cap Equity</b>														
<b>Vaughan Nelson Management (SA) - Net</b>	<b>3.01</b>	<b>18.64</b>	<b>0.69</b>	<b>8.18</b>	<b>6.17</b>	<b>11.70</b>	<b>13.22</b>	<b>-13.78</b>	<b>6.83</b>	<b>20.50</b>	<b>0.16</b>	<b>9.09</b>	<b>9.01</b>	<b>03/01/2007</b>
Russell 2000 Val Index	1.38	13.47	-6.24	9.81	5.39	10.31	12.40	-12.86	7.84	31.74	-7.47	4.22	5.57	
Difference	1.63	5.17	6.93	-1.63	0.78	1.39	0.82	-0.92	-1.01	-11.24	7.63	4.87	3.44	
<b>Vaughan Nelson Management (SA) - Gross</b>	<b>3.18</b>	<b>19.06</b>	<b>1.43</b>	<b>9.00</b>	<b>7.01</b>	<b>12.59</b>	<b>14.15</b>	<b>-13.13</b>	<b>7.66</b>	<b>21.49</b>	<b>0.98</b>	<b>10.00</b>	<b>9.92</b>	<b>03/01/2007</b>
IM U.S. Small Cap Value Equity (SA+CF) Median	2.32	15.80	-4.69	9.93	6.19	11.83	14.17	-14.33	11.59	26.39	-4.29	5.71	7.79	
Rank	39	19	16	61	30	30	51	38	77	76	9	10	10	
<b>BlackRock MSCI US Sm Cap Equity Index (CF) - Net</b>	<b>2.26</b>	<b>18.56</b>	<b>0.37</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-9.96</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>8.68</b>	<b>07/01/2017</b>
MSCI US Sm Cap Index (USD) (Net)	2.14	18.31	-0.09	12.14	7.42	12.31	14.42	-10.40	16.75	19.15	-4.11	7.07	8.18	
Difference	0.12	0.25	0.46	N/A	N/A	N/A	N/A	0.44	N/A	N/A	N/A	N/A	0.50	
<b>BlackRock MSCI US Sm Cap Equity Index (CF) - Gross</b>	<b>2.26</b>	<b>18.58</b>	<b>0.40</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-9.93</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>8.73</b>	<b>07/01/2017</b>
<b>DFA US Small Cap Trust (CF) - Net</b>	<b>2.15</b>	<b>14.32</b>	<b>-5.01</b>	<b>10.43</b>	<b>6.79</b>	<b>12.05</b>	<b>14.13</b>	<b>-12.27</b>	<b>11.86</b>	<b>24.42</b>	<b>-2.64</b>	<b>4.75</b>	<b>11.68</b>	<b>03/01/2003</b>
Russell 2000 Index	2.10	16.98	-3.31	12.30	7.06	11.63	13.45	-11.01	14.65	21.31	-4.41	4.89	10.88	
Difference	0.05	-2.66	-1.70	-1.87	-0.27	0.42	0.68	-1.26	-2.79	3.11	1.77	-0.14	0.80	
<b>DFA US Small Cap Trust (CF) - Gross</b>	<b>2.23</b>	<b>14.51</b>	<b>-4.68</b>	<b>10.81</b>	<b>7.16</b>	<b>12.43</b>	<b>14.53</b>	<b>-11.95</b>	<b>12.25</b>	<b>24.85</b>	<b>-2.29</b>	<b>5.12</b>	<b>12.00</b>	<b>03/01/2003</b>
IM U.S. Small Cap Core Equity (SA+CF) Median	2.63	17.24	-2.54	12.56	8.22	13.16	14.61	-10.69	15.13	20.77	-1.35	6.72	12.13	
Rank	58	72	74	73	70	60	54	63	72	20	63	65	55	
<b>iShares:Russ 2000 ETF (IWM) - Net</b>	<b>1.90</b>	<b>16.97</b>	<b>-3.41</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>2.71</b>	<b>05/01/2018</b>
Russell 2000 Index	2.10	16.98	-3.31	12.30	7.06	11.63	13.45	-11.01	14.65	21.31	-4.41	4.89	2.82	
Difference	-0.20	-0.01	-0.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.11	

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%, 0.07%, 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. 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.



Montana Board of Investments  
Comparative Performance  
International Equity Managers

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>International Developed Large Cap Equity</b>														
<b>Acadian Asset Non-US Equity (SA) - Net</b>	1.77	12.39	-1.50	13.33	4.42	9.01	8.97	-13.44	34.76	12.40	-7.75	0.00	3.18	11/01/2006
MSCI ACW Ex US Val Index (USD) (Net)	1.57	10.02	-0.07	8.93	0.29	5.16	5.43	-13.97	22.66	8.92	-10.06	-5.10	2.01	
Difference	0.20	2.37	-1.43	4.40	4.13	3.85	3.54	0.53	12.10	3.48	2.31	5.10	1.17	
<b>Acadian Asset Non-US Equity (SA) - Gross</b>	1.90	12.67	-0.99	13.92	4.97	9.58	9.57	-12.99	35.45	13.01	-7.26	0.52	3.76	11/01/2006
IM ACWI Ex US Value (SA+CF) Median	2.49	12.36	-0.97	8.58	2.19	7.27	7.85	-14.96	26.02	4.87	-3.25	-3.87	3.86	
Rank	62	45	51	4	16	17	12	25	8	10	85	15	52	
<b>Lazard Asset Management (SA) - Net</b>	5.07	15.62	3.63	7.85	N/A	N/A	N/A	-14.32	27.00	0.22	N/A	N/A	3.44	06/01/2015
Lazard Custom Index	2.98	13.60	1.29	9.42	0.56	5.37	5.57	-15.55	22.66	8.92	-10.06	-5.10	2.13	
Difference	2.09	2.02	2.34	-1.57	N/A	N/A	N/A	1.23	4.34	-8.70	N/A	N/A	1.31	
<b>Lazard Asset Management (SA) - Gross</b>	5.21	15.92	4.17	8.42	N/A	N/A	N/A	-13.88	27.65	0.77	N/A	N/A	3.99	06/01/2015
IM ACWI Ex US Value (SA+CF) Median	2.49	12.36	-0.97	8.58	2.19	7.27	7.85	-14.96	26.02	4.87	-3.25	-3.87	3.01	
Rank	6	18	13	55	N/A	N/A	N/A	34	38	86	N/A	N/A	34	
<b>BlackRock ACWI Ex-US SuperFund A (CF) - Net</b>	3.13	13.82	1.51	9.65	2.39	6.58	6.75	-13.99	27.49	4.77	-5.49	-3.73	6.59	06/01/2009
MSCI ACW Ex US Index (USD) (Net)	2.98	13.60	1.29	9.39	2.16	6.36	6.54	-14.20	27.19	4.50	-5.66	-3.87	6.37	
Difference	0.15	0.22	0.22	0.26	0.23	0.22	0.21	0.21	0.30	0.27	0.17	0.14	0.22	
<b>BlackRock ACWI Ex-US SuperFund A (CF) - Gross</b>	3.15	13.86	1.58	9.73	2.47	6.66	6.84	-13.93	27.58	4.86	-5.42	-3.65	6.67	06/01/2009
IM All ACWI Ex US (SA+CF) Median	3.53	15.23	0.77	9.68	3.65	8.26	8.62	-14.75	28.71	2.06	-0.55	-3.38	8.42	
Rank	60	64	42	50	71	79	84	43	60	25	85	55	83	
<b>iShares:MSCI EAFE ETF (EFA) - Net</b>	3.47	14.18	1.38	N/A	N/A	N/A	N/A	-12.88	N/A	N/A	N/A	N/A	4.14	07/01/2017
MSCI EAFE Index (USD) (Net)	3.68	14.03	1.08	9.11	2.25	7.31	6.90	-13.79	25.03	1.00	-0.81	-4.90	3.92	
Difference	-0.21	0.15	0.30	N/A	N/A	N/A	N/A	0.91	N/A	N/A	N/A	N/A	0.22	
<b>Baillie Gifford (SA) - Net</b>	5.98	20.47	0.10	9.72	N/A	N/A	N/A	-17.35	31.99	0.73	N/A	N/A	5.19	06/01/2015
MSCI ACW Ex US Grth Index (USD) (Net)	4.35	17.20	2.64	9.81	4.00	7.51	7.61	-14.43	32.01	0.12	-1.25	-2.65	4.77	
Difference	1.63	3.27	-2.54	-0.09	N/A	N/A	N/A	-2.92	-0.02	0.61	N/A	N/A	0.42	
<b>Baillie Gifford (SA) - Gross</b>	6.10	20.76	0.59	10.28	N/A	N/A	N/A	-16.93	32.66	1.28	N/A	N/A	5.73	06/01/2015
IM ACWI Ex US Growth (SA+CF) Median	5.21	19.51	1.54	10.88	4.85	8.85	9.54	-14.18	32.57	-0.76	1.29	-1.66	5.26	
Rank	23	23	62	65	N/A	N/A	N/A	85	50	33	N/A	N/A	41	

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 June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Invesco (SA) - Net</b>	<b>5.25</b>	<b>20.38</b>	<b>8.81</b>	<b>8.80</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-15.17</b>	<b>24.92</b>	<b>0.32</b>	<b>N/A</b>	<b>N/A</b>	<b>3.97</b>	<b>06/01/2015</b>
MSCI ACW Ex US Grth Index (USD) (Net)	4.35	17.20	2.64	9.81	4.00	7.51	7.61	-14.43	32.01	0.12	-1.25	-2.65	4.77	
Difference	0.90	3.18	6.17	-1.01	N/A	N/A	N/A	-0.74	-7.09	0.20	N/A	N/A	-0.80	
<b>Invesco (SA) - Gross</b>	<b>5.40</b>	<b>20.74</b>	<b>9.46</b>	<b>9.47</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-14.64</b>	<b>25.70</b>	<b>1.01</b>	<b>N/A</b>	<b>N/A</b>	<b>4.63</b>	<b>06/01/2015</b>
IM ACWI Ex US Growth (SA+CF) Median	5.21	19.51	1.54	10.88	4.85	8.85	9.54	-14.18	32.57	-0.76	1.29	-1.66	5.26	
Rank	46	23	8	79	N/A	N/A	N/A	53	91	36	N/A	N/A	68	
<b>International Equity Pool STIF - Net</b>	<b>0.60</b>	<b>1.22</b>	<b>2.31</b>	<b>1.44</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.94</b>	<b>0.92</b>	<b>0.47</b>	<b>N/A</b>	<b>N/A</b>	<b>1.09</b>	<b>04/01/2015</b>
Short Term Custom Index	0.59	1.19	2.27	1.53	1.02	0.78	0.62	1.95	1.15	0.52	0.21	0.16	1.17	
Difference	0.01	0.03	0.04	-0.09	N/A	N/A	N/A	-0.01	-0.23	-0.05	N/A	N/A	-0.08	
<b>International Developed Small Cap Equity</b>														
<b>American Century Investment Mgmt (SA) - Net</b>	<b>3.84</b>	<b>17.49</b>	<b>-9.94</b>	<b>9.92</b>	<b>4.85</b>	<b>N/A</b>	<b>N/A</b>	<b>-20.76</b>	<b>43.80</b>	<b>-5.31</b>	<b>11.32</b>	<b>N/A</b>	<b>4.56</b>	<b>03/01/2014</b>
MSCI ACW Ex US Sm Cap Grth Index (USD) (Net)	1.83	13.60	-6.37	7.63	3.53	7.84	8.79	-18.27	33.64	-0.28	6.50	-3.59	3.91	
Difference	2.01	3.89	-3.57	2.29	1.32	N/A	N/A	-2.49	10.16	-5.03	4.82	N/A	0.65	
<b>American Century Investment Mgmt (SA) - Gross</b>	<b>4.05</b>	<b>17.96</b>	<b>-9.19</b>	<b>10.84</b>	<b>5.74</b>	<b>N/A</b>	<b>N/A</b>	<b>-20.09</b>	<b>44.99</b>	<b>-4.49</b>	<b>12.25</b>	<b>N/A</b>	<b>5.45</b>	<b>03/01/2014</b>
IM ACWI Ex US Growth (SA+CF) Median	5.21	19.51	1.54	10.88	4.85	8.85	9.54	-14.18	32.57	-0.76	1.29	-1.66	5.09	
Rank	71	67	100	53	31	N/A	N/A	100	6	79	1	N/A	45	
<b>BlackRock ACWI Ex-US Small Cap (CF) - Net</b>	<b>1.34</b>	<b>11.78</b>	<b>-5.62</b>	<b>8.11</b>	<b>3.10</b>	<b>7.91</b>	<b>N/A</b>	<b>-17.85</b>	<b>31.96</b>	<b>4.26</b>	<b>2.87</b>	<b>-3.84</b>	<b>6.83</b>	<b>02/01/2012</b>
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	1.21	11.60	-5.94	7.76	2.77	7.66	8.48	-18.20	31.65	3.91	2.60	-4.03	6.57	
Difference	0.13	0.18	0.32	0.35	0.33	0.25	N/A	0.35	0.31	0.35	0.27	0.19	0.26	
<b>BlackRock ACWI Ex-US Small Cap (CF) - Gross</b>	<b>1.37</b>	<b>11.84</b>	<b>-5.50</b>	<b>8.25</b>	<b>3.26</b>	<b>8.08</b>	<b>N/A</b>	<b>-17.74</b>	<b>32.15</b>	<b>4.44</b>	<b>3.04</b>	<b>-3.67</b>	<b>7.00</b>	<b>02/01/2012</b>
<b>DFA Intl Sm Co;l (DFISX) - Net</b>	<b>2.18</b>	<b>12.31</b>	<b>-7.33</b>	<b>7.90</b>	<b>2.96</b>	<b>8.80</b>	<b>9.04</b>	<b>-19.41</b>	<b>30.24</b>	<b>5.74</b>	<b>5.89</b>	<b>-6.29</b>	<b>7.35</b>	<b>11/01/2004</b>
MSCI Wrld Ex US Sm Cap Index (USD) (Net)	1.76	12.88	-6.17	8.38	3.39	8.79	9.19	-18.07	31.04	4.32	5.46	-5.35	6.92	
Difference	0.42	-0.57	-1.16	-0.48	-0.43	0.01	-0.15	-1.34	-0.80	1.42	0.43	-0.94	0.43	
<b>Templeton Investment Counsel (SA) - Net</b>	<b>1.31</b>	<b>15.13</b>	<b>-4.10</b>	<b>9.17</b>	<b>3.01</b>	<b>N/A</b>	<b>N/A</b>	<b>-18.48</b>	<b>33.07</b>	<b>-1.13</b>	<b>1.81</b>	<b>N/A</b>	<b>3.57</b>	<b>03/01/2014</b>
Templeton Custom Index	1.21	11.60	-5.94	7.80	1.95	7.42	8.12	-19.75	29.72	8.24	-1.25	-4.49	2.66	
Difference	0.10	3.53	1.84	1.37	1.06	N/A	N/A	1.27	3.35	-9.37	3.06	N/A	0.91	
<b>Templeton Investment Counsel (SA) - Gross</b>	<b>1.52</b>	<b>15.61</b>	<b>-3.28</b>	<b>10.11</b>	<b>3.92</b>	<b>N/A</b>	<b>N/A</b>	<b>-17.78</b>	<b>34.21</b>	<b>-0.23</b>	<b>2.73</b>	<b>N/A</b>	<b>4.49</b>	<b>03/01/2014</b>
IM ACWI Ex US Value (SA+CF) Median	2.49	12.36	-0.97	8.58	2.19	7.27	7.85	-14.96	26.02	4.87	-3.25	-3.87	3.37	
Rank	76	18	75	36	33	N/A	N/A	83	8	89	9	N/A	29	

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 June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>International Emerging Equity</b>														
<b>BlackRock Emerging Mkts (CF) - Net</b>	<b>0.55</b>	<b>10.44</b>	<b>1.00</b>	<b>10.44</b>	<b>2.25</b>	<b>3.91</b>	<b>N/A</b>	<b>-14.69</b>	<b>37.05</b>	<b>10.85</b>	<b>-15.15</b>	<b>-2.49</b>	<b>2.72</b>	<b>02/01/2012</b>
MSCI Emg Mkts Index (USD) (Net)	0.61	10.59	1.21	10.66	2.49	4.15	5.81	-14.58	37.28	11.19	-14.92	-2.19	2.96	
Difference	-0.06	-0.15	-0.21	-0.22	-0.24	-0.24	N/A	-0.11	-0.23	-0.34	-0.23	-0.30	-0.24	
<b>BlackRock Emerging Mkts (CF) - Gross</b>	<b>0.58</b>	<b>10.50</b>	<b>1.12</b>	<b>10.57</b>	<b>2.41</b>	<b>4.08</b>	<b>N/A</b>	<b>-14.60</b>	<b>37.16</b>	<b>11.08</b>	<b>-14.99</b>	<b>-2.30</b>	<b>2.89</b>	<b>02/01/2012</b>
<b>iShares:MSCI Em Mkts (EEM) - Net</b>	<b>0.70</b>	<b>10.65</b>	<b>1.28</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-16.45</b>	<b>36.86</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>9.87</b>	<b>01/01/2017</b>
MSCI Emg Mkts Index (USD) (Net)	0.61	10.59	1.21	10.66	2.49	4.15	5.81	-14.58	37.28	11.19	-14.92	-2.19	10.96	
Difference	0.09	0.06	0.07	N/A	N/A	N/A	N/A	-1.87	-0.42	N/A	N/A	N/A	-1.09	
<b>DFA Emg Mkts Sm Cap;I (DEMSX) - Net</b>	<b>0.77</b>	<b>9.64</b>	<b>-1.30</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-17.56</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>4.07</b>	<b>03/01/2017</b>
MSCI Emg Mkts Sm Cap Index (USD) (Net)	-0.98	6.71	-5.12	5.46	0.53	3.68	5.86	-18.59	33.84	2.28	-6.85	1.01	2.35	
Difference	1.75	2.93	3.82	N/A	N/A	N/A	N/A	1.03	N/A	N/A	N/A	N/A	1.72	

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 0.31%, 0.53%, 0.67%, 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  
Fixed Income Managers

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Trust Funds Investment Pool Internally Managed</b>	<b>3.20</b>	<b>6.43</b>	<b>8.25</b>	<b>2.64</b>	<b>3.43</b>	<b>3.30</b>	<b>4.85</b>	<b>0.30</b>	<b>3.78</b>	<b>3.41</b>	<b>1.03</b>	<b>6.79</b>	<b>5.92</b>	<b>10/01/1995</b>
Bloomberg US Agg Bond Index	3.08	6.11	7.87	2.31	2.95	2.62	3.90	0.01	3.54	2.65	0.55	5.97	5.19	
Difference	0.12	0.32	0.38	0.33	0.48	0.68	0.95	0.29	0.24	0.76	0.48	0.82	0.73	
<b>Trust Funds Investment Pool Internally Managed</b>	<b>3.20</b>	<b>6.43</b>	<b>8.25</b>	<b>2.64</b>	<b>3.43</b>	<b>3.30</b>	<b>4.85</b>	<b>0.30</b>	<b>3.78</b>	<b>3.41</b>	<b>1.03</b>	<b>6.79</b>	<b>5.92</b>	<b>10/01/1995</b>
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	3.14	6.43	8.11	2.80	3.29	3.10	4.61	0.07	4.06	3.11	0.82	6.16	5.59	
Rank	38	51	39	59	39	36	32	30	66	44	29	25	14	
<b>Reams Asset Core Plus (SA) - Net</b>	<b>2.81</b>	<b>5.63</b>	<b>7.82</b>	<b>2.54</b>	<b>3.17</b>	<b>3.04</b>	<b>5.23</b>	<b>1.31</b>	<b>3.21</b>	<b>4.18</b>	<b>0.07</b>	<b>4.47</b>	<b>5.55</b>	<b>10/01/2008</b>
Reams Custom Index	3.08	6.11	7.87	2.71	3.10	2.98	4.33	0.01	3.83	3.91	0.43	5.56	4.61	
Difference	-0.27	-0.48	-0.05	-0.17	0.07	0.06	0.90	1.30	-0.62	0.27	-0.36	-1.09	0.94	
<b>Reams Asset Core Plus (SA) - Gross</b>	<b>2.86</b>	<b>5.73</b>	<b>8.02</b>	<b>2.72</b>	<b>3.35</b>	<b>3.22</b>	<b>5.42</b>	<b>1.49</b>	<b>3.38</b>	<b>4.35</b>	<b>0.24</b>	<b>4.65</b>	<b>5.74</b>	<b>10/01/2008</b>
IM U.S. Broad Market Core+ FI (SA+CF) Median	3.24	7.04	8.29	3.47	3.46	3.71	5.67	-0.39	4.81	4.67	0.29	6.19	5.86	
Rank	87	94	67	90	62	80	60	4	95	57	53	90	57	
<b>Post Trad'l High Yield LP (CF) - Gross</b>	<b>3.17</b>	<b>10.31</b>	<b>8.47</b>	<b>6.90</b>	<b>5.46</b>	<b>7.32</b>	<b>N/A</b>	<b>-1.72</b>	<b>7.09</b>	<b>10.62</b>	<b>1.42</b>	<b>6.01</b>	<b>8.91</b>	<b>09/01/2009</b>
IM U.S. High Yield Bonds (SA+CF) Median	2.51	9.62	7.29	7.31	4.54	6.29	9.01	-1.69	7.50	14.07	-2.10	2.72	8.38	
Rank	13	32	21	66	10	9	N/A	51	60	82	7	2	22	
<b>Neuberger Berman High Yield (SA) - Net</b>	<b>2.32</b>	<b>9.21</b>	<b>7.07</b>	<b>6.41</b>	<b>3.87</b>	<b>5.74</b>	<b>N/A</b>	<b>-1.99</b>	<b>5.80</b>	<b>14.98</b>	<b>-4.32</b>	<b>1.93</b>	<b>7.10</b>	<b>01/01/2010</b>
Bloomberg US HY 2% Issuer Cap Index	2.50	9.94	7.48	7.52	4.71	6.36	9.22	-2.08	7.50	17.13	-4.43	2.46	7.52	
Difference	-0.18	-0.73	-0.41	-1.11	-0.84	-0.62	N/A	0.09	-1.70	-2.15	0.11	-0.53	-0.42	
<b>Neuberger Berman High Yield (SA) - Gross</b>	<b>2.43</b>	<b>9.45</b>	<b>7.54</b>	<b>6.89</b>	<b>4.34</b>	<b>6.21</b>	<b>N/A</b>	<b>-1.56</b>	<b>6.27</b>	<b>15.50</b>	<b>-3.89</b>	<b>2.38</b>	<b>7.59</b>	<b>01/01/2010</b>
IM U.S. High Yield Bonds (SA+CF) Median	2.51	9.62	7.29	7.31	4.54	6.29	9.01	-1.69	7.50	14.07	-2.10	2.72	7.51	
Rank	55	55	43	66	60	56	N/A	47	78	33	74	56	44	

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



Montana Board of Investments  
Comparative Performance  
Fixed Income Managers

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Oaktree U.S. High Yield (SA) - Net</b>	<b>2.75</b>	<b>10.45</b>	<b>7.31</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-3.99</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>3.99</b>	<b>01/01/2018</b>
Bloomberg US HY 2% Issuer Cap Index	2.50	9.94	7.48	7.52	4.71	6.36	9.22	-2.08	7.50	17.13	-4.43	2.46	5.04	
Difference	0.25	0.51	-0.17	N/A	N/A	N/A	N/A	-1.91	N/A	N/A	N/A	N/A	-1.05	
<b>Oaktree U.S. High Yield (SA) - Gross</b>	<b>2.87</b>	<b>10.71</b>	<b>7.84</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-3.47</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>4.52</b>	<b>01/01/2018</b>
IM U.S. High Yield Bonds (SA+CF) Median	2.51	9.62	7.29	7.31	4.54	6.29	9.01	-1.69	7.50	14.07	-2.10	2.72	4.97	
Rank	31	22	35	N/A	N/A	N/A	N/A	92	N/A	N/A	N/A	N/A	69	
<b>Shenkman High Yield Fixed Income (SA) - Net</b>	<b>2.52</b>	<b>9.04</b>	<b>7.30</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-1.96</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>4.55</b>	<b>01/01/2018</b>
Bloomberg US HY 2% Issuer Cap Index	2.50	9.94	7.48	7.52	4.71	6.36	9.22	-2.08	7.50	17.13	-4.43	2.46	5.04	
Difference	0.02	-0.90	-0.18	N/A	N/A	N/A	N/A	0.12	N/A	N/A	N/A	N/A	-0.49	
<b>Shenkman High Yield Fixed Income (SA) - Gross</b>	<b>2.64</b>	<b>9.28</b>	<b>7.80</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-1.46</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>5.06</b>	<b>01/01/2018</b>
IM U.S. High Yield Bonds (SA+CF) Median	2.51	9.62	7.29	7.31	4.54	6.29	9.01	-1.69	7.50	14.07	-2.10	2.72	4.97	
Rank	43	58	36	N/A	N/A	N/A	N/A	45	N/A	N/A	N/A	N/A	46	

Trust Funds Investment Pool Internally Managed and Post Trad'l High Yield LP (CF) are part of the Trust Funds Investment Pool.

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. Post High Yield Plus (SA) is currently process of being liquidated.



Montana Board of Investments  
Comparative Performance  
Diversifying Strategies Managers

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
<b>Long U.S. Treasuries Portfolio</b>	<b>5.82</b>	<b>10.63</b>	<b>11.28</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>11.26</b>	<b>03/01/2018</b>
Bloomberg 20+ Yr Trsy Strips Index	7.91	14.69	14.30	1.29	8.02	4.72	9.11	-4.07	13.66	1.41	-3.74	46.38	14.92	
Difference	-2.09	-4.06	-3.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-3.66	
<b>Long U.S. Treasuries Portfolio</b>	<b>5.82</b>	<b>10.63</b>	<b>11.28</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>11.26</b>	<b>03/01/2018</b>
IM U.S. Long Duration (SA+CF) Median	6.63	13.87	14.16	4.36	5.97	5.46	8.56	-4.70	11.24	7.46	-3.33	18.36	10.39	
Rank	79	88	82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5	
<b>GMO:Bchmk-Fr All;III (GBMFX) - Net</b>	<b>1.59</b>	<b>7.21</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>6.42</b>	<b>11/01/2018</b>
Consumer Price Index+5%	2.00	4.47	6.73	7.15	6.52	6.66	6.82	7.01	7.21	7.18	5.77	5.79	4.64	
Difference	-0.41	2.74	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.78	
<b>PIMCO:All Asset;Inst (PAAIX) - Net</b>	<b>2.68</b>	<b>8.23</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>8.23</b>	<b>01/01/2019</b>
Consumer Price Index+5%	2.00	4.47	6.73	7.15	6.52	6.66	6.82	7.01	7.21	7.18	5.77	5.79	4.47	
Difference	0.68	3.76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.76	

Gross of fees performance is not available (N/A) for the following funds: GMO:Bchmk-Fr All;III (GBMFX) and PIMCO:All Asset;Inst (PAAIX).

The current annual expense ratios for GMO:Bchmk-Fr All;III (GBMFX) and PIMCO:All Asset;Inst (PAAIX) are 0.87% and 0.865%, respectively.

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

Montana Board of Investments  
Comparative Performance  
Trust Accounts

As of June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Abandoned Mine Trust	0.66	1.33	2.51	1.45	1.34	1.38	2.00	1.85	1.04	1.10	0.90	1.49	4.03	12/01/1993
Belt Water Treatment Plant Fund	2.96	6.12	7.73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.17	03/01/2018
Big Sky Economic Development Fund	3.00	6.19	7.85	2.96	3.74	3.73	5.23	0.48	3.97	3.98	1.82	6.77	4.97	07/01/2005
Butte Area One Restoration	2.30	4.72	6.46	2.60	2.78	2.56	3.32	1.24	2.92	2.60	1.20	3.57	3.36	11/01/2008
Clark Fork River Restoration	2.46	4.89	6.38	2.57	2.85	2.71	3.66	0.96	2.85	2.72	1.37	4.26	3.71	11/01/2008
Coal Tax Cultural Trust Fund	2.98	6.16	7.82	2.95	3.72	3.72	5.22	0.47	3.96	3.95	1.79	6.79	6.08	12/01/1993
Coal Tax Park Acquisition	2.99	6.17	7.82	2.94	3.71	3.69	5.21	0.48	3.96	3.90	1.78	6.66	6.05	12/01/1993
East Helena Compensation Fund	1.84	3.75	5.13	2.28	2.32	N/A	N/A	1.20	2.56	2.12	0.91	3.01	2.06	01/01/2013
Endowment for Children	2.96	6.10	7.74	2.92	3.61	3.62	5.11	0.46	3.89	3.66	1.70	6.66	5.03	08/01/2007
FWP License Account	1.04	2.09	3.30	1.56	1.27	1.14	1.30	1.50	1.11	0.84	0.61	0.59	3.00	11/01/1997
FWP Mitigation Trust Fund	1.83	3.71	5.16	1.88	1.60	1.55	2.09	1.14	1.15	0.67	0.87	1.37	3.94	12/01/1993
FWP Real Property Trust	2.97	6.14	7.79	2.92	3.64	3.61	5.04	0.51	3.80	3.82	1.73	6.47	5.43	12/01/1993
Group Benefits	1.28	2.62	3.90	1.69	1.58	1.44	1.88	1.37	1.30	1.16	1.06	1.17	3.94	12/01/1993
Harold Hamm Endowment	2.92	6.03	7.67	2.65	N/A	N/A	N/A	0.57	1.11	N/A	N/A	N/A	2.65	07/01/2016
Montana Pole	2.57	5.25	6.80	2.69	3.20	3.15	4.38	0.74	3.38	3.23	1.56	5.44	5.17	09/01/1996
Montana State University	0.85	1.69	2.88	1.71	1.32	1.12	1.20	1.87	1.39	0.95	0.39	0.85	2.05	08/01/2004
Montana Tech-UM Agency Funds	0.72	1.45	2.60	1.62	1.14	0.91	0.87	1.91	1.22	0.72	0.27	0.35	1.84	03/01/2003
MT BOI - Clark Fork Site	2.76	5.66	7.26	2.80	3.40	3.27	4.33	0.67	3.64	3.63	1.56	5.37	4.37	11/01/2008
MT BOI UOFM Other	1.43	2.90	4.30	2.02	2.16	1.97	2.18	1.42	2.15	2.34	1.13	2.57	3.00	08/01/2002
MUS Group Insurance	1.03	2.11	3.33	1.71	1.64	1.43	N/A	1.96	1.09	1.33	1.26	1.30	1.41	10/01/2011
MUS Workers Compensation	1.43	2.88	4.17	2.03	N/A	N/A	N/A	1.62	1.80	N/A	N/A	N/A	1.88	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 June 30, 2019

	QTD	CYTD	FYTD/ 1 Year	3 Years	5 Years	7 Years	10 Years	2018	2017	2016	2015	2014	Since Incep.	Inception Date
Older Montanans Trust	2.98	6.13	7.77	2.93	3.65	3.65	4.88	0.49	3.87	3.86	1.72	6.57	4.84	08/01/2007
Permanent Coal Trust Excl Crp	2.37	4.75	6.29	2.93	3.55	3.67	4.78	1.28	3.49	3.79	2.23	6.14	5.79	12/01/1993
PERS Defined Cont Disability	3.41	13.02	6.84	8.40	N/A	N/A	N/A	-4.88	14.57	3.42	N/A	N/A	6.54	09/01/2015
Potter Trust Fund	2.92	6.04	7.68	2.90	N/A	N/A	N/A	0.51	3.87	N/A	N/A	N/A	3.39	06/01/2016
Resource Indemnity Trust	3.08	6.34	8.02	2.99	3.79	3.78	5.26	0.44	4.01	4.02	1.82	6.94	6.16	12/01/1993
School Facilities Fund	2.71	5.50	6.99	N/A	N/A	N/A	N/A	-0.13	N/A	N/A	N/A	N/A	3.55	01/01/2018
Smelter Hill Up Restorative	1.89	3.84	5.28	2.30	2.16	1.95	2.24	1.57	1.85	1.79	0.92	2.49	2.27	11/01/2008
State Fund Insurance	2.81	6.60	7.41	3.84	3.88	4.15	5.37	0.38	5.05	3.50	2.21	5.00	5.61	12/01/1993
Streamside Tailings Operable Unit	2.75	5.59	7.18	2.78	3.45	3.43	4.68	0.57	3.69	3.58	1.69	6.22	5.39	02/01/1999
Subsequent Injury Fund	0.62	1.24	2.36	1.56	1.04	0.79	1.38	1.98	1.11	0.61	0.22	0.11	3.10	12/01/1993
Tobacco Trust Fund	2.98	6.19	7.84	2.93	3.74	3.74	5.25	0.46	3.96	3.99	1.82	6.89	5.68	01/01/2001
Treasurers	0.62	0.72	1.83	1.36	0.96	0.75	0.63	1.97	1.07	0.68	0.27	0.19	2.91	12/01/1993
Treasure State Endowment	3.05	6.28	7.95	2.99	3.76	3.76	5.26	0.46	4.00	3.98	1.82	6.84	6.02	12/01/1993
Treasure State Reg. Water System	3.05	6.28	7.95	2.98	3.76	3.74	5.25	0.45	4.00	3.96	1.82	6.80	5.83	06/01/2000
Trust and Legacy Account	3.07	6.32	7.99	2.98	3.78	3.77	5.25	0.43	4.00	4.01	1.82	6.92	6.75	07/01/1991
UCFRB Assess/Litig Cost Rec	2.94	6.06	7.69	2.89	3.58	3.58	4.83	0.49	3.77	3.84	1.65	6.40	5.75	07/01/1999
UCFRB Restoration Fund	2.95	6.03	7.73	2.96	3.55	3.54	4.97	0.67	3.73	3.52	1.70	6.28	5.65	06/01/1999
Upper Blackfoot Response	1.40	2.78	4.07	1.94	1.87	1.60	N/A	1.49	1.90	1.74	0.84	1.59	1.62	09/01/2010
Weed Control Trust	3.08	6.35	8.02	2.99	3.79	3.78	5.10	0.44	4.01	4.02	1.82	6.94	5.28	12/01/1993
Wildlife Habitat Trust	2.96	6.10	7.75	2.90	3.60	3.59	5.02	0.51	3.78	3.79	1.73	6.49	5.43	12/01/1993
Zortman/Landusky LT H2O	0.62	1.24	2.36	1.50	1.34	1.45	3.88	1.98	1.01	1.36	0.84	1.78	6.68	09/01/1999
Z/L Long Term H2O Trust Fund	0.62	1.24	2.36	1.51	1.45	1.30	3.51	1.98	1.08	1.39	1.15	1.76	4.48	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), DFA Emg Mkts Sm Cap;I (DEMSX), GMO:Bchmk-Fr All;III (GBMFX), and PIMCO:All Asset;Inst (PAAIX). 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 03/31/2017 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) is currently in the process of being liquidated. Proceeds from the liquidation were transferred to Oaktree US High Yield Fixed Income (SA) and Shenkman High Yield Fixed Income (SA). Market value shown consists of residual cash.
- 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 U.S. High Yield (SA) and Shenkman High Yield Fixed Income (SA) were funded in 12/2017.
- Analytic Investors 130/30 (SA) was liquidated in 09/2017.
- BlackRock MSCI US Equity Index (CF), BlackRock MSCI US Sm Cap Equity Index (CF), and iShares:Core S&P Md-Cp (IJH) were funded in 06/2017.
- SPDR S&P 500 ETF (SPY) and iShares:MSCI EAFE ETF (EFA) were re-funded in 06/2017.
- INTECH Enhanced Plus was liquidated in 06/2017.
- Residual assets from the liquidation of AllianceBernstein Int'l Value (SA), Martin Currie (SA), Hansberger Global Investors (SA), and Aberdeen Total Return Bond Strategy (SA) were distributed in 06/2017.
- BlackRock Equity Index Fund A (CF) and BlackRock Mid Cap Equity Index A (CF) were liquidated in 05/2017.
- DFA Emg Mkts Sm Cap;I (DEMSX) was funded in 02/2017.
- SPDR S&P 500 ETF (SPY) was liquidated in 01/2017.
- iShares:MSCI Em Mkts (EEM) was funded in 12/2016.
- SPDR S&P 500 ETF (SPY) was initially funded in 09/2015, was then liquidated in 12/2015, and was re-funded in 10/2016.

**Manager Transition Comments (cont.)**

- 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.

**Montana Board of Investments  
Fee Schedule**

**As of June 30, 2019**

	<b>Fee Schedule</b>	<b>Market Value As of 06/30/2019 (\$)</b>
SPDR S&P 500 ETF (SPY)	0.09 % of Assets	233,484
iShares:Core S&P Md-Cp (IJH)	0.07 % of Assets	28,250,649
iShares:Russ 2000 ETF (IWM)	0.19 % of Assets	79,616,778
iShares:MSCI EAFE ETF (EFA)	0.31 % of Assets	79,533,300
DFA Intl Sm Co;I (DFISX)	0.53 % of Assets	89,031,701
iShares:MSCI Em Mkts (EEM)	0.67 % of Assets	48,702,850
DFA Emg Mkts Sm Cap;I (DEMSX)	0.70 % of Assets	28,365,899
GMO:Bchmk-Fr All;III (GBMFX)	0.87 % of Assets	51,534,701
PIMCO:All Asset;Inst (PAAIX)	0.87 % of Assets	53,151,123

ETF fees are sourced from Morningstar and/or the investment manager. Mutual Fund fees are provided by staff. The expense ratio for PIMCO:All Asset;Inst (PAAIX) is 0.865%.



PORTLAND

BOISE

CHICAGO

NEW YORK

**Disclaimer of Warranties and Limitation of Liability** - This document was prepared by RVK, Inc. (RVK) and may include information and data from some or all of the following sources: client staff; custodian banks; investment managers; specialty investment consultants; actuaries; plan administrators/record-keepers; index providers; as well as other third-party sources as directed by the client or as we believe necessary or appropriate. RVK has taken reasonable care to ensure the accuracy of the information or data, but makes no warranties and disclaims responsibility for the accuracy or completeness of information or data provided or methodologies employed by any external source. This document is provided for the client's internal use only and does not constitute a recommendation by RVK or an offer of, or a solicitation for, any particular security and it is not intended to convey any guarantees as to the future performance of the investment products, asset classes, or capital markets.



# ***MEMORANDUM***

**Montana Board of Investments**

**Department of Commerce**

**2401 Colonial Drive, 3<sup>rd</sup> Floor**

**Helena, MT 59601**

**(406) 444-0001**

**To:** Members of the Board

**From:** Jon Putnam, Director of Fixed Income

**Date:** August 20, 2019

**Subject:** Proposed Change to Investment Policy

The 2019 Legislature made changes to the permissible investments within the Coal Severance Tax Trust Fund. The Proposed Objectives and Guidelines for the Coal Severance Tax Permanent Fund follow this memo.

Important changes:

- The 2019 Legislature increased the maximum permitted investment in the Montana Veterans' Home Loan Mortgage program to \$50M from \$40M per MCA 90-6-603.
- The 2019 Legislature increased the maximum permitted investment in the Intermediary Relending Loans program to \$10M from \$5M per MCA 17-6-345.
- The 2019 Legislature created and allocated \$15M to the Coal Trust Multifamily Homes program per MCA 17-6-308.

**Schedule II-F**  
**Investment Objectives and Guidelines**  
**Coal Severance Tax Permanent Fund**

**Effective-Proposed Date of Schedule: ~~August 22, 2017~~ August 20, 2019**

*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 the investment guidelines is to provide a framework for the Coal Severance Tax Permanent Fund under the guidance of the board.

The Coal Severance Tax Permanent Fund was established under MCA: 17-5-703 as a sub-fund of the Permanent Coal Severance Tax Trust. Income from the Coal Severance Tax Permanent Fund is distributed to the Coal Severance Tax Income Fund. The Department of Revenue will then transfer the income to various funds based on legislative appropriations.

There are several commercial and residential loan programs that are funded from the Coal Severance Tax Permanent Fund. In addition, the Coal Severance Tax Permanent Fund serves as the backstop for any loan guarantees under the INTERCAP and Facility Finance loan programs.

Investment staff will work closely with the Director of In-State Loan Programs, the Senior Bond Program Officer for INTERCAP and the Executive Director of the Montana Facility Finance Authority to address any liquidity needs within the portfolio.

Funds for the Coal Severance Tax Permanent Fund are held in MU49.

**Statement of Purpose:**

The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Coal Severance Tax Permanent Fund; and
2. Provide diversified investment exposure within the guidelines in a prudent and cost effective manner.

**Investment Objective:**

Strategic:

Attain above benchmark total return for all investments 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 and the Short-Term Investment Pool benchmark**, each weighted proportionately to the portfolio's holdings net of any legislatively directed holding of commercial, residential or infrastructure loans, bonds or other mandated assets, over a five-year moving average.

## Investment Guidelines:

The Montana Board of Investments will have full discretion to manage the Coal Severance Tax Permanent Fund 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:

Coal Severance Tax Permanent Fund may only invest in the following:

- Trust Fund Investment Pool (TFIP)
- Short-Term Investment Pool (STIP)
- Any legislatively approved program loan, bond, note or guarantee.

### Other Restrictions:

- A maximum of 90% of the market value of the portfolio will be held in the Trust Fund Investment Pool (TFIP).
- A maximum of \$80 million Montana Infrastructure loans per MCA 17-6-309 & 311
- A maximum of \$70 million Montana Value Added Loans per MCA 17-6-317 & 311
- A maximum of ~~\$5040~~ million Montana Veterans' Home Loan Mortgages per MCA 90-6-603
- A maximum of \$15 million Montana Facility Finance Authority Loans per MCA 17-6-308
- ~~A maximum of \$105 million Intermediary Relending Loans per MCA 17-6-345~~
- A maximum of \$15 million Coal Trust Multifamily Homes per MCA 17-6-308

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.

# **MEMORANDUM**

**Montana Board of Investments**

**Department of Commerce**  
2401 Colonial Drive, 3<sup>rd</sup> Floor  
Helena, MT 59601 (406) 444-0001

**To:** Members of the Board

**From:** Michael A. Pettit, Director of Investment Operations  
Rande Muffick, CFA, Director of Public Markets

**Date:** August 20, 2019

**Subject:** Public Market Investment Manager Change

Following a decision to terminate Post Advisory Group, staff worked with two existing high yield bond managers to reallocate assets from the Post portfolios. Cash and securities were reallocated to Shenkman Capital Management and Oaktree Capital Management as follows:

## Consolidated Asset Pension Pool (CAPP)

Assets related to Post's separately managed portfolio within CAPP were transferred in two tranches:

- On June 7, 2019, 91.4% of the securities and cash were transferred to Oaktree and Shenkman accounts.
- Upon settlement of bank loan sales in the Post portfolio, the remaining 8.6% of the assets were transferred into the target portfolios on June 21 and 27, 2019.

## Trust Fund Investment Pool (TFIP)

The TFIP investment managed by Post was in the form of a commingled fund. For liquidity reasons, the redemption of the Post Traditional High Yield Fund is being completed in three tranches:

- The June 30, 2019 redemption was valued at \$50 million and transferred to Shenkman. This represented approximately 49% of our investment.
- The July 31, 2019 redemption was valued at \$45.5 million and transferred to Oaktree. This represented approximately 45% of our investment.
- The remaining balance of approximately \$6.5 million will be redeemed as of August 31, 2019 and allocated to existing BOI high yield external managers.

# Diversifying Strategies

August 20, 2019

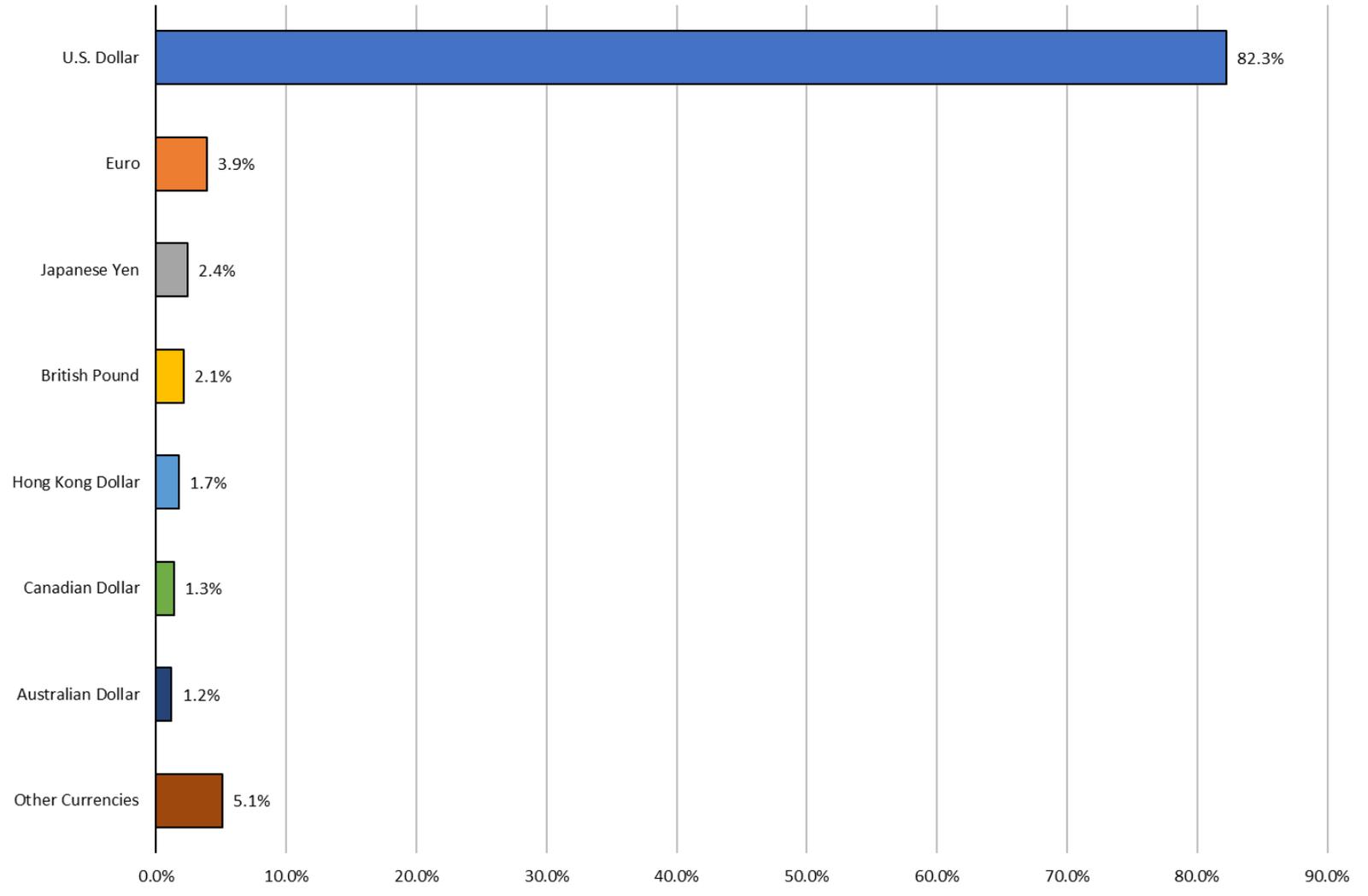
Jon Putnam, CFA, FRM, CAIA - Director of Fixed Income

Steve Strong – Investment Analyst, Public Markets

# Diversifying Strategies Refresher

- Approved Diversifying Strategies as an Asset Class in CAPP: November 2016
- Approved Investment Guidelines for Diversifying Strategies: February 2018
  - Liquid, transparent strategies that may not fit neatly into other asset classes
  - Increase portfolio diversification and reduce equity concentration risk
  - Protect the downside
- Approved Range for Diversifying Strategies: 0 – 4%
  - Current weight is approximately 1.42% (0.91% GTAA strategies, 0.51% Long Treasuries)

## CAPP Currency Exposure as of 6/30/19



# Who Trades Currency and Why

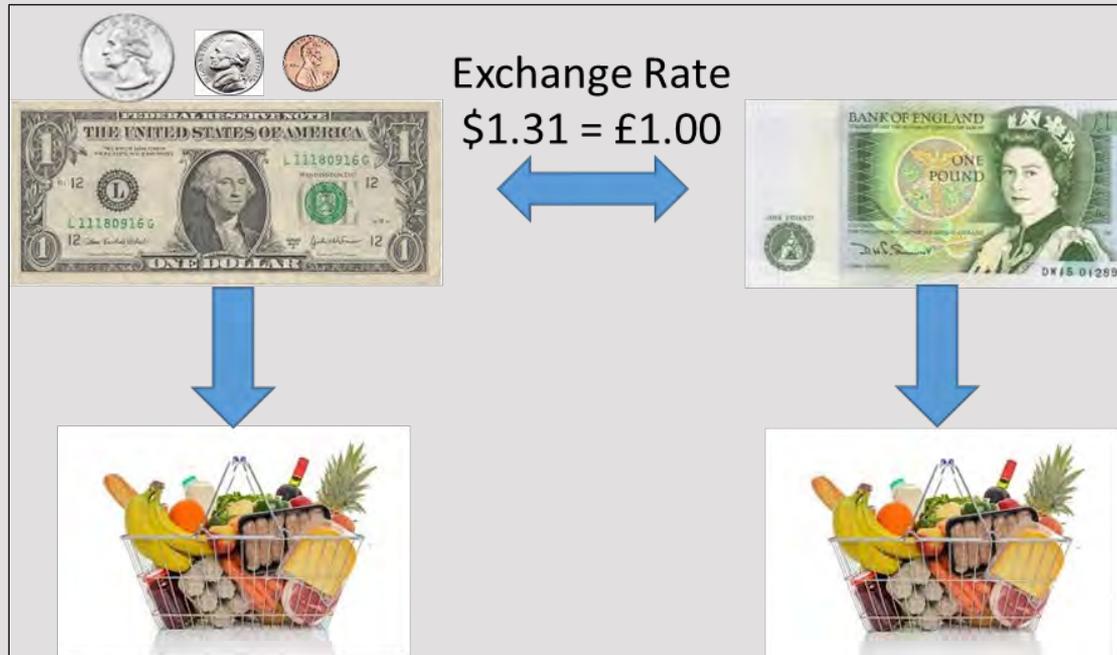
- Central Banks
  - Determine how exchange rate is set
    - Floating or fixed regimes
  - May engage in currency interventions to make their currencies appreciate or depreciate
- Banks
  - Act as a dealer for clients and conduct proprietary trading for their own book
- Corporations
  - Global manufacturing and sales
  - Need to control currency exposure to suppliers and clients
- Investment Managers
  - Active and passive hedging strategies
  - Active currency managers
    - (Various strategies including Carry, Fundamental Value and Momentum)

# Benefits of Investing in Currency

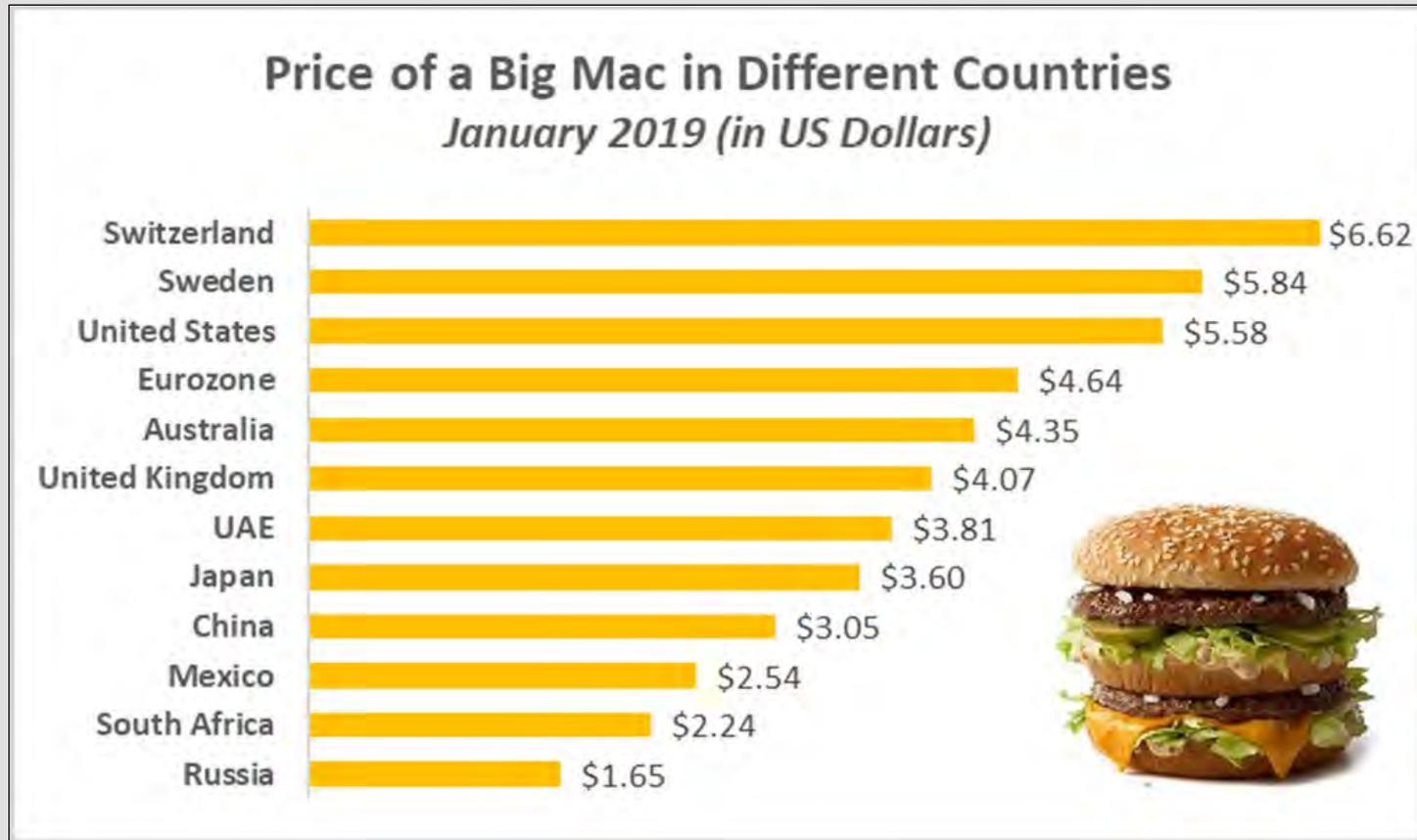
- Access to markets outside the U.S.
  - International debt and equities
    - A portion of the return is related to changes in the value of the currency
- Highly liquid market
  - Average daily trading volume of \$5 Trillion vs. \$84 Billion for equities
    - \*2016 Triennial Central Bank Survey of FX and OTC derivatives markets
- Currency returns are generally uncorrelated to other asset classes
- Currency markets are inefficient
  - Currencies deviate from fundamental value but are mean reverting over time
- Opportunity to earn returns from changes in the exchange rate and the interest rate differential between countries/currencies

# Purchasing Power Parity

- Purchasing Power Parity
  - The law of one price
  - The price of a basket of goods in one country is the same as another
- Purchasing Power Parity Assumptions:
  - Transaction costs are zero
  - No barriers to trade
  - No difference in goods between locations



# Fundamental Value of Currency



Source: The Economist

Purchasing Power Parity tells us that a Big Mac should cost the same in the U.S. as it does anywhere else in the world.

# Why Prices Differ from Fundamental Value

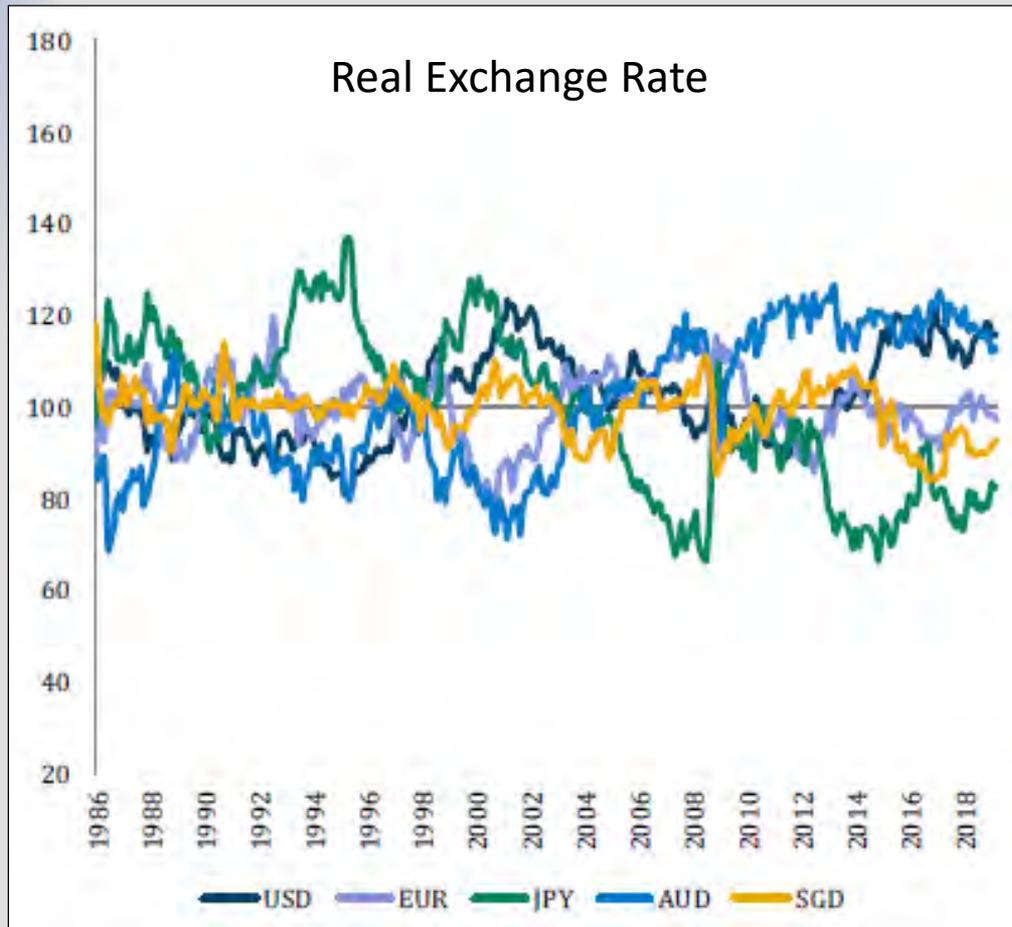
- Central Bank intervention
- Monetary policy
- Inflation
- Trade imbalances
- Tax differences
- Political risk
- Consumer preferences
- Manufacturing/transport costs

Australia Purchasing Power Parity vs. USD/AUD Exchange Rate  
(1970 – current)



Source: Bloomberg

# Mean Reversion to Fundamental Value



Source: William Blair

- Exchange rates revert to their fundamental value over time.
- Exchange rates tend to revert to fundamental value over a slightly shorter time frame than other asset classes.

# Uncorrelated to Other Asset Classes

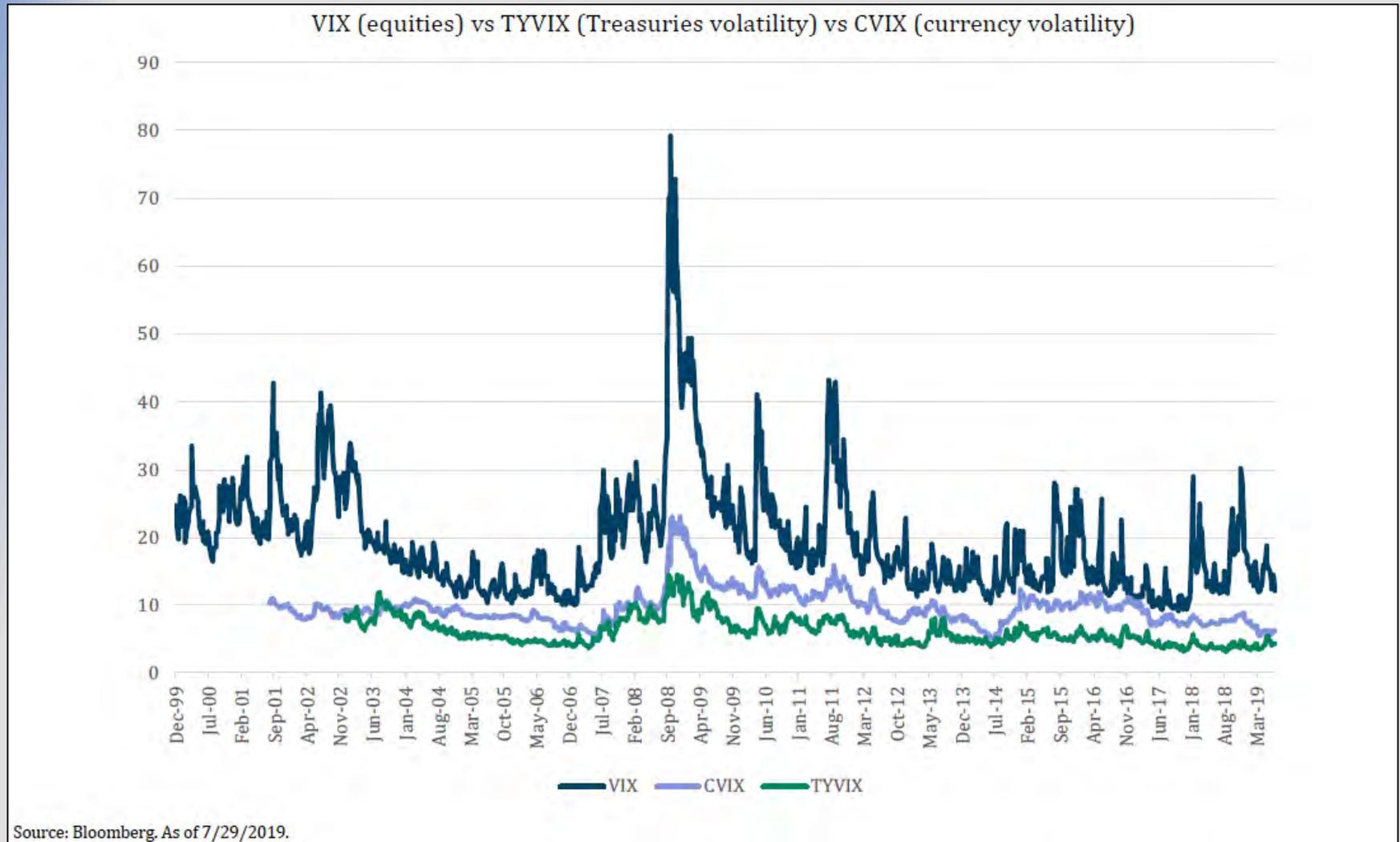
US Dollar Index vs. S&P 500  
(1990 – current)



Source: Bloomberg

The U.S. Dollar Index (DXY) is a measure of the value of the United States dollar relative to a basket of foreign currencies. The Index goes up when the U.S. dollar gains "strength" (value) when compared to other currencies.

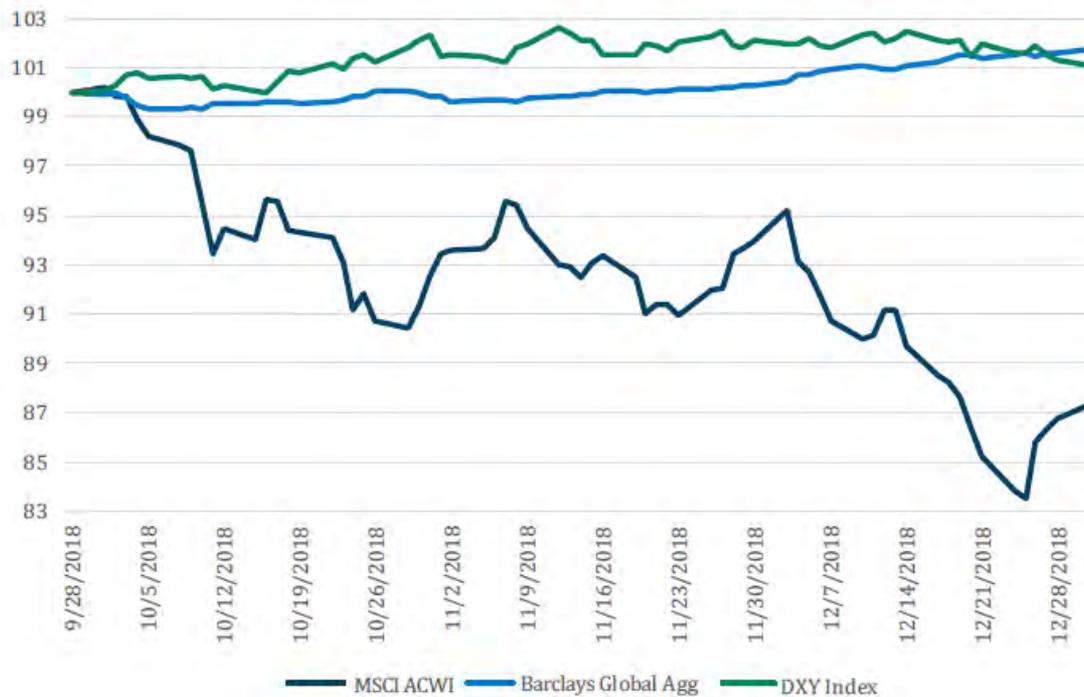
# Volatility



Exchange rates tend to have a volatility between that of equities and bonds.

# Downside Protection

Sept. 30, 2018 - Dec. 31, 2018

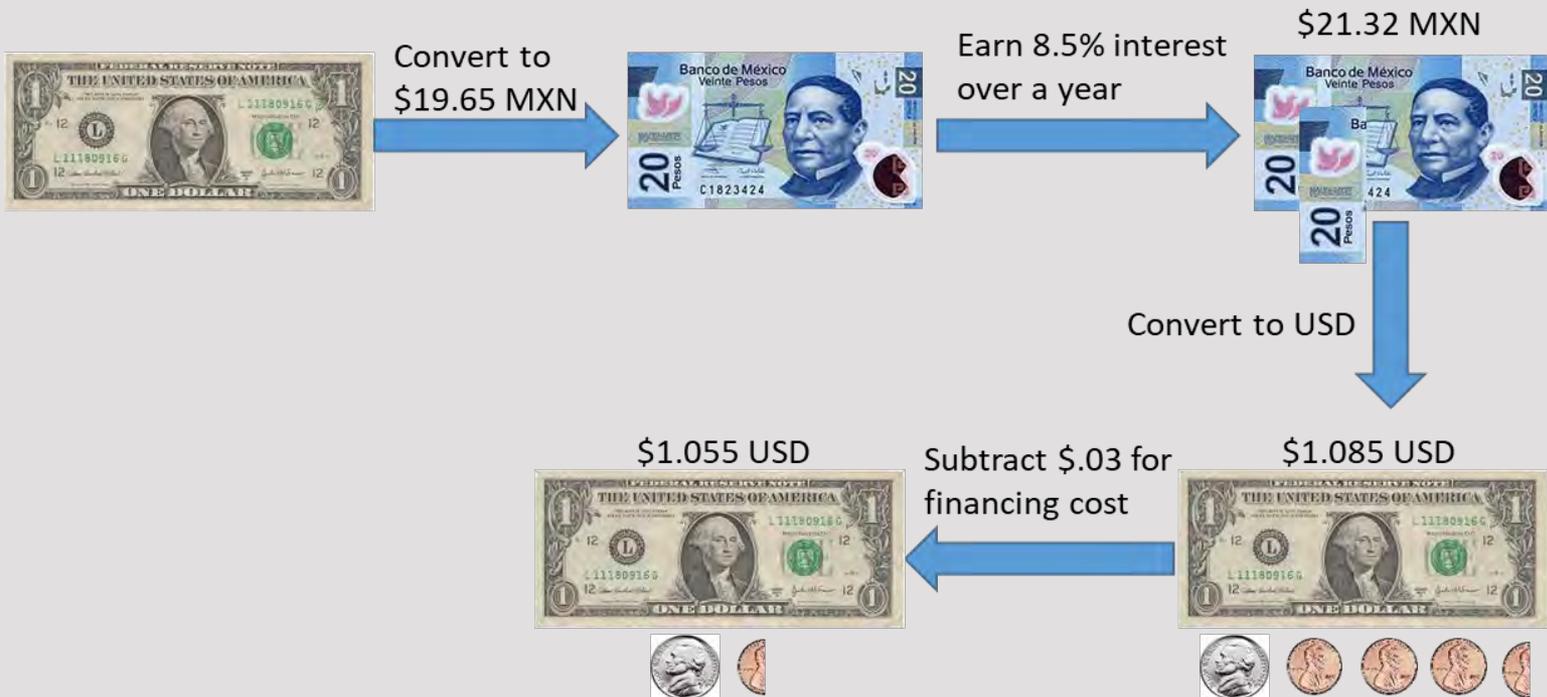


Source: Bloomberg. As of 7/29/2019.

A basket of currencies would have protected against a large equity drawdown in 4Q 2018, providing diversification when needed most.

# Currency Forward Trade

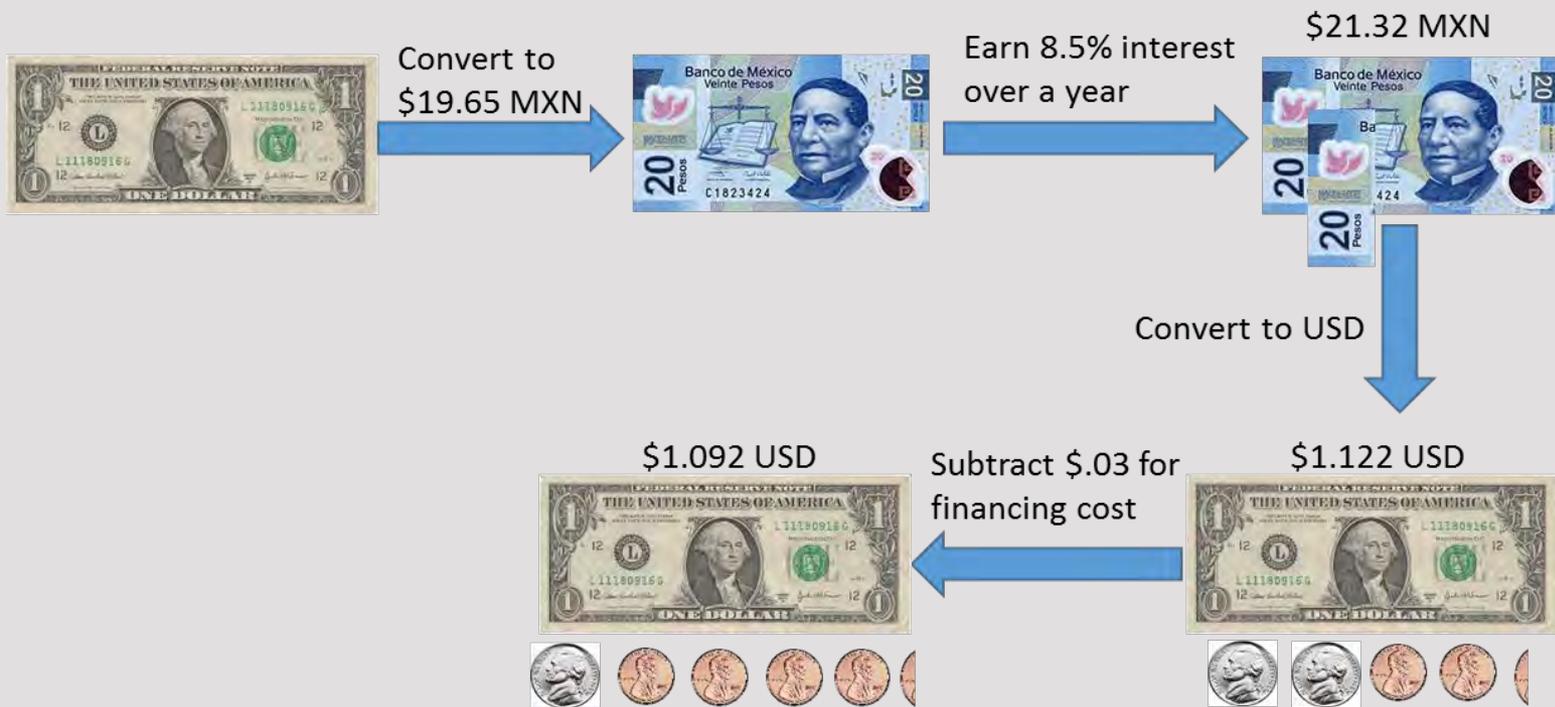
Start of Period (01/01/19)	$\$1 \text{ USD} = \$19.65 \text{ MXN}$ USD 1 year deposit rate = 3.0% MXN 1 year deposit rate = 8.5%
End of Period (12/31/19)	$\$1 \text{ USD} = \$19.65 \text{ MXN}$



# Currency Forward Trade

(U.S. Dollar Weaker/Depreciates)

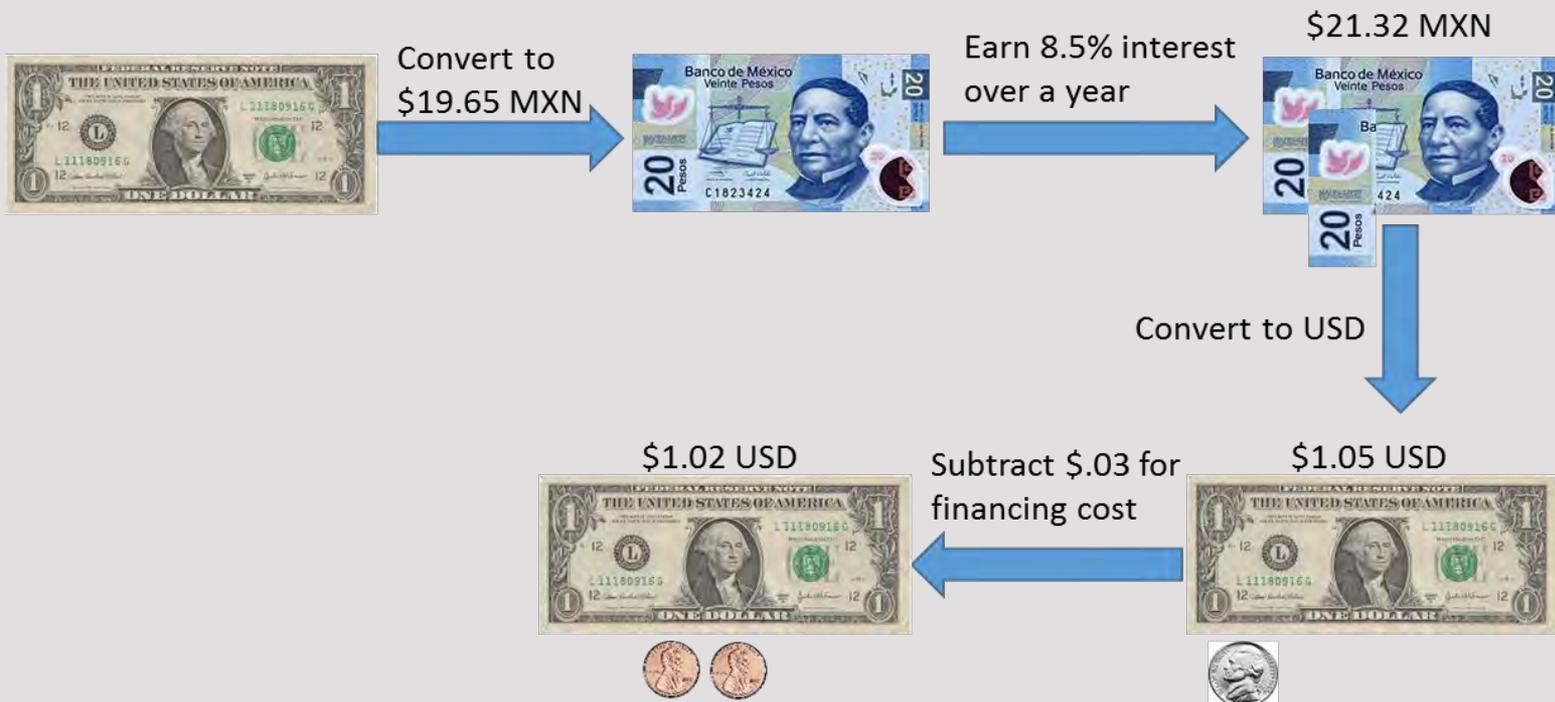
Start of Period (01/01/19)	$\$1 \text{ USD} = \$19.65 \text{ MXN}$ USD 1 year deposit rate = 3.0% MXN 1 year deposit rate = 8.5%
End of Period (12/31/19)	$\$1 \text{ USD} = \$19 \text{ MXN}$



# Currency Forward Trade

(U.S. Dollar Stronger/Appreciates)

Start of Period (01/01/19)	$\$1 \text{ USD} = \$19.65 \text{ MXN}$ USD 1 year deposit rate = 3.0% MXN 1 year deposit rate = 8.5%
End of Period (12/31/19)	$\$1 \text{ USD} = \$20.30 \text{ MXN}$



# Summary

- MBOI has existing exposure to the currency markets
- Currency market is transparent and liquid
- Currency offers significant diversification benefits
- Investors can take advantage of inefficiencies in the currency market

# INTERCAP Loan Program

## Activity Summary

As of June 30, 2019

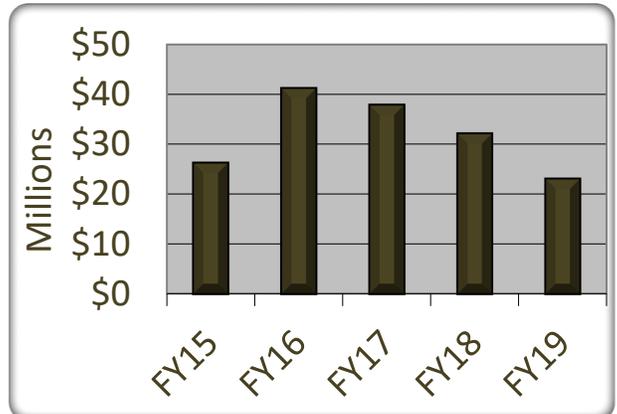
### Since Inception 1987 - June 2019

<b>Total Bonds Issued</b>	<b>168,000,000</b>
<b>Total Loan Commitments</b>	<b>613,836,928</b>
<b>Total Loans Funded</b>	<b>580,866,435</b>
<b>Total Bonds Outstanding</b>	<b>105,065,000</b>
<b>Total Loans Outstanding</b>	<b>79,637,758</b>
<b>Loan Commitments Pending</b>	<b>32,970,493</b>

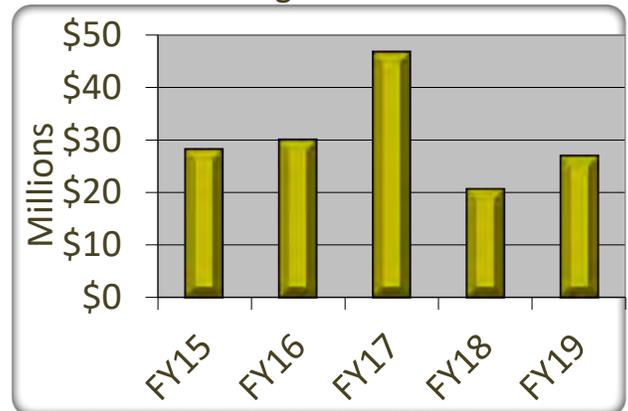
FY2019		
Month	Commitments	Fundings
July-18	\$ 263,000	\$ 1,066,765
August	1,147,000	1,042,739
September	363,460	3,210,700
October	600,000	911,715
November	3,487,973	4,093,723
December	60,386	2,271,124
January	55,500	3,422,840
February	1,800,000	955,926
March	908,226	384,145
April	7,400,000	1,987,066
May	5,210,000	2,128,281
June-19	1,754,957	5,501,598
<b>To Date</b>	<b>\$ 23,050,502</b>	<b>\$ 26,976,623</b>

Note: Commitments include withdrawn and expired loans.

Commitments FY15-FY19



Fundings FY15-FY19



### 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**

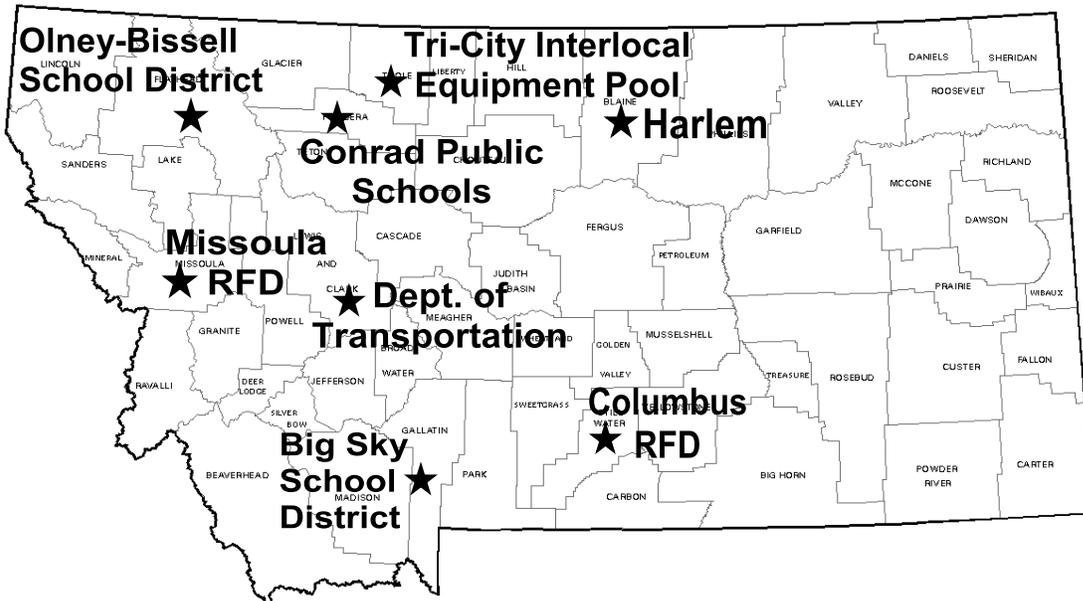
**Department of Commerce**

**2401 Colonial Drive, 3<sup>rd</sup> Floor**

**(406) 444-0001**

**To:** Members of the Board  
**From:** Louise Welsh, Senior Bond Program Officer  
**Date:** August 20, 2019  
**Subject:** INTERCAP Staff Approved Loans Committed

Staff approved the following loans between April 1, 2019 to June 30, 2019.



Borrower:	Department of Transportation
Purpose:	Finance State Motor Pool vehicles
Staff Approval Date:	May 6, 2019
Board Loan Amount:	\$1,000,000
Other Funding Sources:	\$ 280,460
Total Project Cost:	\$1,280,460
Term:	7 years

Borrower:	Missoula Rural Fire District
Purpose:	Finance two type-1 fire engines
Staff Approval Date:	May 10, 2019
Board Loan Amount:	\$800,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$800,000
Term:	10 years

Borrower:	Tri-City Interlocal Equipment Pool
Purpose:	Finance new combination sewer truck
Staff Approval Date:	June 3, 2019
Board Loan Amount:	\$389,414
Other Funding Sources:	\$ 0
Total Project Cost:	\$389,414
Term:	7 years

Borrower:	Conrad Public Schools
Purpose:	Finance heating system replacement at Utterback Elementary
Staff Approval Date:	June 3, 2019
Board Loan Amount:	\$365,000
Other Funding Sources:	\$635,000
Total Project Cost:	\$1,000,000
Term:	5 years

Borrower:	Olney-Bissell School District
Purpose:	Deferred maintenance projects
Staff Approval Date:	June 3, 2019
Board Loan Amount:	\$120,543
Other Funding Sources:	\$ 0
Total Project Cost:	\$120,543
Term:	10 years

Borrower:	Columbus Rural Fire District
Purpose:	Finance pumper truck
Staff Approval Date:	June 19, 2019
Board Loan Amount:	\$155,000
Other Funding Sources:	\$200,000
Total Project Cost:	\$355,000
Term:	10 years

Borrower:	Big Sky School District
Purpose:	Finance building of on-campus housing for staff
Staff Approval Date:	June 19, 2019
Board Loan Amount:	\$600,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$600,000
Term:	5 years

Borrower:	City of Harlem
Purpose:	Preliminary Engineering Report (PER) for City's water system
Staff Approval Date:	June 20, 2019
Board Loan Amount:	\$125,000
Other Funding Sources:	\$ 0
Total Project Cost:	\$125,000
Term:	3 years

**MEMORANDUM**

**Montana Board of Investments**  
**Department of Commerce**  
**2401 Colonial Drive, 3<sup>rd</sup> Floor**  
**(406) 444-0001**

**To:** Members of the Board

**From:** Louise Welsh, Senior Bond Program Officer

**Date:** August 20, 2019

**Subject:** INTERCAP Loans – Annual Loan Detail Report

Attached is the annual INTERCAP Loan Detail Report as of fiscal year end June 30, 2019 (FY19). The report has three categories: Local Government (sorted by the county in which the borrower is located), State Agency, and University loans.

In addition to the attached report, staff provides for the Board’s information the concentration of INTERCAP loans outstanding as of FY19 compared to FY18, as follows:

Borrower Type	FY19		FY18	
	Number of Borrowers	% of Total INTERCAP Loans Outstanding	Number of Borrowers	% of Total INTERCAP Loans Outstanding
University System	2	31.43%	2	28.96%
City	50	17.82%	49	16.28%
County	24	16.60%	29	19.52%
School District	48	12.18%	49	11.95%
State Agency	2	9.79%	2	10.83%
Fire District/Service Area	32	7.48%	33	6.42%
Other	8	2.15%	9	1.74%
Community College	2	1.76%	2	2.06%
Solid Waste District	1	0.54%	2	0.99%
Water/Sewer District	6	0.25%	7	1.25%
<b>Total</b>	<b>175</b>	<b>100.00%</b>	<b>184</b>	<b>100.00%</b>

The entities with outstanding balances representing 5% or more of all INTERCAP loans outstanding in FY19 compared to FY18 are as follows:

Borrower	FY19		FY18	
	Principal Outstanding	% of Total INTERCAP Loans Outstanding	Principal Outstanding	% of Total INTERCAP Loans Outstanding
Montana State University	\$ 12,832,509	16.11%	\$10,021,109	12.37%
University of Montana	\$ 12,201,357	15.32%	\$13,438,343	16.59%
Transportation	\$ 5,205,530	6.54%	\$ 5,897,106	7.28%



**Local Government INTERCAP loans\* - by County**  
**As of June 30, 2019**

\*only loans that have remaining commitment and/or outstanding

County	Borrower Name	Project	Term	Commitment	Fund Date	Drawn	Remaining	Outstanding	Maturity	CITY
	BEAVERHEAD COUNTY	Finance contract dispute settlement	10	02/17/15	04/17/15	850,000.00	-	520,789.91	02/15/25	DILLON
	DILLON	Refinance 2009 GO bond for police pension payment t	13	05/24/16	07/15/16	1,319,526.00	-	961,129.67	06/15/29	DILLON
	BEAVERHEAD COUNTY JACKSON WATE	Grant writing expense	6	06/28/17	08/18/17	6,000.00	-	4,582.09	08/15/23	JACKSON
<b>BEAVERHEAD Total</b>						<b>2,175,526.00</b>		<b>1,486,501.67</b>		
	CHINOOK	Front end loader	7	04/16/18	04/27/18	50,847.00	-	47,578.96	08/15/25	CHINOOK
	HARLEM	Preliminary engineering report (PER) for City's water s	3	06/20/19		0.00	125,000.00	0.00		HARLEM
<b>BLAINE Total</b>						<b>50,847.00</b>		<b>47,578.96</b>		
	BROADWATER COUNTY	Construct buildings for office space, storage, and vehic	10	02/13/15	02/26/16	22,914.58	-	15,551.01	02/15/25	TOWNSEND
<b>BROADWATER Total</b>						<b>22,914.58</b>		<b>15,551.01</b>		
CARBON	BRIDGER SCHOOL DISTRICT #2	Energy retrofit/energy performance contracting	15	12/30/13	01/24/14	116,960.00	-	79,826.30	02/15/29	BRIDGER
CARBON	RED LODGE RURAL FIRE DISTRICT	Finance a new fire truck	10	11/25/15	01/08/16	378,554.00	-	250,870.32	02/15/26	RED LODGE
<b>CARBON Total</b>						<b>495,514.00</b>		<b>330,696.62</b>		
	CASCADE COUNTY	RID Bob Marshall Place	15	10/08/08	11/28/08	100,931.00	-	40,902.49	02/15/24	GREAT FALLS
	CASCADE COUNTY	Repair and replace the copper roof and supporting stru	10	04/05/17	04/21/17	2,000,000.00	-	1,729,785.04	08/15/27	GREAT FALLS
	CASCADE COUNTY	replace grandstand facility at county fairgrounds	10	05/22/18	12/07/18	2,000,000.00	-	2,000,000.00	02/15/29	GREAT FALLS
		Cascade County Total				4,100,931.00	-	3,770,687.53		
	GREAT FALLS	Design install Meadowlark Add#5 str lights	15	01/02/08	05/30/08	29,324.84	-	137.28	08/15/23	GREAT FALLS
	GREAT FALLS	Stone Meadows Phase 2 street lighting	15	04/30/15	07/31/15	58,000.00	-	34,136.85	08/15/30	GREAT FALLS
	GREAT FALLS	Finance two new fire pumpers	10	11/06/15	12/11/15	796,859.00	-	509,300.92	02/15/26	GREAT FALLS
	GREAT FALLS	Solid waste revenue bond for new sanitation fleet.	6	11/17/15	04/01/16	1,470,811.75	-	734,376.39	02/15/22	GREAT FALLS
		Great Falls Total				2,354,995.59	-	1,277,951.44		
	ULM FIRE SERVICE AREA	Construct fire station	15	08/31/17		0.00	200,000.00	0.00	08/15/33	ULM
<b>CASCADE Total</b>						<b>6,455,926.59</b>	<b>200,000.00</b>	<b>5,048,638.97</b>		
	CHOUTEAU COUNTY	Rehabilitate County bridge.	10	01/19/16	03/24/17	150,155.42	-	122,635.55	02/15/27	FORT BENTON
	FORT BENTON	Purchase Pumper Truck	15	05/05/09	07/10/09	180,000.00	-	66,000.00	08/15/24	FORT BENTON
	FORT BENTON	Finance asphalt grinder	10	08/27/15	10/02/15	104,958.00	-	69,526.43	08/15/25	FORT BENTON
		Fort Benton Total				284,958.00	-	135,526.43		
	GERALDINE	Streets and sidewalk project	10	11/14/12	01/04/13	30,000.00	-	12,403.76	02/15/23	GERALDINE
	GERALDINE	Purchase accounting software	5	10/06/15	12/04/15	18,000.00	-	7,652.18	02/15/21	GERALDINE
	GERALDINE	Preparation of (CIP) and (PER) for Town sewer system	3	05/17/18	09/07/18	23,799.54	26,200.46	23,799.54	08/15/21	GERALDINE
		Geraldine Total				71,799.54	26,200.46	43,855.48		
	GERALDINE SCHOOL DISTRICT	Refinance vehicle.	5	09/02/15	10/02/15	29,596.34	-	9,023.97	06/15/20	GERALDINE
	MISSOURI RIVER MEDICAL CENTER	Replace failing boiler	5	04/18/16	06/03/16	83,696.00	-	42,658.11	08/15/21	FORT BENTON
	MISSOURI RIVER MEDICAL CENTER	Purchase a CT scanner	7	10/24/16	11/23/16	330,000.00	-	239,284.55	02/15/24	FORT BENTON
	MISSOURI RIVER MEDICAL CENTER	Replace backup boiler	7	03/03/17	04/07/17	81,727.00	-	61,465.46	02/15/24	FORT BENTON
		Missouri River Medical Center				495,423.00	-	343,408.12		
<b>CHOUTEAU Total</b>						<b>1,031,932.30</b>	<b>26,200.46</b>	<b>654,449.55</b>		

**Local Government INTERCAP loans\* - by County**

**As of June 30, 2019**

\*only loans that have remaining commitment and/or outstanding

County	Borrower Name	Project	Term	Commitment	Fund Date	Drawn	Remaining	Outstanding	Maturity	CITY
CUSTER COUNTY		Purchase skid-steer	4	07/29/16	08/19/16	25,666.00	-	9,807.19	08/15/20	MILES CITY
CUSTER COUNTY		finance purchase of motor grader	7	11/15/18	02/08/19	200,000.00	100,000.00	200,000.00	08/15/25	MILES CITY
		<b>Custer County Total</b>				<b>225,666.00</b>	<b>100,000.00</b>	<b>209,807.19</b>		
MILES CITY		Street improvements within SID #211	15	08/03/15	10/02/15	59,703.00	-	46,684.07	08/15/30	MILES CITY
MILES CITY		Finance flood risk feasibility study	6	11/03/16	04/07/17	175,000.00	425,000.00	118,902.20	02/15/23	MILES CITY
MILES CITY		Construct shop/warehouse for lease at municipal airpor	15	07/05/18		0.00	263,000.00	0.00		MILES CITY
		<b>Miles City Total</b>				<b>234,703.00</b>	<b>688,000.00</b>	<b>165,586.27</b>		
MILES COMMUNITY COLLEGE		Construct new Agriculture Advancement Center	15	08/18/16	10/11/16	480,000.00	-	414,931.04	08/15/31	MILES CITY
<b>CUSTER Total</b>						<b>940,369.00</b>	<b>788,000.00</b>	<b>790,324.50</b>		
FLAXVILLE		Repairs and improvements to water treatment facility	10	03/14/16	11/04/16	37,034.60	-	30,107.74	02/15/27	FLAXVILLE
SCOBAY SCHOOL DIST #1		Finance an activity bus	5	03/08/18	04/13/18	200,000.00	-	161,335.48	02/15/23	SCOBAY
SCOBAY		Antcip of USDA RD long-tern financing - water	2	05/22/18	06/07/19	107,255.33	2,392,744.67	107,255.33	06/07/21	SCOBAY
<b>DANIELS Total</b>						<b>344,289.93</b>	<b>2,392,744.67</b>	<b>298,698.55</b>		
RICHEY		Finance a sewer line project	15	03/22/16	10/21/16	41,741.39	-	36,509.53	08/15/31	RICHEY
<b>DAWSON Total</b>						<b>41,741.39</b>		<b>36,509.53</b>		
ANACONDA-DEER LODGE COUNTY		Courthouse preservation	15	08/19/10	07/15/11	800,000.00	-	427,596.16	08/15/26	ANACONDA
ANACONDA-DEER LODGE COUNTY		Rehabilitate historic street lights District #150	15	04/28/14	09/26/14	999,129.06	-	707,659.06	08/15/29	ANACONDA
		<b>Anaconda-Deer Lodge County</b>				<b>1,799,129.06</b>		<b>1,135,255.22</b>		
OPPORTUNITY RURAL FIRE DISTRICT		Purchasing a new fire truck	10	02/13/13	04/25/14	128,160.00	-	24,845.82	08/15/24	ANACONDA
WEST VALLEY RURAL FIRE DISTRICT, A		Construct a fire station	15	07/07/14	08/08/14	50,000.00	-	25,979.51	08/15/29	ANACONDA
WEST VALLEY RURAL FIRE DISTRICT, A		Finance a water tender	7	10/27/16	06/23/17	109,788.96	-	84,614.51	08/15/24	ANACONDA
		<b>West Valley Rural Fire District, Anaconda Total</b>				<b>159,788.96</b>		<b>110,594.02</b>		
<b>DEER LODGE Total</b>						<b>2,087,078.02</b>		<b>1,270,695.06</b>		
BAKER		Finance street sweeper	7	11/04/15	12/11/15	137,000.00	-	79,744.31	02/15/23	BAKER
<b>FALLON Total</b>						<b>137,000.00</b>		<b>79,744.31</b>		
MOORE ELEMENTARY SCHOOL DIST #4		New roof on school	10	11/03/08	08/07/09	90,000.00	-	9,000.00	08/15/19	MOORE
MOORE HIGH SCHOOL DIST #44		Repair/replace roof & site Improvem	10	11/03/08	08/07/09	90,000.00	-	9,000.00	08/15/19	MOORE
LEWISTOWN		Extending Water & Sewer Services at the city /county :	10	07/14/11	12/16/11	89,901.71	-	25,238.84	08/15/21	LEWISTOWN
<b>FERGUS Total</b>						<b>269,901.71</b>		<b>43,238.84</b>		
BLANKENSHIP RURAL FIRE DISTRICT		Fire Cistern	15	10/21/14	11/21/14	38,976.00	-	29,145.56	02/15/30	COLUMBIA FALLS
BLANKENSHIP RURAL FIRE DISTRICT		Finance Type 5 wildfire engine	10	03/06/18	10/26/18	45,000.00	10,000.00	45,000.00	08/15/28	COLUMBIA FALLS
		<b>Blankenship Rural Fire District Total</b>				<b>83,976.00</b>	<b>10,000.00</b>	<b>74,145.56</b>		
COLUMBIA FALLS		Street Improvements	10	07/28/11	08/26/11	364,449.00	-	97,623.07	08/15/21	COLUMBIA FALLS
COLUMBIA FALLS		2012 Custom Spartan Rosenbuer Pumper Apparatus	10	08/09/12	08/31/12	115,365.00	-	41,957.16	08/15/22	COLUMBIA FALLS
		<b>Columbia Falls Total</b>				<b>479,814.00</b>		<b>139,580.23</b>		

**Local Government INTERCAP loans\* - by County**

**As of June 30, 2019**

\*only loans that have remaining commitment and/or outstanding

County	Borrower Name	Project	Term	Commitment	Fund Date	Drawn	Remaining	Outstanding	Maturity	CITY
	FLATHEAD COUNTY WATER DISTRICT #	Repairs to water system	10	09/28/16	11/10/16	33,000.00	-	26,400.00	02/15/27	COLUMBIA FALLS
	FLATHEAD COUNTY WATER DISTRICT #	Interim financing - USDA-RD long-term financing for	1	08/16/18		0.00	587,000.00	0.00		COLUMBIA FALLS
	FLATHEAD COUNTY WATER DISTRICT #	System Design & Plan Production	3	11/16/18	12/21/18	67,927.00	7,073.00	67,927.00	08/15/21	COLUMBIA FALLS
	FLATHEAD VALLEY COMMUNITY COLL	Nursing and Health Sciences Building	10	02/26/13	04/12/13	2,400,000.00	-	984,897.81	02/15/23	KALISPELL
		<b>Flathead County Water District Total</b>				<b>2,500,927.00</b>	<b>594,073.00</b>	<b>1,079,224.81</b>		
	KALISPELL	Refinance City Hall renovation note	5	06/23/15	09/11/15	412,571.00	-	126,101.46	08/15/20	KALISPELL
	KALISPELL	Finance purchase of a chipper dump truck	5	11/10/15	01/08/16	34,498.00	-	14,010.83	02/15/21	KALISPELL
	KALISPELL	Remodel park restrooms, purchase vehicles & equipme	5	10/18/16	11/23/16	169,987.49	-	112,439.57	02/15/22	KALISPELL
	KALISPELL	Purchase fire pumper	10	10/10/17	03/16/18	467,684.00	-	434,200.79	02/15/28	KALISPELL
	KALISPELL	Purchase mower and sprayer	5	10/10/17	02/16/18	61,527.20	-	52,045.02	02/15/23	KALISPELL
	KALISPELL	replace Woodland Park Playground Equipment	5	11/01/18		0.00	100,000.00	0.00		KALISPELL
		<b>Kalispell Total</b>				<b>1,146,267.69</b>	<b>100,000.00</b>	<b>738,797.67</b>		
	KALISPELL SCHOOL DISTRICT #5	interior/exterior lighting energy conservation project	15	03/01/19		0.00	229,618.00	0.00		KALISPELL
	KALISPELL SCHOOL DISTRICT #5	interior/exterior lighting energy conservation project	15	03/01/19		0.00	526,382.00	0.00		KALISPELL
		<b>Kalispell School District #5</b>				<b>-</b>	<b>756,000.00</b>	<b>-</b>		
	OLNEY RURAL FIRE DISTRICT	Refinance existing lease on 2011 water tender	10	04/28/17	07/14/17	118,000.00	-	101,860.25	08/15/27	OLNEY
	OLNEY-BISSELL SCHOOL DISTRICT	finance deferred maintenance projects	10	06/03/19		0.00	120,543.00	0.00	08/15/29	WHITEFISH
	PLEASANT VALLEY SCHOOL DISTRICT #	purchase vehicle for student transport	5	01/23/19	03/22/19	12,503.24	2,996.76	12,503.24	02/15/24	MARION
	SHEAVERS CREEK LAKE COUNTY WATE	Finance final cost of water storage tank & waterline im	10	02/01/11	02/18/11	25,000.00	-	4,934.26	02/01/21	BIGFORK
	SMITH VALLEY FIRE DIST	Refinance existing loan on fire engine	5	01/21/15	02/20/15	122,535.00	-	24,978.02	02/15/20	KALISPELL
	SMITH VALLEY SCHOOL DISTRICT #89	Flooring Replacement, Exterior Door Replacement, Ca	15	07/16/12	11/23/12	30,000.00	-	8,229.85	02/15/28	KALISPELL
	SOMERS RURAL FIRE DISTRICT	Reconfigure, expand, and repair fire station	15	08/15/17	09/22/17	300,000.00	-	277,668.59	08/15/32	LAKESIDE
	WAPITI ACRES COUNTY WATER AND/OF	Construct 2nd well	15	09/12/14	05/15/15	33,500.00	-	25,660.00	08/15/30	KALISPELL
	WEST VALLEY FIRE DISTRICT, KALISPEI	Construct new fire hall	15	08/05/09	10/16/09	650,000.00	-	275,865.64	08/15/24	KALISPELL
	WEST VALLEY FIRE DISTRICT, KALISPEI	Purchase a new aerial ladder truck	10	11/23/09	12/11/09	600,000.00	-	69,026.03	02/15/20	KALISPELL
	WEST VALLEY FIRE DISTRICT, KALISPEI	Rosenbauer fire apparatus	10	05/07/15	05/22/15	253,554.00	-	168,392.30	08/15/25	KALISPELL
		<b>West Valley Fire District, Kalispell Total</b>				<b>1,503,554.00</b>	<b>-</b>	<b>513,283.97</b>		
	WHITEFISH	2014 Type 1 Fire Pumper	10	02/13/14	06/20/14	485,112.00	-	272,087.39	08/15/24	WHITEFISH
	WHITEFISH	Finance water tender	7	08/26/14	02/13/15	211,000.00	-	92,221.09	02/15/22	WHITEFISH
	WHITEFISH	Self-contained breathing apparatus equipment	5	09/29/15	12/04/15	230,453.00	-	93,904.37	02/15/21	WHITEFISH
	WHITEFISH	Finance new ambulance	5	09/26/17	02/16/18	175,000.00	-	141,703.14	02/15/23	WHITEFISH
		<b>Whitefish Total</b>				<b>1,101,565.00</b>	<b>-</b>	<b>599,915.99</b>		
	<b>FLATHEAD Total</b>					<b>7,457,641.93</b>	<b>1,583,612.76</b>	<b>3,600,782.44</b>		
	BELGRADE	City Library Improvements	15	06/19/12	02/01/13	72,550.50	-	45,175.92	02/15/28	BELGRADE
	BIG SKY FIRE DISTRICT	Remodel two fire stations	15	02/12/19	04/18/19	1,863,592.00	-	1,863,592.00	02/15/34	BIG SKY
	BIG SKY SCHOOL DISTRICT #72	Complete building projects	5	06/01/16	07/22/16	830,000.00	-	438,697.95	06/15/21	BIG SKY
	BIG SKY SCHOOL DISTRICT #72	building on-campus teacher/staff housing	5	06/19/19		0.00	600,000.00	0.00		BIG SKY
		<b>Big Sky School District #72 Total</b>				<b>830,000.00</b>	<b>600,000.00</b>	<b>438,697.95</b>		
	BOZEMAN	Reconstruction of 8th Avenue	10	04/11/12	07/20/12	1,203,278.75	-	458,320.59	08/15/22	BOZEMAN
	BOZEMAN	Replacing/upgrading city street lights.	15	11/21/14	09/11/15	199,231.01	-	164,129.71	08/15/30	BOZEMAN
	BOZEMAN	Improvements to Story Mill and Bronken Park	10	04/16/18	05/24/19	314,558.74	249,187.26	314,558.74	08/15/29	BOZEMAN
		<b>Bozeman Total</b>				<b>1,717,068.50</b>	<b>249,187.26</b>	<b>937,009.04</b>		
	BRIDGER CANYON RURAL FIRE DISTRICT	Constructing substation	15	02/28/19		0.00	350,000.00	0.00		BOZEMAN

**Local Government INTERCAP loans\* - by County**

**As of June 30, 2019**

\*only loans that have remaining commitment and/or outstanding

County	Borrower Name	Project	Term	Commitment	Fund Date	Drawn	Remaining	Outstanding	Maturity	CITY
	CLARKSTON FIRE SERVICE AREA #6	purchase water tender	7	03/02/15	04/02/15	81,825.00	-	17,678.81	02/15/22	THREE FORKS
	MONFORTON SCHOOL DISTRICT	Building Addition	6	09/12/14	01/23/15	300,000.00	-	101,801.81	02/15/21	BOZEMAN
	WEST YELLOWSTONE	Construct Town Hall	13	11/13/12	12/21/12	1,480,865.97	-	817,645.97	12/15/25	WEST YELLOWSTONE
<b>GALLATIN Total</b>						<b>6,345,901.97</b>	<b>1,199,187.26</b>	<b>4,221,601.50</b>		
	KESTER SCHOOL DISTRICT #23	Building improvements/exterior grading	10	08/30/17	12/01/17	57,900.00	-	29,776.36	02/15/28	JORDAN
<b>GARFIELD Total</b>						<b>57,900.00</b>		<b>29,776.36</b>		
	GOLDEN VALLEY COUNTY	Finance ambulance	7	06/09/15	07/17/15	44,000.00	-	22,481.57	08/15/22	RYEGATE
	LAVINA SCHOOL DISTRICT #2	Replace roof and boiler	10	07/22/16	10/21/16	28,095.57	-	22,879.04	06/15/26	LAVINA
<b>GOLDEN VALLEY Total</b>						<b>72,095.57</b>		<b>45,360.61</b>		
	PHILIPSBURG	Wastewater system improvements	15	08/15/16	10/28/16	321,936.75	-	284,017.63	08/15/31	PHILIPSBURG
	PHILIPSBURG	Wastewater system preliminary engineering	6	02/07/18	04/27/18	52,858.24	24,141.76	51,150.69	08/15/24	PHILIPSBURG
<b>GRANITE Total</b>						<b>374,794.99</b>	<b>24,141.76</b>	<b>335,168.32</b>		
	HAVRE	Change city hall (two bldgs) from flat to pitch roof	15	05/15/07	08/03/07	280,000.00	-	56,930.56	08/15/22	HAVRE
	HAVRE	Asphalt Reclaiming Machine	10	01/22/10	02/24/10	86,950.00	-	9,911.37	02/15/20	HAVRE
		<b>Havre Total</b>				<b>366,950.00</b>		<b>66,841.93</b>		
	UNIFIED DISPOSAL DISTRICT	Develop facility at new landfill	15	10/26/10	12/10/10	900,000.00	-	428,105.00	02/15/26	HAVRE
	HILL COUNTY	Purchase 5 new sheriff vehicles	5	05/04/18		0.00	180,012.00	0.00		HAVRE
<b>HILL Total</b>						<b>1,266,950.00</b>	<b>180,012.00</b>	<b>494,946.93</b>		
	BOULDER	Unexpected costs related to water proj.	10	04/06/10	04/30/10	50,000.00	-	8,135.22	08/15/20	BOULDER
	BOULDER	Purchase police vehicle	5	05/07/15	02/12/16	30,000.00	-	12,221.13	02/15/21	BOULDER
	BOULDER	Reroof City Hall (\$8K) and purchase police vehicle (\$3	6	10/06/17	12/22/17	44,000.00	-	37,558.00	02/15/24	BOULDER
		<b>Boulder Total</b>				<b>124,000.00</b>		<b>57,914.35</b>		
	BULL MOUNTAIN RURAL FIRE DIST.	Finance water tender	5	02/15/18	05/04/18	20,000.00	-	18,140.28	08/15/23	BOULDER
	JEFFERSON COUNTY	County Offices Remodel	10	04/21/09	05/15/09	285,259.54	-	16,775.79	08/15/19	BOULDER
	JEFFERSON COUNTY	Martinez Gulch RID #2517 Rd. Improv.	15	08/11/09	11/20/09	262,878.81	-	33,637.46	08/15/24	BOULDER
	JEFFERSON COUNTY	Moonlight Ridge RID #2511 road improvements	15	09/04/09	12/24/09	241,096.48	-	72,501.31	02/15/25	BOULDER
	JEFFERSON COUNTY	Construct Clerk & Recorder Annex	15	04/30/15	06/19/15	808,475.08	-	649,963.87	08/15/30	BOULDER
	JEFFERSON COUNTY	Improvements at the County Fairgrounds	15	04/29/16	09/23/16	320,810.37	-	285,537.20	08/15/31	BOULDER
	JEFFERSON COUNTY	Big Sky Acres RID road improvements	15	10/26/16	11/23/16	135,357.02	-	119,067.89	02/15/32	BOULDER
		<b>Jefferson County Total</b>				<b>2,053,877.30</b>		<b>1,177,483.52</b>		
	JEFFERSON HIGH SCHOOL DISTRICT	Replace servers and complete wireless network	5	06/25/15	08/14/15	37,966.00	-	11,642.01	08/15/20	BOULDER
	JEFFERSON VALLEY RURAL FIRE DISTRICT	2016 International Urban Interface Fire Apparatus	10	05/05/16	06/24/16	244,000.00	-	185,939.99	08/15/26	WHITEHALL
	MONTANA CITY RURAL FIRE DISTRICT	Purchase property and construct station	15	11/05/13	04/24/15	825,000.00	-	679,600.13	08/15/30	CLANCY
	MONTANA CITY SCHOOL DISTRICT #27	Energy retrofit project using energy performance contract	15	08/25/11	10/07/11	134,343.00	-	73,261.25	06/15/26	CLANCY

**Local Government INTERCAP loans\* - by County**

**As of June 30, 2019**

\*only loans that have remaining commitment and/or outstanding

County	Borrower Name	Project	Term	Commitment	Fund Date	Drawn	Remaining	Outstanding	Maturity	CITY
	MONTANA CITY SCHOOL DISTRICT #27	Repair and replacement of its septic system	15	08/23/12	10/19/12	55,168.24	-	33,541.27	06/15/27	CLANCY
		Montana City School District #27 Total				189,511.24	-	106,802.52		
<b>JEFFERSON</b>	<b>Total</b>					<b>3,494,354.54</b>	<b>-</b>	<b>2,237,522.80</b>		
	HOBSON	Repairing municipal pool	15	05/20/14	06/20/14	54,407.00	-	38,896.01	08/15/29	HOBSON
<b>JUDITH BASIN</b>	<b>Total</b>					<b>54,407.00</b>	<b>-</b>	<b>38,896.01</b>		
	MISSION MOUNTAIN COUNTRY CLUB/L	Install water meters/pits, replace main pump	15	09/12/12	11/09/12	95,000.00	-	59,928.30	02/15/28	RONAN
	POLSON	Finance dump truck with snow plow attachment	5	11/06/15	12/23/15	55,379.00	-	22,460.04	02/15/21	POLSON
	RONAN	Various Used Equipment	7	06/26/12	08/24/12	175,000.00	-	12,974.94	08/15/19	RONAN
	RONAN	Two utility boxes for trucks	5	01/05/15	02/20/15	27,165.00	-	5,537.65	02/15/20	RONAN
	RONAN	purchase three new police vehicles	6	11/01/18	03/22/19	115,000.00	-	115,000.00	08/15/24	RONAN
		Ronan Total				317,165.00	-	133,512.59		
	ST IGNATIUS SCHOOL DISTRICT #28	addressing various deferred maintenance projects	15	11/13/18	04/05/19	260,879.44	897,093.56	260,879.44	02/15/34	SAINT IGNATIUS
<b>LAKE</b>	<b>Total</b>					<b>728,423.44</b>	<b>897,093.56</b>	<b>476,780.37</b>		
	AUGUSTA ELEMENTARY SCHOOL DISTRICT #45	Construct a bus barn	15	08/03/17	03/09/18	34,034.70	-	32,247.35	02/15/33	AUGUSTA
	AUGUSTA HIGH SCHOOL DISTRICT #45	Construct bus barn	15	08/04/17	10/20/17	135,000.00	-	127,445.51	02/15/33	AUGUSTA
	AUGUSTA RURAL FIRE DISTRICT	New Fire Pumper Truck	10	01/30/12	08/17/12	85,000.00	-	30,957.48	08/15/22	AUGUSTA
	BAXENDALE FIRE DIST	contruction of fire station in Remini	15	10/04/18	01/18/19	200,000.00	-	200,000.00	02/15/34	HELENA
	EAST HELENA	Purchase solid waste truck	5	02/11/15	03/27/15	95,000.00	-	19,000.00	02/15/20	EAST HELENA
	HELENA	Improvements to City's golf course	10	10/30/07	09/25/09	207,000.00	-	11,022.15	08/15/19	HELENA
	HELENA	Upgrades to municipal golf course irrigation system	15	09/20/13	12/05/14	433,099.19	-	324,860.61	02/15/30	HELENA
		Helena Total				640,099.19	-	335,882.76		
	HELENA ELEMENTARY SCHOOL DISTRICT #45	Broadwater Elementary School roof replacement	6	03/06/18	01/25/19	757,798.78	-	757,798.78	02/15/24	HELENA
	LEWIS & CLARK COUNTY	Autumn Wind Court RID road improv	15	08/27/09	08/20/10	40,123.92	-	5,527.58	08/15/25	HELENA
	LEWIS & CLARK COUNTY	Remodel City/County Admin. Bldg-2nd floor -Phase II	10	11/17/09	06/25/10	505,000.00	-	80,558.85	08/15/20	HELENA
	LEWIS & CLARK COUNTY	Big Sky Subdivision RID Road Improvements	15	02/28/13	12/06/13	167,895.64	-	83,254.25	02/15/29	HELENA
	LEWIS & CLARK COUNTY	Crestwood Green Estates RID Road Improvements	10	09/18/13	12/06/13	94,655.60	-	7,482.03	02/15/24	HELENA
	LEWIS & CLARK COUNTY	Settler's Cove RID Road Improvements	15	01/29/14	12/12/14	105,506.58	-	62,440.22	02/15/30	HELENA
	LEWIS & CLARK COUNTY	Construction of a Search & Rescue Building	8	03/17/14	05/01/15	730,000.00	-	419,591.32	08/15/23	HELENA
	LEWIS & CLARK COUNTY	Lambkin RID Road improvements	7	05/09/14	12/12/14	27,228.08	-	4,024.20	02/15/22	HELENA
	LEWIS & CLARK COUNTY	August RID Road Improvements	7	06/04/14	12/12/14	31,457.98	-	4,937.67	02/15/22	HELENA
	LEWIS & CLARK COUNTY	Lake Home Condo RID road improvements	15	08/27/14	12/12/14	14,000.00	-	7,775.08	02/15/30	HELENA
	LEWIS & CLARK COUNTY	Road improvements for Hillview RID #2015-3	10	07/28/15	02/17/17	76,125.00	-	48,384.82	02/15/27	HELENA
	LEWIS & CLARK COUNTY	Road improvements for Bridge Creek RID #2015-4	10	07/28/15	02/17/17	38,046.12	-	12,961.94	02/15/27	HELENA
	LEWIS & CLARK COUNTY	Big Valley Cabin Road RID #2015-2	7	07/30/15	02/17/17	48,667.62	-	24,794.97	02/15/24	HELENA
	LEWIS & CLARK COUNTY	Improve heating, ventilation, air conditioning in City-C	1	04/09/18		0.00	750,000.00	0.00		HELENA
	LEWIS & CLARK COUNTY	Camelot Rural Improvement District road improvement	10	04/23/18	04/12/19	12,901.40	5,754.60	12,901.40	02/15/29	HELENA
	LEWIS & CLARK COUNTY	South Forestvale RID road improvements	10	09/02/18		0.00	133,460.00	0.00		HELENA
		Lewis & Clark County Total				1,891,607.94	889,214.60	774,634.33		
	TRI-LAKES VOLUNTEER FIRE DEPARTMENT	Purchase a Sutphen CAFS rescue pumper	10	11/17/09	12/24/09	175,000.00	-	19,046.23	02/15/20	EAST HELENA
	TRI-LAKES VOLUNTEER FIRE DEPARTMENT	Three Used Apparatuses	10	04/21/11	07/15/11	131,939.44	-	35,903.26	08/15/21	EAST HELENA
		Tri-Lakes Volunteer Fire Department Total				306,939.44	-	54,949.49		

**Local Government INTERCAP loans\* - by County**

**As of June 30, 2019**

\*only loans that have remaining commitment and/or outstanding

County	Borrower Name	Project	Term	Commitment	Fund Date	Drawn	Remaining	Outstanding	Maturity	CITY
	WOLF CREEK/CRAIG FIRE SVC AREA	Build a 50' x 80' truck barn	15	08/06/09	10/02/09	139,798.20	-	49,796.93	08/15/24	WOLF CREEK
<b>LEWIS AND CLARK Total</b>						<b>4,285,278.25</b>	<b>889,214.60</b>	<b>2,382,712.63</b>		
	CHESTER-JOPLIN-INVERNESS HIGH SCH	Remodeling school kitchen and lunchroom	5	02/29/16	08/11/17	201,281.51	-	108,917.27	06/15/20	CHESTER
	CHESTER-JOPLIN-INVERNESS ELEMENT	Remodeling school kitchen and lunchroom	5	02/29/16	08/11/17	134,190.78	-	72,613.24	06/15/20	CHESTER
<b>LIBERTY Total</b>						<b>335,472.29</b>		<b>181,530.51</b>		
	FISHER RIVER VALLEY FIRE SERVICE A	Refi Fire Station Construction Loan	15	05/10/11	06/24/11	136,245.00	-	72,647.20	08/15/26	LIBBY
	FISHER RIVER VALLEY FIRE SERVICE A	New Fire Engine	10	05/09/13	07/05/13	70,000.00	-	32,285.01	08/15/23	LIBBY
	FISHER RIVER VALLEY FIRE SERVICE A	Repair Fire Station roof	15	10/21/14	11/21/14	20,000.00	-	14,955.66	02/15/30	LIBBY
		<b>Fisher River Valley Fire Service Area Total</b>				<b>226,245.00</b>		<b>119,887.87</b>		
	MCCORMICK RURAL FIRE DISTRICT	Make improvements to fire station	15	10/13/16	01/13/17	4,842.17	5,157.83	4,264.01	02/15/32	TROY
	LIBBY	Replace firehall roof	10	03/10/17	06/16/17	60,000.00	-	51,928.16	08/15/27	LIBBY
	EUREKA FIRE SERVICE AREA	Fire Pumper Truck	7	01/26/18	12/18/18	100,000.00	100,000.00	85,543.70	02/15/25	EUREKA
<b>LINCOLN Total</b>						<b>391,087.17</b>	<b>105,157.83</b>	<b>261,623.74</b>		
	MADISON VALLEY RURAL FIRE DIST.	Refi Fire Station Loan	10	07/26/10	09/24/10	240,708.06	-	38,563.55	08/15/20	ENNIS
	TWIN BRIDGES	Construct town shop	10	08/06/18		0.00	190,000.00	0.00		TWIN BRIDGES
	TWIN BRIDGES SCHOOL DISTRICT #7	purchase accounting software and elementary reading s	5	12/19/18		0.00	60,386.00	0.00		TWIN BRIDGES
<b>MADISON Total</b>						<b>240,708.06</b>	<b>250,386.00</b>	<b>38,563.55</b>		
	MCCONE COUNTY	Community Facility at Fairgrounds	10	07/19/10	08/13/10	125,000.00	-	20,749.94	08/15/20	CIRCLE
	MCCONE COUNTY	Repair Public Library foundation	10	12/10/14	01/16/15	69,050.00	-	42,194.29	02/15/25	CIRCLE
	MCCONE COUNTY	Finance vehicle for sheriff dept	5	03/06/15	04/24/15	42,532.00	-	13,040.64	08/15/20	CIRCLE
	MCCONE COUNTY	Finance road dept vehicle	5	10/13/16	12/16/16	35,400.00	-	21,566.60	02/15/22	CIRCLE
	MCCONE COUNTY	Wheel Loader	6	12/21/16	01/20/17	144,500.00	-	97,648.38	02/15/23	CIRCLE
<b>MCCONE Total</b>						<b>416,482.00</b>		<b>195,199.85</b>		
	MEAGHER COUNTY	Construct Ambulance Building	15	02/04/15	07/02/15	120,000.00	-	95,432.31	08/15/30	SULPHUR SPRINGS
<b>MEAGHER Total</b>						<b>120,000.00</b>		<b>95,432.31</b>		
	ST REGIS SCHOOL DISTRICT	Remove asbestos from and equip renovated weight roo	4	01/13/16	08/19/16	106,879.76	-	31,758.00	06/15/20	SAINT REGIS
	ST REGIS SCHOOL DISTRICT	Converting available space into a weight room facility	15	01/15/16	10/28/16	120,000.00	-	99,011.03	02/15/32	SAINT REGIS
	ST REGIS SCHOOL DISTRICT	Roofing Project	15	08/08/18	10/12/18	225,000.00	-	222,006.35	06/15/33	SAINT REGIS
<b>MINERAL Total</b>						<b>451,879.76</b>		<b>352,775.38</b>		
	BONNER ELEMENTARY SCHOOL DISTRI	Addition to expand school cafeteria and improve office	15	08/12/15	10/30/15	346,000.00	-	283,907.71	06/15/30	BONNER
	FRENCHTOWN RURAL FIRE DISTRICT	Finance a water tender	5	10/23/14	02/27/15	95,000.00	-	19,347.10	02/15/20	FRENCHTOWN
	FRENCHTOWN SCHOOL DISTRICT #40	Building capital projects	5	02/10/16	04/29/16	735,766.10	-	448,883.46	06/15/21	FRENCHTOWN

**Local Government INTERCAP loans\* - by County**  
**As of June 30, 2019**

\*only loans that have remaining commitment and/or outstanding

County	Borrower Name	Project	Term	Commitment	Fund Date	Drawn	Remaining	Outstanding	Maturity	CITY
MISSOULA COUNTY		Refinance the purchase of Historical Building	10	04/27/09	05/15/09	432,499.89	-	175,393.10	08/15/24	MISSOULA
MISSOULA COUNTY		Williams Addtn RID -sewer system improvements	15	11/04/09	05/07/10	73,000.00	-	31,690.00	08/15/25	MISSOULA
MISSOULA COUNTY		Purchase six motor graders	5	02/27/14	07/25/14	560,000.00	-	56,945.01	08/15/19	MISSOULA
MISSOULA COUNTY		Construct Seeley-Swan Search & Rescue building	15	11/10/14	06/05/15	200,000.00	-	160,297.39	08/15/30	MISSOULA
MISSOULA COUNTY		Purchase copiers and motor pool vehicles	5	11/10/14	03/27/15	143,095.00	-	29,129.04	02/15/20	MISSOULA
MISSOULA COUNTY		Replace 911 equipment	7	04/23/15	05/06/16	367,234.26	-	240,623.57	08/15/23	MISSOULA
MISSOULA COUNTY		Carlton Cemetery sprinkler system	10	10/14/15	12/30/15	26,252.25	-	18,673.33	02/15/26	MISSOULA
MISSOULA COUNTY		Renovate Missoula Co Public Works Admin Building	3	03/14/16	03/10/17	237,095.77	-	80,008.77	02/15/20	MISSOULA
MISSOULA COUNTY		County Fairgrounds improvements	10	03/14/16	06/09/17	823,604.00	-	712,804.05	08/15/27	MISSOULA
MISSOULA COUNTY		Wastewater system improvements for Lewis&Clark RS	15	10/27/16	11/17/17	10,705.22	-	9,993.22	02/15/33	MISSOULA
MISSOULA COUNTY		Purchase radio tower and microwave for public safety r	15	04/24/18	06/15/18	425,158.00	-	414,017.25	08/15/33	MISSOULA
		<b>Missoula County Total</b>				<b>3,298,644.39</b>	<b>-</b>	<b>1,929,574.73</b>		
MISSOULA RURAL FIRE DISTRICT		finance two type-1 fire engines	10	05/10/19		0.00	800,000.00	0.00		MISSOULA
SEELEY LAKE RURAL FIRE DIST		Purchase land/building to house trucks and equip.	15	07/28/09	08/28/09	325,000.00	-	137,260.31	08/15/24	SEELEY LAKE
SEELEY-SWAN HOSPITAL DISTRICT		Expand existing Seeley-Swan Medical Center	15	07/17/14	09/19/14	551,390.00	-	404,193.76	08/15/29	SEELEY LAKE
<b>MISSOULA Total</b>						<b>5,351,800.49</b>	<b>800,000.00</b>	<b>3,223,167.07</b>		
ROUNDUP		UV Disinfection-Sewer Lagoon	10	04/27/12	07/20/12	239,924.22	-	137,845.79	08/15/27	ROUNDUP
MUSSELSHELL COUNTY		Finance ambulance	10	06/04/15	07/02/15	110,000.00	-	73,054.08	08/15/25	ROUNDUP
<b>MUSSELSHELL Total</b>						<b>349,924.22</b>		<b>210,899.87</b>		
LIVINGSTON		Replace Water Mains	10	06/22/09	10/23/09	152,941.00	-	15,295.00	02/15/20	LIVINGSTON
LIVINGSTON		Street Repair Project	10	03/05/12	01/25/13	400,000.00	-	165,690.62	02/15/23	LIVINGSTON
LIVINGSTON		Purchase property that will be used as a right of way fo	5	02/09/16	03/11/16	150,000.00	-	60,989.46	02/15/21	LIVINGSTON
LIVINGSTON		Remodel police and dispatch center area of city hall/cot	10	01/09/17	04/13/17	75,000.00	-	61,147.66	02/15/27	LIVINGSTON
LIVINGSTON		purchase new street sweeper & repair existng sweeper	5	11/21/18	01/11/19	219,269.35	20,730.65	219,269.35	02/15/24	LIVINGSTON
		<b>Livingston Total</b>				<b>997,210.35</b>	<b>20,730.65</b>	<b>522,392.09</b>		
PARK COUNTY		Construct search & rescue operations bldg	15	10/03/12	03/01/13	880,000.00	-	573,909.98	02/15/28	LIVINGSTON
PARK COUNTY		Remodel dispatch center, replace power switchgear for	7	05/25/17	06/23/17	357,500.00	-	289,554.19	08/15/24	LIVINGSTON
		<b>Park County Total</b>				<b>1,237,500.00</b>	<b>-</b>	<b>863,464.17</b>		
PARK COUNTY RURAL FIRE DISTRICT #1		Fire station building improvements	15	09/26/12	04/12/13	200,000.00	-	123,245.64	02/15/28	LIVINGSTON
PARK COUNTY RURAL FIRE DISTRICT #1		Purchase land adjacent to fire station	15	08/08/14	08/29/14	118,900.00	-	85,035.71	08/15/29	LIVINGSTON
PARK COUNTY RURAL FIRE DISTRICT #1		purchase used structure engine	7	03/13/19	04/26/19	100,000.00	-	100,000.00	02/15/26	LIVINGSTON
		<b>Park County Rural Fire District #1 Total</b>				<b>418,900.00</b>	<b>-</b>	<b>308,281.35</b>		
SHIELDS VALLEY ELEMENTARY SCHOO		Purchase school bus	8	08/10/17	08/31/18	42,920.00	-	40,486.65	06/15/26	WILLSALL
SHIELDS VALLEY HIGH SCHOOL DISTRI		Purchase school bus	8	08/10/17	08/31/18	64,380.00	-	60,729.97	06/15/26	CLYDE PARK
<b>PARK Total</b>						<b>2,760,910.35</b>	<b>20,730.65</b>	<b>1,795,354.23</b>		
PETROLEUM COUNTY		Purchase two road graders	7	03/17/17	04/28/17	120,000.00	-	96,024.46	08/15/24	WINNETT
WINNETT SCHOOL DISTRICT #1		Finance replacement school bus	3	05/21/18	08/03/18	46,680.00	-	39,158.45	06/15/21	WINNETT
<b>PETROLEUM Total</b>						<b>166,680.00</b>		<b>135,182.91</b>		
MALTA		Finance additional 1.84 acre landfill cell	15	04/11/17	07/21/17	346,796.27	-	317,132.27	08/15/32	MALTA

**Local Government INTERCAP loans\* - by County**  
**As of June 30, 2019**

\*only loans that have remaining commitment and/or outstanding

County	Borrower Name	Project	Term	Commitment	Fund Date	Drawn	Remaining	Outstanding	Maturity	CITY
MALTA		PURCHASE A GARBAGE TRUCK	7	09/05/18		0.00	230,000.00	0.00		MALTA
<b>PHILLIPS Total</b>						<b>346,796.27</b>	<b>230,000.00</b>	<b>317,132.27</b>		
	CONRAD	Expand and remodel City Hall	10	01/03/12	07/27/12	384,000.00	-	141,373.31	08/15/22	CONRAD
	CONRAD ELEMENTARY SCHOOL	heating system replacement/Utterback Elementary	5	06/03/19		0.00	365,000.00	0.00		CONRAD
	PONDERA COUNTY	Senior Center Remodel Project	15	07/13/11	08/12/11	113,841.43	-	62,511.59	08/15/26	CONRAD
	PONDERA COUNTY	HVAC upgrades to courthouse and jail facility	15	01/09/17	04/13/17	359,000.00	-	327,897.38	02/15/32	CONRAD
		<b>Pondera County Total</b>				<b>472,841.43</b>	<b>-</b>	<b>390,408.97</b>		
	VALIER	Finance a motor grader	7	12/01/16	04/13/17	40,000.00	-	29,109.35	02/15/24	VALIER
	VALIER ELEMENTARY SCHOOL DISTRICT	Swimming Pool Rehab	10	05/26/10	05/20/11	147,739.34	-	37,009.34	08/15/21	VALIER
	VALIER HIGH SCHOOL DISTRICT #18	Swimming Pool Rehab	10	05/26/10	05/20/11	147,739.34	-	37,009.34	08/15/21	VALIER
<b>PONDERA Total</b>						<b>1,192,320.11</b>	<b>365,000.00</b>	<b>634,910.31</b>		
	POWDER RIVER COUNTY	Purchase gravel crusher	10	05/15/13	08/23/13	559,167.00	-	238,376.71	08/15/23	BROADUS
	POWDER RIVER COUNTY	Renovate nursing home in Broadus	15	07/18/16	05/26/17	200,437.91	-	94,176.64	08/15/32	BROADUS
<b>POWDER RIVER Total</b>						<b>759,604.91</b>		<b>332,553.35</b>		
	ELLISTON RURAL FIRE DISTRICT	Finance new fire truck	10	11/05/13	12/06/13	80,000.00	-	37,846.66	02/15/24	ELLISTON
	AVON RURAL FIRE DISTRICT	Purchase Fire Engine	7	03/02/15	03/20/15	50,000.00	-	20,256.12	02/15/22	AVON
	DEER LODGE	Finance a fire truck	10	05/09/16	07/08/16	420,000.00	-	320,317.47	08/15/26	DEER LODGE
	DEER LODGE ELEMENTARY SD	Heating, ventilation, safety and structural improvement	3	05/16/17	07/07/17	212,863.71	-	109,401.06	06/15/20	DEER LODGE
<b>POWELL Total</b>						<b>762,863.71</b>		<b>487,821.31</b>		
	PRAIRIE COUNTY HOSPITAL DISTRICT	Replace hospital & clinic roof	15	04/15/10	12/23/10	168,619.15	-	80,906.58	08/15/25	TERRY
<b>PRAIRIE Total</b>						<b>168,619.15</b>		<b>80,906.58</b>		
	CORVALLIS RURAL FIRE DISTRICT	Refinance two fire stations	10	11/07/12	11/30/12	627,648.00	-	260,470.62	02/15/23	CORVALLIS
	CORVALLIS RURAL FIRE DISTRICT	Purchase ladder fire truck	7	08/28/15	09/18/15	125,000.00	-	65,376.93	08/15/22	CORVALLIS
		<b>Corvallis Rural Fire District Total</b>				<b>752,648.00</b>	<b>-</b>	<b>325,847.55</b>		
	CORVALLIS SCHOOL DISTRICT #1	Property Purchase	5	11/14/17	06/22/18	1,525,000.00	-	1,376,089.40	06/15/23	CORVALLIS
	DARBY RURAL FIRE DISTRICT	Purchase a new fire engine	10	12/13/12	01/11/13	88,481.00	-	36,605.88	02/15/23	DARBY
	FLORENCE RURAL FIRE DISTRICT	Finance a type one fire vehicle	10	10/14/16	02/10/17	305,764.00	-	265,858.13	02/15/27	FLORENCE
	HAMILTON	Refurbishing city-owned building for Justice, Law and I	10	10/25/17	10/05/18	1,000,000.00	-	990,251.64	08/15/28	HAMILTON
	HAMILTON SCHOOL DISTRICT #3	Remodel and Replace boiler at Daly Elementary School	15	06/06/13	10/25/13	350,000.00	-	236,320.81	06/15/28	HAMILTON
	HAMILTON SCHOOL DISTRICT #3	Upgrade technology infrastructure	7	11/05/13	12/06/13	487,556.44	-	144,887.92	02/15/21	HAMILTON
	HAMILTON SCHOOL DISTRICT #3	finance portion of Daly Elementary rehabilitation project	15	11/13/18	06/14/19	830,070.01	669,929.99	830,070.01	08/15/34	HAMILTON
		<b>Hamilton School District #3 Total</b>				<b>1,667,626.45</b>	<b>669,929.99</b>	<b>1,211,278.74</b>		

**Local Government INTERCAP loans\* - by County**

**As of June 30, 2019**

\*only loans that have remaining commitment and/or outstanding

County	Borrower Name	Project	Term	Commitment	Fund Date	Drawn	Remaining	Outstanding	Maturity	CITY
	LONE ROCK ELEMENTARY SCHOOL DIST	Installing a new septic system	10	11/18/11	01/13/12	40,000.00	-	11,170.01	06/15/21	STEVENSVILLE
	LONE ROCK ELEMENTARY SCHOOL DIST	Phone System	10	05/03/13	06/14/13	27,185.33	-	12,570.36	06/15/23	STEVENSVILLE
		<b>Lone Rock Elementary School District #13 Total</b>				<b>67,185.33</b>	<b>-</b>	<b>23,740.37</b>		
	NORTH VALLEY PUBLIC LIBRARY DIST	Refinance library building mortgage	15	03/28/13	04/26/13	68,000.00	-	44,242.15	08/15/28	STEVENSVILLE
	PINESDALE	Finance Type 6 Fire Truck	10	01/02/18	02/02/18	49,000.00	-	44,584.99	02/15/28	PINESDALE
	RAVALLI COUNTY ECONOMIC DEVELOP	Parking Lot Expansion	10	10/13/11	01/13/12	66,567.05	-	21,211.89	02/15/22	HAMILTON
	VICTOR SCHOOL DISTRICT #7	Insulation proj. remodel/renovate cafe.	10	09/10/09	12/04/09	75,000.00	-	8,628.22	02/15/20	VICTOR
	<b>RAVALLI Total</b>					<b>5,665,271.83</b>	<b>669,929.99</b>	<b>4,348,338.96</b>		
	SIDNEY	Replace Wtr Treatment Plant Filters	10	05/26/10	12/17/10	884,307.32	-	160,867.32	08/15/20	SIDNEY
	SAVAGE ELEMENTARY SCHOOL DISTRI	Heating/Cooling Systems and asbestos abatement	10	08/23/12	11/02/12	600,000.00	-	229,346.84	06/15/22	SAVAGE
	<b>RICHLAND Total</b>					<b>1,484,307.32</b>		<b>390,214.16</b>		
	BAINVILLE PUBLIC SCHOOL DISTRICT #	HVAC upgrades, improvements to comply with ADA	5	02/20/18	09/28/18	189,141.67	410,858.33	170,835.92	06/15/23	BAINVILLE
	CULBERTSON	Street, Curb and Gutter Improvements	15	09/24/10	07/22/11	127,364.19	-	62,428.15	08/15/26	CULBERTSON
	CULBERTSON ELEMENTARY SCHOOL D	Remodel/Repave & Replace Kitchen Equip.	10	04/29/10	08/06/10	800,000.00	-	92,761.94	02/15/20	CULBERTSON
	CULBERTSON ELEMENTARY SCHOOL D	Reroofing of school wings	10	08/23/11	11/04/11	124,000.00	-	34,875.04	06/15/21	CULBERTSON
	CULBERTSON ELEMENTARY SCHOOL D	Finance classroom addition project	15	07/29/16	08/19/16	1,600,000.00	-	1,391,918.96	06/15/31	CULBERTSON
		<b>Culbertson Elementary School District #17 Total</b>				<b>2,524,000.00</b>	<b>-</b>	<b>1,519,555.94</b>		
	CULBERTSON HIGH SCHOOL DISTRICT	Reroofing of high school wings	10	08/23/11	11/04/11	122,041.00	-	34,324.07	06/15/21	CULBERTSON
	FROID	PER wastewater system	3	10/06/16	12/02/16	19,716.91	-	19,716.91	08/15/19	FROID
	FROID	Anticip of USDA RD long term financing - wastewater	2	05/22/18		0.00	1,393,000.00	0.00		FROID
		<b>Froid Total</b>				<b>19,716.91</b>	<b>1,393,000.00</b>	<b>19,716.91</b>		
	POPLAR	Anticip of USDA RD long-term financing - wastewater	2	02/13/18	11/30/18	1,432,125.39	874.61	1,432,125.39	11/01/20	POPLAR
	WOLF POINT	Street Improvements	15	06/29/16	11/04/16	1,300,000.00	-	1,134,858.84	08/15/31	WOLF POINT
	<b>ROOSEVELT Total</b>					<b>5,714,389.16</b>	<b>1,804,732.94</b>	<b>4,373,845.22</b>		
	FORSYTH	Refi/repair the municipal pool	10	10/05/12	06/07/13	133,806.71	-	57,893.05	02/15/23	FORSYTH
	COLSTRIP SCHOOL DISTRICT #19	School building remodel	5	06/16/16	09/30/16	500,000.00	-	253,050.83	06/15/21	COLSTRIP
	COLSTRIP	Solid waste revenue bond for garbage truck	5	08/23/16	12/09/16	100,000.00	-	60,000.00	02/15/22	COLSTRIP
	<b>ROSEBUD Total</b>					<b>733,806.71</b>		<b>370,943.88</b>		
	DIXON RURAL FIRE DISTRICT	Purchase and upgrade an existing building for Fire Hall	15	11/05/15	12/04/15	25,000.00	-	20,366.55	02/15/31	DIXON
	HOT SPRINGS	Water System Improvements - revenue bond	15	11/14/13	11/20/15	110,497.10	-	90,170.21	02/15/31	HOT SPRINGS
	PLAINS SCHOOL DISTRICT #1	Replace high school boiler	5	05/10/18	07/06/18	200,000.00	-	181,402.80	06/15/23	PLAINS
	SANDERS COUNTY	Concession stand and Fairgrounds improvements	10	07/01/10	07/30/10	140,555.61	-	22,732.58	08/15/20	THOMPSON FALLS

**Local Government INTERCAP loans\* - by County**  
**As of June 30, 2019**

\*only loans that have remaining commitment and/or outstanding

County	Borrower Name	Project	Term	Commitment	Fund Date	Drawn	Remaining	Outstanding	Maturity	CITY
	THOMPSON FALLS	Finance two police vehicles	5	09/12/14	10/24/14	58,530.00	-	6,632.81	08/15/19	THOMPSON FALLS
	THOMPSON FALLS	Finance a public works vehicle	5	06/02/15	07/02/15	13,715.00	-	4,205.01	08/15/20	THOMPSON FALLS
	THOMPSON FALLS	Finance two police vehicles	5	12/01/15	03/24/16	13,590.00	-	5,519.42	02/15/21	THOMPSON FALLS
	THOMPSON FALLS	PER for City's sewer system	3	04/15/16	07/29/16	16,500.00	-	16,500.00	08/15/19	THOMPSON FALLS
	THOMPSON FALLS	Sewer system improvements	5	04/15/16	11/18/16	36,000.00	-	18,199.08	08/15/21	THOMPSON FALLS
	THOMPSON FALLS	Finance a pumper fire truck	7	07/29/16	08/26/16	75,000.00	-	39,518.83	08/15/23	THOMPSON FALLS
	THOMPSON FALLS	PER for wastewater system	3	12/02/16	11/22/17	20,000.00	-	13,497.91	02/15/21	THOMPSON FALLS
		<b>Thompson Falls Total</b>				<b>233,335.00</b>	<b>-</b>	<b>104,073.06</b>		
<b>SANDERS</b>	<b>Total</b>					<b>709,387.71</b>	<b>-</b>	<b>418,745.20</b>		
	BUTTE-SILVER BOW	Purchase Crusher for Road Dept	10	04/17/13	06/14/13	665,844.21	-	308,737.91	08/15/23	BUTTE
	RAMSAY ELEMENTARY SCHOOL DIST. #	Purchase hardware, software, and training	5	07/08/15	08/14/15	229,999.72	-	89,828.50	06/15/20	RAMSAY
<b>SILVER BOW</b>	<b>Total</b>					<b>895,843.93</b>	<b>-</b>	<b>398,566.41</b>		
	BEARTOOTH PARKS AND RECREATION	Repair pool and bath houses	15	01/16/15	07/02/15	53,538.54	-	43,368.72	08/15/30	FISHTAIL
	COLUMBUS	Construct public works facility	10	05/18/11	01/06/12	300,000.00	-	95,095.23	02/15/22	COLUMBUS
	COLUMBUS RURAL FIRE DISTRICT #3	Finance a wildland tender	7	04/28/16	05/20/16	108,893.00	-	22,490.00	08/15/23	COLUMBUS
	COLUMBUS RURAL FIRE DISTRICT #3	2013 Pierce Pumper Truck	10	06/14/19	07/26/19	-	155,000.00	-	08/15/29	COLUMBUS
		<b>Columbus Rural Fire District #3 Total</b>				<b>108,893.00</b>	<b>155,000.00</b>	<b>22,490.00</b>		
	PARK CITY HIGH SCHOOL DISTRICT	Replace roofs on high school and vo-ag building	5	10/27/17	07/27/18	256,201.67	13,798.33	225,661.47	06/15/22	PARK CITY
	PARK CITY RURAL FIRE DISTRICT	Bldg Demolition, Bldg Expansion	10	09/01/09	10/09/09	130,000.00	-	7,424.18	08/15/19	PARK CITY
	PARK CITY RURAL FIRE DISTRICT	Finance replacement apparatus	7	11/25/15	10/13/17	35,000.00	-	27,862.14	08/15/24	PARK CITY
		<b>Park City Rural Fire District</b>				<b>165,000.00</b>	<b>-</b>	<b>35,286.32</b>		
	RAPELJE WATER & SEWER DISTRICT	Refinance existing loan w/USDA-RD	6	01/05/16	02/05/16	20,785.00	-	10,405.00	02/15/22	RAPELJE
	REED POINT ELEMENTARY SCHOOL	Refinance loan that purchased staff housing	15	06/30/17	07/28/17	183,109.45	-	167,501.09	06/15/24	REED POINT
	STILLWATER COUNTY	purchase jet boat for Search and Rescue	5	03/13/19	06/14/19	52,226.00	-	52,226.00	08/15/24	COLUMBUS
<b>STILLWATER</b>	<b>Total</b>					<b>1,139,753.66</b>	<b>168,798.33</b>	<b>652,033.83</b>		
	TETON COUNTY	Purchase building	10	10/27/11	12/16/11	75,000.00	-	24,044.72	02/15/22	CHOTEAU
	CHOTEAU	Asphalt grinder	10	11/08/17	12/08/17	85,550.00	-	77,918.88	02/15/28	CHOTEAU
<b>TETON</b>	<b>Total</b>					<b>160,550.00</b>	<b>-</b>	<b>101,963.60</b>		
	KEVIN	Repair portion of water system	15	09/06/13	10/18/13	35,827.50	-	23,583.23	08/15/28	KEVIN
	KEVIN	Purchase and upgrade existing building for Town office	10	11/16/15	12/18/15	39,944.42	-	28,395.69	02/15/26	KEVIN
		<b>Kevin Total</b>				<b>75,771.92</b>	<b>-</b>	<b>51,978.92</b>		
	SHELBY HIGH SCHOOL DISTRICT	Renovate football field and track complex	10	06/11/10	08/20/10	79,461.00	-	12,891.97	08/15/20	SHELBY
	SUNBURST	Sunburst SID #4 Street, Curb, & Gutter Improvements	9	10/20/10	11/12/10	499,999.00	-	31,395.00	08/15/19	SUNBURST
	SUNBURST	Street, Curb & Gutter Improvements	9	10/20/10	11/12/10	145,000.00	-	9,785.94	08/15/19	SUNBURST
	SUNBURST	Purchase Skid Steer	5	01/29/19	03/08/19	40,000.00	-	40,000.00	02/15/24	SUNBURST
		<b>Sunburst Total</b>				<b>684,999.00</b>	<b>-</b>	<b>81,180.94</b>		
	TOOLE COUNTY	Energy Retrofit County Buildings	10	06/24/10	07/23/10	425,000.00	-	68,539.87	08/15/20	SHELBY

**Local Government INTERCAP loans\* - by County**

**As of June 30, 2019**

\*only loans that have remaining commitment and/or outstanding

County	Borrower Name	Project	Term	Commitment	Fund Date	Drawn	Remaining	Outstanding	Maturity	CITY
TOOLE COUNTY		Purchase truck/trailer, motor graders	7	12/26/12	01/18/13	447,155.89	-	65,824.03	02/15/20	SHELBY
TOOLE COUNTY		Airport Taxiway and hangar	10	12/26/12	01/18/13	145,394.00	-	60,188.84	02/15/23	SHELBY
TOOLE COUNTY		Finance road grader	5	12/17/15	01/15/16	148,585.00	-	60,382.28	02/15/21	SHELBY
TOOLE COUNTY		Purchase telemetry system for Marias Med Center	5	02/15/18	07/06/18	141,729.71	-	128,061.57	08/15/23	SHELBY
		<b>Toole County Total</b>				<b>1,307,864.60</b>	<b>-</b>	<b>382,996.59</b>		
TRI-CITY INTERLOCAL EQUIP POOL		Purchase truck with aerial bucket	5	03/15/16	05/06/16	60,000.00	-	30,580.75	08/15/21	SHELBY
TRI-CITY INTERLOCAL EQUIP POOL		New combination sewer truck	7	06/03/19	06/21/19	389,414.00	-	389,414.00	08/15/26	SHELBY
		<b>Tri-City Interlocal Equip Pool Total</b>				<b>449,414.00</b>	<b>-</b>	<b>419,994.75</b>		
<b>TOOLE Total</b>						<b>2,597,510.52</b>	<b>-</b>	<b>949,043.17</b>		
VALLEY COUNTY		Emergency road & bridge repairs	10	07/08/11	07/06/12	163,038.20	-	53,462.81	02/15/22	GLASGOW
VALLEY COUNTY		Build new fire hall	10	05/07/15	07/24/15	100,000.00	-	66,412.79	08/15/25	GLASGOW
VALLEY COUNTY		Landfill Scraper	10	10/05/15	11/06/15	100,000.00	-	57,517.68	02/15/26	GLASGOW
		<b>Valley County Total</b>				<b>363,038.20</b>	<b>-</b>	<b>177,393.28</b>		
HINSDALE HIGH SCHOOL DISTRICT		Roofing project	5	06/01/16	04/07/17	151,040.36	-	99,895.44	06/15/21	HINSDALE
HINSDALE ELEMENTARY SCHOOL DISTRICT		Roofing project	5	06/01/16	04/07/17	151,040.36	-	99,896.46	06/15/21	HINSDALE
GLASGOW		Anticip of USDA RD long-term financing - water	2	08/16/16	02/15/19	763,145.19	5,881,854.81	763,145.19	02/15/21	GLASGOW
<b>VALLEY Total</b>						<b>1,428,264.11</b>	<b>5,881,854.81</b>	<b>1,140,330.37</b>		
HARLOWTON HIGH SCHOOL		School building renovations	4	04/26/16	06/17/16	318,056.20	-	121,044.36	06/15/20	HARLOWTON
HARLOWTON ELEMENTARY		School building renovations	4	04/26/16	06/17/16	212,037.48	-	80,690.80	06/15/20	HARLOWTON
<b>WHEATLAND Total</b>						<b>530,093.68</b>	<b>-</b>	<b>201,735.16</b>		
BILLINGS		Zimmerman SID sewer improvement	15	09/15/09	12/24/09	80,500.00	-	32,206.54	02/15/25	BILLINGS
BILLINGS		Expansion of police evidence building	15	05/21/19		0.00	3,410,000.00	0.00		BILLINGS
		<b>Billings Total</b>				<b>80,500.00</b>	<b>3,410,000.00</b>	<b>32,206.54</b>		
CANYON CREEK SCHOOL		Parking Lot Project	10	05/10/10	09/17/10	70,000.00	-	11,245.19	08/15/20	BILLINGS
CUSTER SCHOOL DISTRICT #15		Roofing project	10	09/08/10	11/19/10	47,304.00	-	10,207.40	02/15/21	CUSTER
LAUREL		Replace & repair sidewalks within SID 117	15	05/27/15	11/20/15	169,000.00	-	131,769.10	08/15/30	LAUREL
LAUREL		Fire Safety Equipment	7	05/28/15	08/28/15	160,000.00	-	81,677.18	08/15/22	LAUREL
		<b>Laurel Total</b>				<b>329,000.00</b>	<b>-</b>	<b>213,446.28</b>		
LAUREL AIRPORT AUTHORITY		Build a cross wind runway	15	05/11/17	09/08/17	373,198.48	26,801.52	357,482.50	08/15/32	LAUREL
YELLOWSTONE COUNTY		Construct pedestrian walkways in Lockwood area	10	06/25/15	11/13/15	285,965.19	-	178,786.72	02/15/26	BILLINGS
YELLOWSTONE COUNTY		construct pedestrian walkways in Lockwood area	10	10/19/18	11/09/18	350,000.00	50,000.00	350,000.00	02/15/29	BILLINGS
		<b>Yellowstone County Total</b>				<b>635,965.19</b>	<b>50,000.00</b>	<b>528,786.72</b>		
<b>YELLOWSTONE Total</b>						<b>1,535,967.67</b>	<b>3,486,801.52</b>	<b>1,153,374.63</b>		
<b>Local Government Total</b>						<b>74,601,083.00</b>	<b>21,963,599.14</b>	<b>46,808,363.37</b>		

**State Agency INTERCAP loans\***

**As of June 30, 2019**

\*only loans that have remaining commitment and/or outstanding

BORROWER_NM	PROJ_DESCR	TERM	PROJ_COST	Fund Date	Drawn	CMT Remaining	Outstanding	PROJ_MATURITY
DNRC	Anticip of issuing GO short term bond-WPCSRF	2	3,100,000.00	03/15/19	1,190,000.00	1,910,000.00	1,190,000.00	02/15/21
DNRC	Anticip of issuing GO short term bond -DWSRF	2	2,900,000.00	03/15/19	1,400,000.00	1,500,000.00	1,400,000.00	02/15/21
DNRC	Anticip of issuing GO short term bond - DWSRF	2	3,400,000.00		0.00	3,400,000.00	0.00	
DNRC	Anticip of issuing GO short term bond-WPCSRF	2	4,000,000.00		0.00	4,000,000.00	0.00	
<b>DNRC Total</b>			<b>13,400,000.00</b>		<b>2,590,000.00</b>	<b>10,810,000.00</b>	<b>2,590,000.00</b>	
TRANSPORTATION	Motor Pool vehicles	7	3,319,143.87	03/14/14	3,319,143.87	-	474,159.87	06/15/20
TRANSPORTATION	Motor pool vehicles	7	2,280,614.43	03/27/15	2,280,614.43	-	651,604.08	06/15/21
TRANSPORTATION	State Motor Pool vehicles	7	3,105,303.82	03/24/16	3,105,303.82	-	1,460,027.39	06/15/22
TRANSPORTATION	State Motor Pool replacement vehicles	7	2,632,248.70	03/10/17	2,632,248.70	-	1,619,738.23	06/15/23
TRANSPORTATION	State Motor Pool vehicles	7	1,000,000.00	06/14/19	1,000,000.00	-	1,000,000.00	06/15/26
<b>TRANSPORTATION Total</b>			<b>12,337,310.82</b>		<b>12,337,310.82</b>		<b>5,205,529.57</b>	
<b>Grand Total</b>			<b>25,737,310.82</b>		<b>14,927,310.82</b>	<b>10,810,000.00</b>	<b>7,795,529.57</b>	

## University INTERCAP loans\*

As of June 30, 2019

\*only loans that have remaining commitment and/or outstanding

Borrower Name	Project	Term	Commitment	Fund Date	Drawn	Remaining	Outstanding	Maturity
MSU-BILLINGS	Residence Hall Roof Replacement	10	336,512.00	04/13/12	336,512.00	-	104,663.02	02/15/22
MSU-BILLINGS	Bookstore Remodel	10	513,046.00	06/22/12	513,046.00	-	193,119.17	08/15/22
MSU-BILLINGS	Student Union/Rimrock Hall HVAC	15	1,260,881.00	06/22/12	1,260,881.00	-	756,816.57	08/15/27
MSU-BILLINGS	Repair/replace the roof on Petro Hall	10	376,758.00	01/09/15	376,758.00	-	230,150.20	02/15/25
MSU-BILLINGS	Repair/replace roof on the Student Union Building	10	835,488.00	06/19/15	835,488.00	-	566,399.73	08/15/25
MSU-BILLINGS	Replace air handler in Student Union Building	3	250,000.00	07/06/18	178,106.08	71,893.92	176,393.43	08/15/21
<b>MSU-BILLINGS Total</b>			<b>3,572,685.00</b>		<b>3,500,791.08</b>	<b>71,893.92</b>	<b>2,027,542.12</b>	
MSU-BOZEMAN	Bobcat Stadium End Zone Project	15	4,000,000.00	04/29/11	4,000,000.00	-	2,141,774.20	08/15/26
MSU-BOZEMAN	Energy Retro - Multiple Buildings	15	4,350,000.00	11/16/12	4,350,000.00	-	2,706,847.02	08/15/28
MSU-BOZEMAN	IT Infra Rep Plan - wireless campus expansion	10	279,347.00	01/24/14	279,347.00	-	142,976.93	02/15/24
MSU-BOZEMAN	Renovate Strand Union Building ballrooms	15	1,720,244.07	04/24/15	1,720,244.07	-	1,347,756.72	08/15/30
MSU-BOZEMAN	Finance digital encoding equipment for KUSM public TV	5	300,000.00	04/22/16	300,000.00	-	176,340.26	08/15/21
MSU-BOZEMAN	Repair Stadium Stairwells	5	475,000.00	04/28/17	475,000.00	-	338,687.57	08/15/22
MSU-BOZEMAN	improvements at the Dobbie Lambert Intramural Fields	15	4,000,000.00	09/14/18	4,000,000.00	-	3,950,583.73	02/15/34
<b>MSU-BOZEMAN Total</b>			<b>15,124,591.07</b>		<b>15,124,591.07</b>		<b>10,804,966.43</b>	
<b>Montana State University (MSU) Total</b>			<b>18,697,276.07</b>		<b>18,625,382.15</b>	<b>71,893.92</b>	<b>12,832,508.55</b>	
UOFM-HELENA COLLEGE OF TECH	Purchase property within approved aquisition zone	10	187,500.00	11/18/16	187,500.00	-	152,278.26	02/15/27
UOFM-HELENA COLLEGE OF TECH	Real property purchase	15	175,000.00	08/24/18	175,000.00	-	170,278.41	08/15/33
<b>UOFM-HELENA COLLEGE OF TECH Total</b>			<b>362,500.00</b>		<b>362,500.00</b>		<b>322,556.67</b>	
UOFM-MISSOULA	Purchase Real Property @820 Arthur	15	640,000.00	10/16/09	640,000.00	-	111,401.02	08/15/24
UOFM-MISSOULA	Addition to Bldg 24 for bus storage	10	250,000.00	04/16/10	250,000.00	-	26,283.80	02/15/20
UOFM-MISSOULA	Remodeling the O'Connor Center	10	75,000.00	11/04/11	75,000.00	-	24,044.72	02/15/22
UOFM-MISSOULA	New Stadium Lights	10	926,804.00	06/22/12	926,804.00	-	335,773.63	08/15/22
UOFM-MISSOULA	Finance completion of the Adams Center's unfinished basen	11	1,000,000.00	10/14/16	1,000,000.00	-	784,821.38	08/15/27
UOFM-MISSOULA	Purchase 2 electric buses and equipment to charge the vehic	12	1,663,809.00	12/02/16	1,663,809.00	-	1,407,456.85	02/15/29
UOFM-MISSOULA	Completion of the research space on the 3rd fl of the Interdi	5	1,321,260.05	06/24/16	1,321,260.05	-	676,386.78	08/15/21
UOFM-MISSOULA	Construct research space on the 3rd floor of the ISB	5	1,036,895.76	03/24/17	1,036,895.76	-	634,774.83	02/15/22
UOFM-MISSOULA	UM Grizzly Champions Center	15	5,000,000.00	06/16/17	5,000,000.00	-	4,580,116.42	08/15/32
<b>UOFM-MISSOULA Total</b>			<b>11,913,768.81</b>		<b>11,913,768.81</b>		<b>8,581,059.43</b>	
UOFM-MONTANA TECH	Design, Renovate, expand HPER building	15	2,340,000.00	12/23/11	2,340,000.00	-	1,328,313.97	02/15/27
UOFM-MONTANA TECH	Finance energy retrofit project for the Chemistry Biology B	15	1,089,300.00	03/10/17	1,089,300.00	-	956,920.63	02/15/32
<b>UOFM-MONTANA TECH Total</b>			<b>3,429,300.00</b>		<b>3,429,300.00</b>		<b>2,285,234.60</b>	
UOFM-WESTERN MT COLLEGE	Life Safety Improv. to the PE Complex	15	299,999.61	10/30/09	299,999.61	-	135,797.63	02/15/25
UOFM-WESTERN MT COLLEGE	Purchase a home and property within the campus.	15	150,000.00	05/02/14	150,000.00	-	107,337.78	06/15/29
UOFM-WESTERN MT COLLEGE	Renovating restrooms in Mathews Residence Hall	15	800,000.00	03/16/18	800,000.00	-	769,370.40	02/15/33
<b>UOFM-WESTERN MT COLLEGE Total</b>			<b>1,249,999.61</b>		<b>1,249,999.61</b>		<b>1,012,505.81</b>	
<b>University of Montana (UM) Total</b>			<b>16,955,568.42</b>		<b>16,955,568.42</b>		<b>12,201,356.51</b>	
<b>University Grand Total</b>			<b>18,697,276.07</b>		<b>35,580,950.57</b>		<b>25,033,865.06</b>	

## MEMORANDUM

Montana Board of Investments

Department of Commerce

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

**To:** Board of Directors  
**From:** Doug Hill  
**Date:** August 20, 2019  
**Subject:** Commercial and Residential Loan Portfolios

As of July 10, 2019, the Commercial loan portfolio balance was \$167,001,625, and represents 111 individual loans or participations. There are four loan reservations that total \$23,890,000 and five loans committed that total \$38,671,500 (See attached reservations and commitments). The commercial loan portfolio, excluding the Veterans Home Loan Program and Science & Technology, has a yield of 3.01%.

There are no commercial loans past due over 30 days. The On the Border property in Great Falls sold on June 12, 2019. The total write-down on the loan was \$534,334.91.

The Residential loan portfolio reflected an outstanding balance, as of July 30, 2019, of \$3,718,326 and represents 95 loans. The portfolio has a yield of 6.62%. There were no outstanding reservations. There are two loans with FHA guarantees that are over 90 days past due.

The Veterans Home Mortgage portfolio reflected an outstanding balance, as of July 30, 2019, of \$38,437,282, and represents 227 loans. There were 11 reservations totaling \$2,602,899. The portfolio has a yield of 1.90%. There was one loan over 90 days past due totaling \$174,971, or 0.46% of the portfolio.

**Committed Loans by Number**

07/09/2019

<b>Loan #</b>	<b>Borrower</b>	<b>Seller</b>	<b>Committed Amount</b>	<b>Committed Date</b>	<b>Expiration Date</b>	<b>Loan Type</b>
10025	MISSOULA COUNTY AIRPORT AUTHORITY	MONTANA BOARD OF INVESTMENTS	2,000,000.00	08/16/2016	03/04/2020	INFR
10196	SPRINGS AT BOZEMAN, LLC	BANK OF MONTANA MISSOULA	28,000,000.00	02/13/2018	08/17/2019	PART
10320	LAKE COUNTY COMMUNITY DEVELOPMENT	MONTANA BOARD OF INVESTMENTS	187,500.00	12/26/2018	12/18/2019	IRP
10330	GALLATIN VALLEY HOMES INC/MY STORAGE LLC	FIRST INTERSTATE BANK - (BILLINGS)	484,000.00	04/02/2019	02/12/2020	PART
10333	NEPTUNE AVIATION SERVICES, INC.	BANK OF MONTANA, MISSOULA	8,000,000.00	03/14/2019	03/14/2020	PART
			<b>38,671,500</b>			

---

# Portfolio Risk Primer

Board Meeting: August 20-21, 2019



THIS PAGE INTENTIONALLY LEFT BLANK

## General Risk Discussion – Risk Framework

---

### Risk Management Core Beliefs

- Risk is the possibility of negative outcomes in pursuit of the fund's objective
- Your source of risk is your source of return
- Manage risk, not avoid it nor ignore it
- Minimize permanent loss of capital
- Take risk when you have high conviction of being rewarded

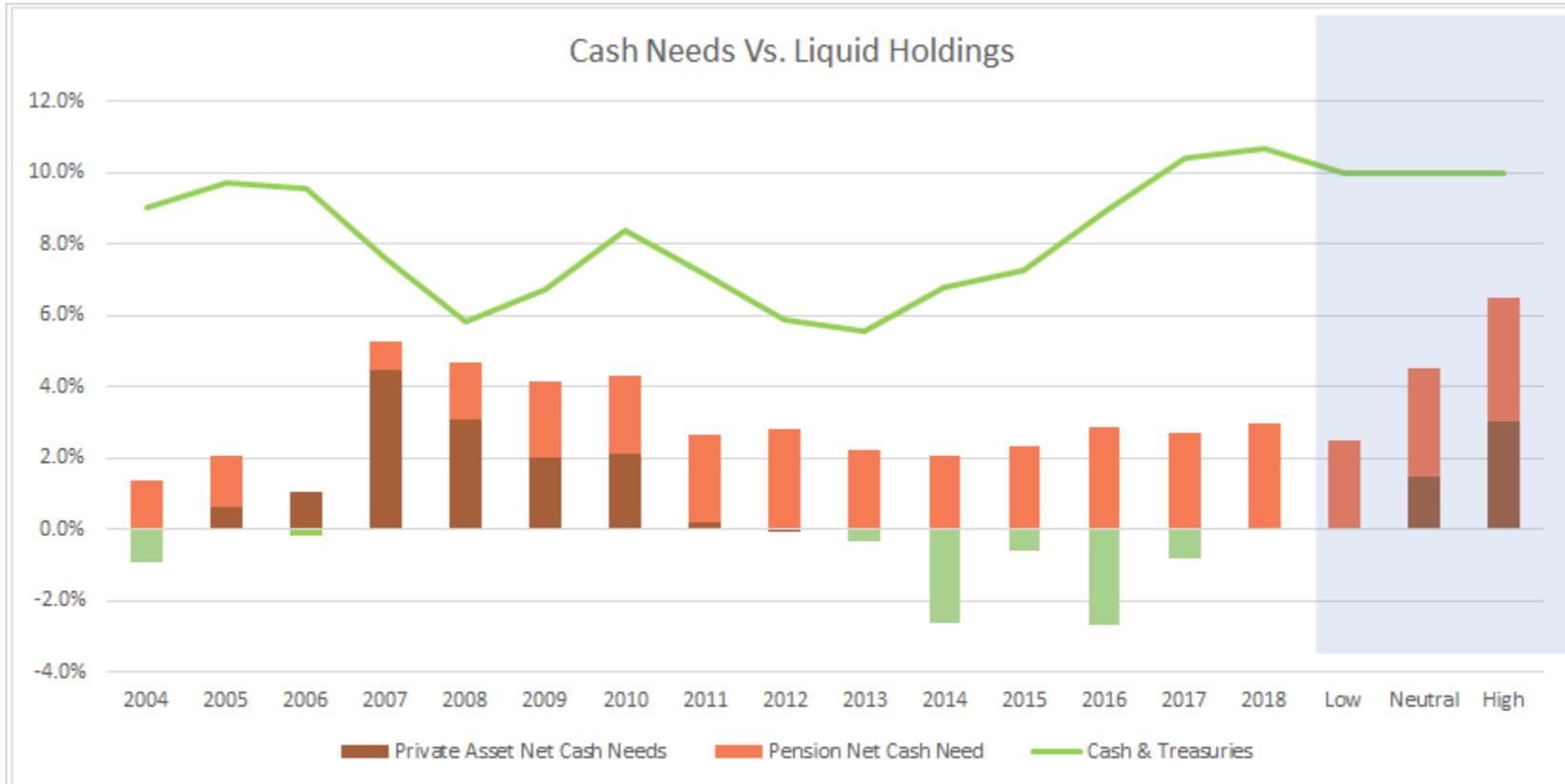
## General Risk Discussion – Risk Framework

---

### Pension Plan Risk

1. Liquidity – not meeting pension obligations with cash or risk-free securities
2. Asset Allocation Strategy  
Maximum/Minimum Equity vs. Fixed Income
3. Asset Class Risk

# General Risk Discussion - Liquidity



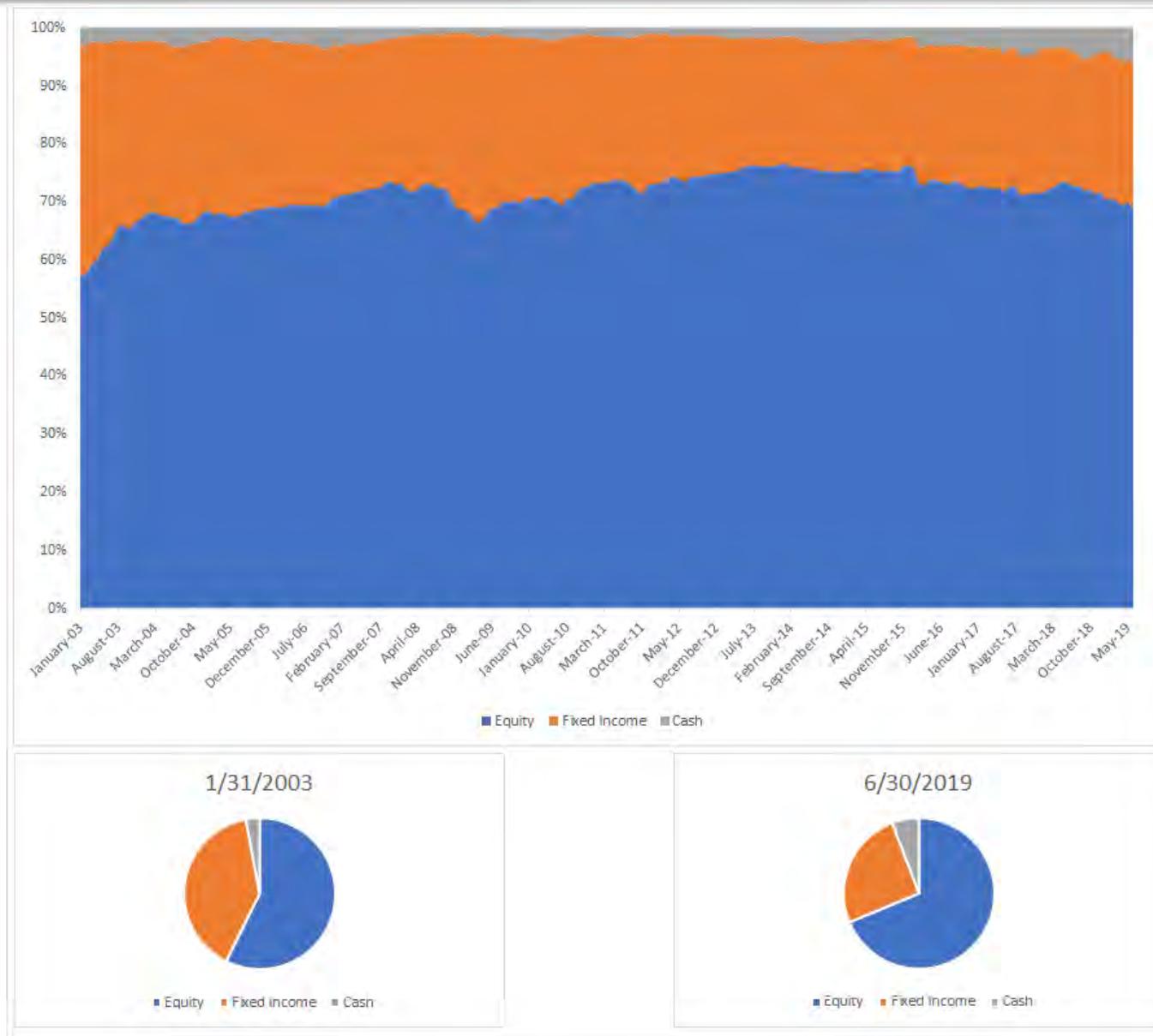
\*Shaded area indicates an estimate of cash needs in 3 different scenarios

\*Green bars indicate a cash inflow

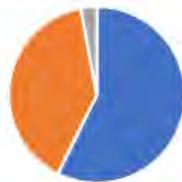
## General Risk Discussion Current CAPP Asset Class Allocation

Asset Class	NAV	% of Total	Board Approved Ranges	
Domestic Equity	3,412,460,162	29.74%	24%	38%
International Equity	2,039,192,056	17.77%	12%	24%
Private Equity	1,413,489,160	12.32%	9%	15%
Natural Resources	344,271,603	3.00%	0%	6%
Real Estate	886,429,201	7.73%	4%	12%
TIPS	507,464,973	4.42%	2%	6%
Broad Fixed Income	156,319,232	1.36%	0%	3%
US Treasury & Agency	955,285,651	8.33%	6%	15%
Investment Grade Credit	413,730,377	3.61%	2%	6%
Mortgage-Backed	464,792,826	4.05%	2%	8%
High Yield	367,557,787	3.20%	2%	6%
Diversifying Strategies*	162,956,110	1.42%	0%	4%
Cash Equivalents	350,129,946	3.05%	0%	5%
<b>Total</b>	<b>11,474,079,084</b>	<b>100.00%</b>		
Total Equity	8,177,320,237.50	71.27%		
Total Fixed Income	2,946,628,900.03	25.68%	15% Minimum	
Cash	350,129,946	3.05%		
*Diversifying Strategies is allocated to 50% Equity and 50% Fixed Income				

# General Risk Discussion– Historical Pension Mix

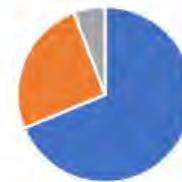


1/31/2003



■ Equity ■ Fixed Income ■ Cash

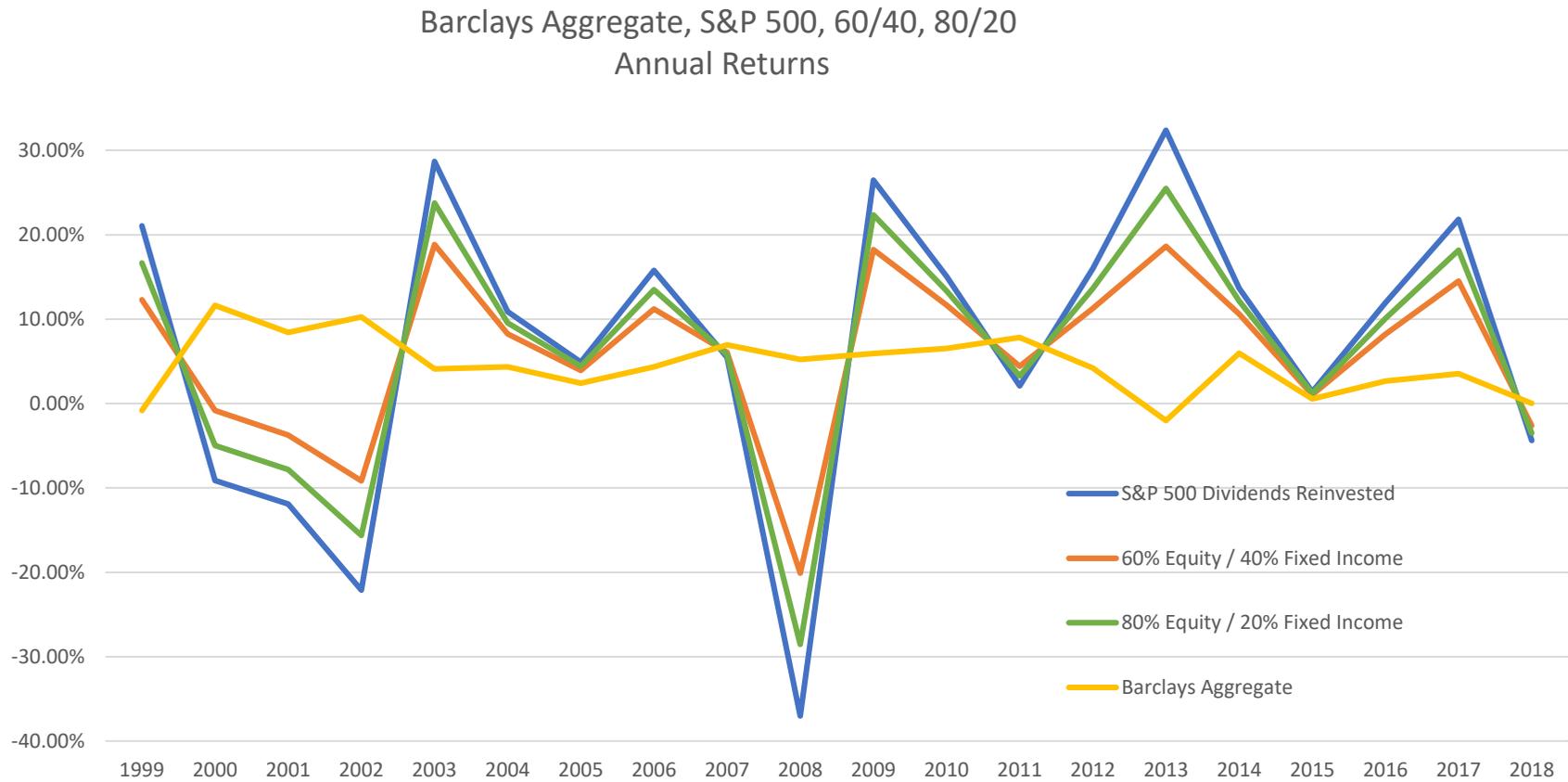
6/30/2019



■ Equity ■ Fixed Income ■ Cash

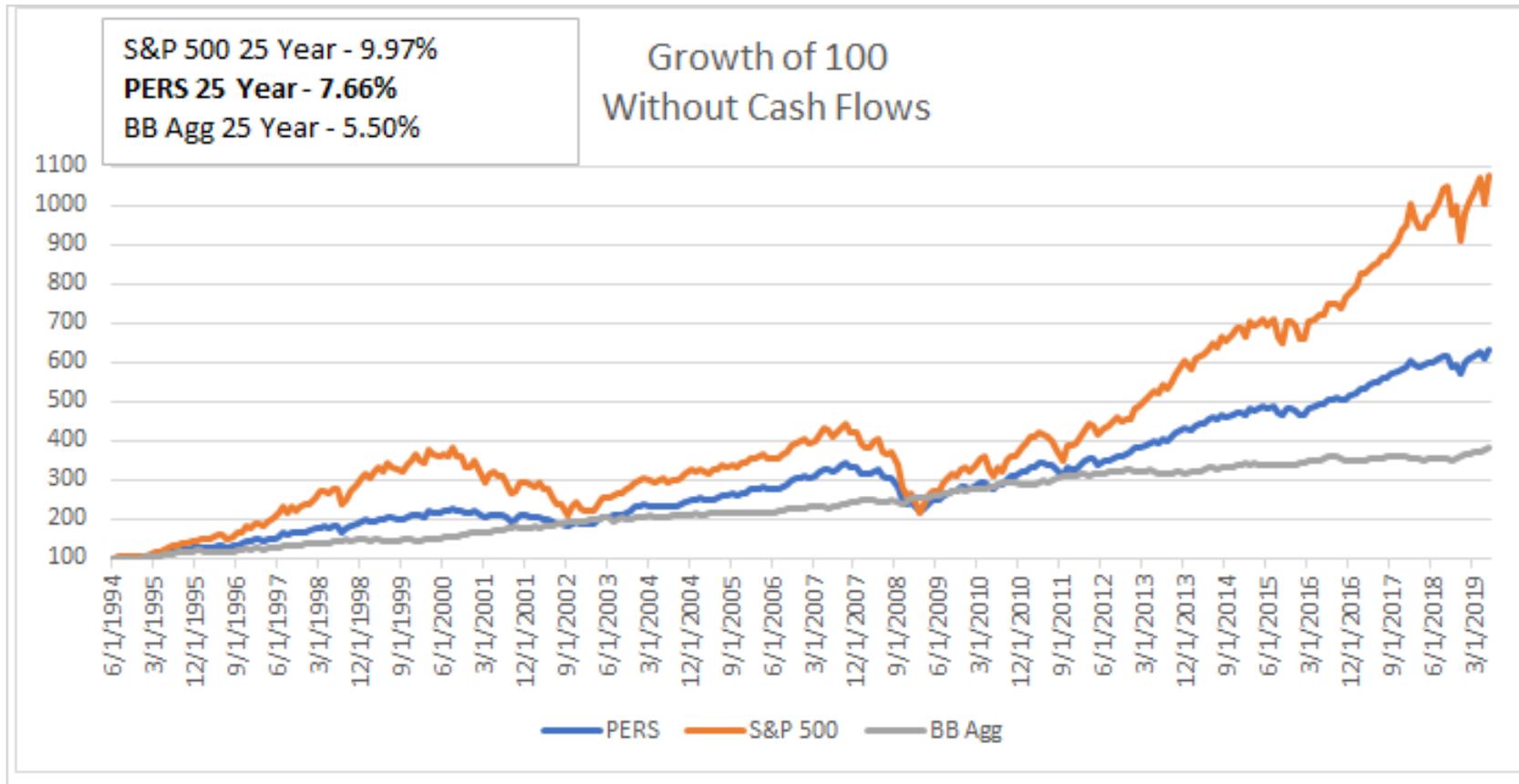
June 30, 2019

## General Risk Discussion– General Portfolio Mix Options



- A higher mix of equity means more risk – greater volatility on the downside
- Risk tolerance should align with the overall asset allocation

# General Risk Discussion– Cumulative Returns



---

# Investment Update

Board Meeting: August 20-21, 2019

Information as of June 30, 2019



THIS PAGE INTENTIONALLY LEFT BLANK

## Table of Contents

---

CIO Update	4
Risk Management	13
Private Equity	19
Real Estate	22
Natural Resources	25
Internally Managed Fixed Income:	28
US Treasury & Agency	30
TIPS	32
Mortgage Backed Securities	34
Investment Grade Credit	36
Broad Fixed Income	38
High Yield Fixed Income	41
Domestic Equity	44
International Equity	50
STIP, State Fund & Trust Fund	
STIP	56
State Fund	58
Trust Funds Investment Pool	60
Appendix	62

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

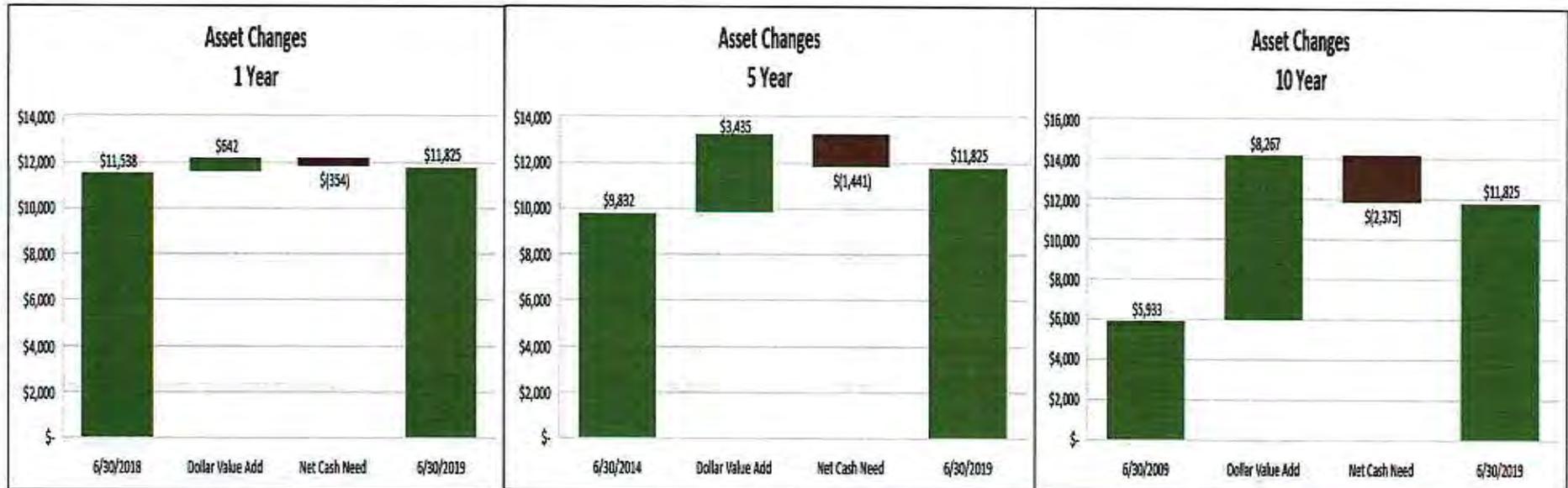
---

Pensions	6/30/2018 (NAV)	6/30/2019 (NAV)	Dollar Change	Net Cash Flow	Dollar Value Add
PUBLIC EMPLOYEES RETIREMENT	\$ 5,764.56	\$ 5,891.07	\$ 126.51	\$ (194.35)	\$ 320.87
TEACHERS RETIREMENT	\$ 4,115.68	\$ 4,190.96	\$ 75.28	\$ (152.60)	\$ 227.88
FIREFIGHTERS RETIREMENT	\$ 416.89	\$ 443.75	\$ 26.87	\$ 3.14	\$ 23.72
POLICE OFFICERS RETIREMENT	\$ 401.57	\$ 422.79	\$ 21.22	\$ (1.42)	\$ 22.63
SHERIFFS RETIREMENT	\$ 357.72	\$ 376.23	\$ 18.51	\$ (1.88)	\$ 20.40
GAME WARDENS RETIREMENT	\$ 192.64	\$ 208.56	\$ 12.92	\$ 1.80	\$ 11.12
HIGHWAY PATROL RETIREMENT	\$ 148.04	\$ 151.49	\$ 3.46	\$ (4.81)	\$ 8.27
JUDGES RETIREMENT	\$ 102.15	\$ 104.42	\$ 2.28	\$ (3.41)	\$ 5.69
VOL FIREFIGHTERS RETIREMENT	\$ 38.38	\$ 39.67	\$ 1.29	\$ (0.78)	\$ 2.07
<b>Total</b>	<b>\$ 11,537.63</b>	<b>\$ 11,828.94</b>	<b>\$ 288.34</b>	<b>\$ (354.31)</b>	<b>\$ 642.65</b>

Dollar values are in \$1,000,000

June 30, 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.

## CIO Update – Retirement Plans Performance

---

Pensions	1 Year	3 Year	5 Year	10 Year	20 Year	Since Inception
PUBLIC EMPLOYEES RETIREMENT	5.70%	8.80%	6.57%	9.87%	5.80%	7.66%
TEACHERS RETIREMENT	5.69%	8.78%	6.57%	9.87%	5.80%	7.67%
FIREFIGHTERS RETIREMENT	5.72%	8.80%	6.57%	9.85%	5.73%	7.52%
POLICE OFFICERS RETIREMENT	5.72%	8.80%	6.57%	9.86%	5.73%	7.52%
SHERIFFS RETIREMENT	5.71%	8.80%	6.58%	9.85%	5.76%	7.55%
GAME WARDENS RETIREMENT	5.72%	8.81%	6.58%	9.84%	5.74%	7.57%
HIGHWAY PATROL RETIREMENT	5.72%	8.80%	6.58%	9.88%	5.76%	7.55%
JUDGES RETIREMENT	5.71%	8.81%	6.58%	9.86%	5.77%	7.56%
VOL FIREFIGHTERS RETIREMENT	5.70%	8.80%	6.56%	9.83%	6.18%	7.35%

June 30, 2019

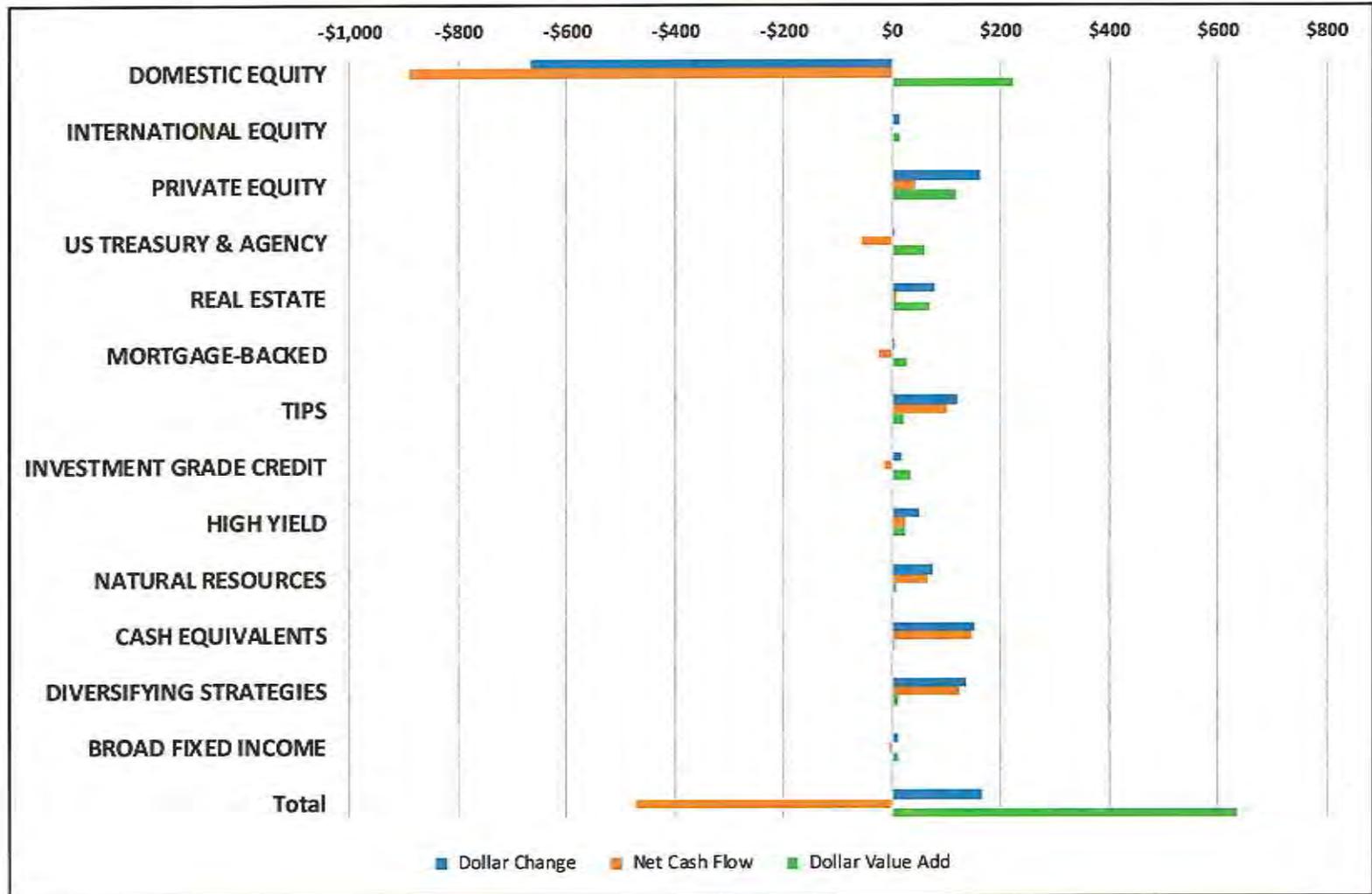
## CIO Update – CAPP Asset Class Allocation Changes During Previous Year

Asset Class	6/30/2018 (NAV)	6/30/2019 (NAV)	Dollar Change	Net Cash Flow	Dollar Value Add
DOMESTIC EQUITY	\$ 4,078.33	\$ 3,412.46	\$ (665.87)	\$ (890.05)	\$ 224.18
INTERNATIONAL EQUITY	\$ 2,023.46	\$ 2,039.19	\$ 15.73	\$ -	\$ 15.73
PRIVATE EQUITY	\$ 1,252.28	\$ 1,413.49	\$ 161.21	\$ 43.58	\$ 117.63
US TREASURY & AGENCY	\$ 950.95	\$ 955.29	\$ 4.33	\$ (54.22)	\$ 58.55
REAL ESTATE	\$ 808.20	\$ 886.43	\$ 78.23	\$ 7.80	\$ 70.43
MORTGAGE-BACKED	\$ 460.15	\$ 464.79	\$ 4.65	\$ (24.81)	\$ 29.46
TIPS	\$ 385.16	\$ 507.46	\$ 122.30	\$ 100.12	\$ 22.18
INVESTMENT GRADE CREDIT	\$ 394.94	\$ 413.73	\$ 18.79	\$ (15.23)	\$ 34.02
HIGH YIELD	\$ 318.07	\$ 367.56	\$ 49.49	\$ 25.02	\$ 24.47
NATURAL RESOURCES	\$ 268.58	\$ 344.27	\$ 75.69	\$ 65.93	\$ 9.76
CASH EQUIVALENTS	\$ 196.98	\$ 350.13	\$ 153.15	\$ 146.66	\$ 6.49
DIVERSIFYING STRATEGIES	\$ 26.18	\$ 162.96	\$ 136.77	\$ 125.30	\$ 11.47
BROAD FIXED INCOME	\$ 145.56	\$ 156.32	\$ 10.76	\$ (0.65)	\$ 11.41
<b>Total</b>	<b>\$ 11,308.84</b>	<b>\$ 11,474.08</b>	<b>\$ 165.23</b>	<b>\$ (470.55)</b>	<b>\$ 635.78</b>

Dollar values are in \$1,000,000

June 30, 2019

# CIO Update – CAPP Asset Class Allocation Changes During Previous Year



# CIO Update – Asset Class Benchmark Returns

1 YR	5 YR	10 YR	15 YR	20 YR
MSCI US REIT 11.06%	MSCI US IMI 10.24%	MSCI US REIT 15.55%	MSCI US IMI 9.04%	MSCI US REIT 10.30%
MSCI US IMI 8.96%	MSCI USA SMALL CAP 7.94%	MSCI US IMI 14.74%	MSCI US REIT 9.02%	BARC US HY 7.01%
BARC US Corp Inv Grd 8.57%	MSCI US REIT 7.81%	PERS 9.87%	BARC US HY 7.58%	MSCI US IMI 6.37%
BARC US Agg 7.87%	PERS 6.57%	BARC US HY 9.22%	PERS 6.82%	PERS 5.80%
BARC US HY 7.48%	BARC US HY 4.71%	MSCI ACWI ex USA IMI 6.78%	MSCI ACWI ex USA IMI 6.05%	BARC US Corp Inv Grd 5.35%
BARC US MBS 6.22%	BARC US Corp Inv Grd 3.29%	BARC US Corp Inv Grd 5.13%	MSCI AC World Commodity 5.24%	BARC US Agg 4.93%
BARC TSY 6.19%	BARC US Agg 2.95%	BARC US Agg 3.90%	BARC US Corp Inv Grd 4.68%	MSCI ACWI ex USA IMI 4.79%
PERS 5.70%	BARC US MBS 2.56%	BARC US MBS 3.23%	BARC US Agg 4.27%	BARC US MBS 4.75%
BARC US TIPS 4.67%	MSCI ACWI ex USA IMI 2.25%	BARC US TIPS 2.93%	BARC US MBS 4.14%	BARC TSY 3.95%
LIBOR 1 MONTH 2.39%	BARC TSY 1.95%	BARC TSY 2.44%	BARC TSY 3.26%	LIBOR 1 MONTH 2.04%
MSCI USA SMALL CAP 0.40%	BARC US TIPS 1.42%	MSCI AC World Commodity 2.35%	LIBOR 1 MONTH 1.60%	
MSCI ACWI ex USA IMI 0.26%	LIBOR 1 MONTH 1.05%	LIBOR 1 MONTH 0.64%		
MSCI AC World Commodity -4.60%	MSCI AC World Commodity -2.70%			

Legend	
Private Equity	Cash Equivalents
Domestic Equity	US Treasury/Agency
International Equity	Broad Fixed Income
High Yield	Mortgage-Backed
Real Estate	Natural Resources
Investment Grade Credit	TIPS

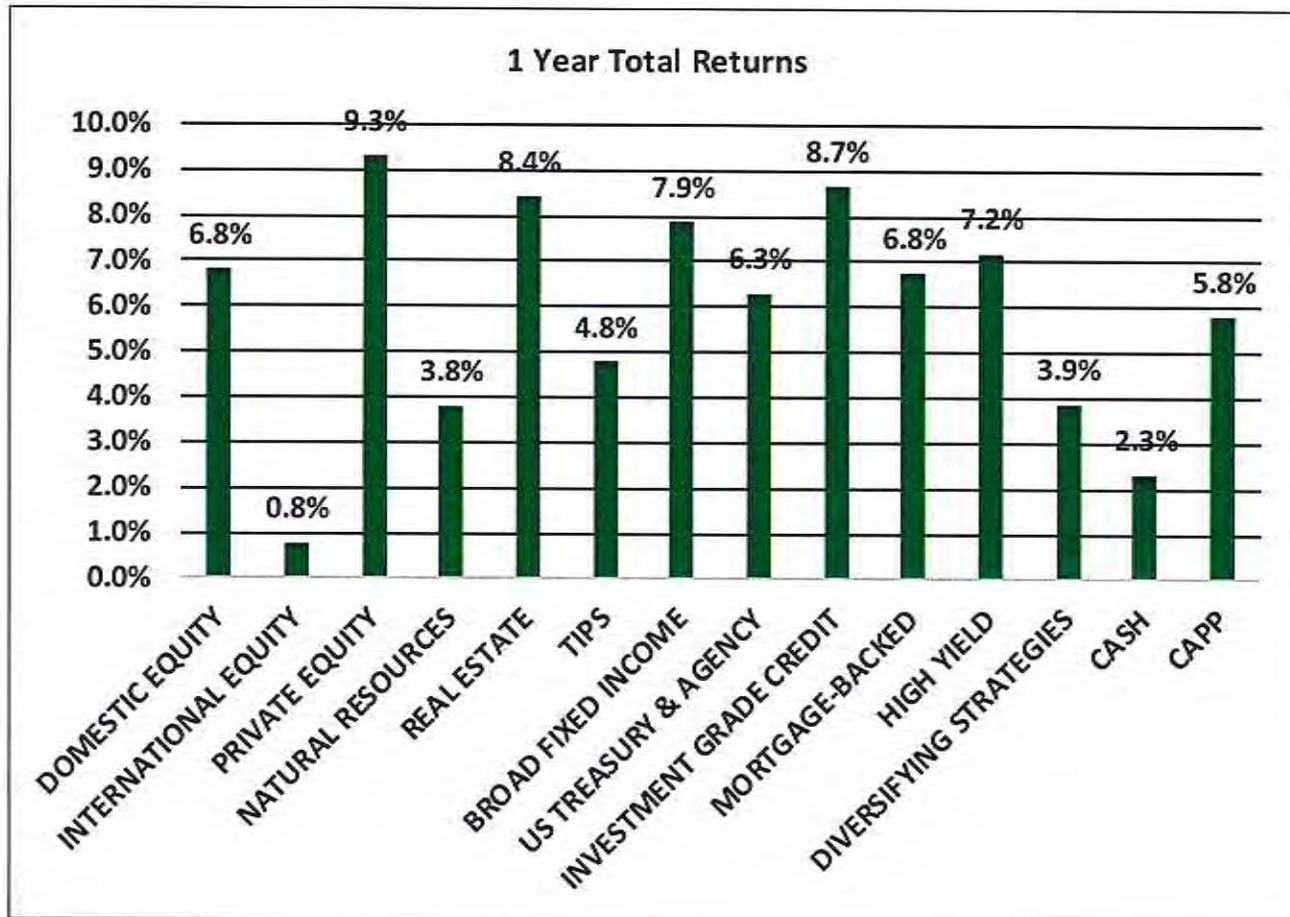
## CIO Update – CAPP Asset Class Allocation

Asset Class	6/30/19 (NAV)	% of Total	Board Approved Ranges
DOMESTIC EQUITY	\$3,412,460,150	29.74%	24% - 38%
INTERNATIONAL EQUITY	\$2,039,192,053	17.77%	12% - 24%
PRIVATE EQUITY	\$1,413,489,157	12.32%	9% - 15%
US TREASURY & AGENCY	\$955,285,658	8.33%	6% - 15%
REAL ESTATE	\$886,429,195	7.73%	4% - 12%
TIPS	\$507,464,972	4.42%	2% - 6%
MORTGAGE-BACKED	\$464,792,825	4.05%	2% - 8%
INVESTMENT GRADE CREDIT	\$413,730,398	3.61%	2% - 6%
HIGH YIELD	\$367,557,785	3.20%	2% - 6%
CASH EQUIVALENTS	\$350,129,945	3.05%	0% - 5%
NATURAL RESOURCES	\$344,271,603	3.00%	0% - 6%
DIVERSIFYING STRATEGIES	\$162,956,111	1.42%	0% - 4%
BROAD FIXED INCOME	\$156,319,238	1.36%	0% - 3%
<b>Total</b>	<b>\$11,474,079,088</b>	<b>100.00%</b>	
<b>Total Fixed Income</b>	<b>\$2,865,150,875</b>	<b>24.97%</b>	<b>15% Minimum</b>

Dollar values are in \$1,000,000

June 30, 2019

# CIO Update – CAPP Asset Class Returns

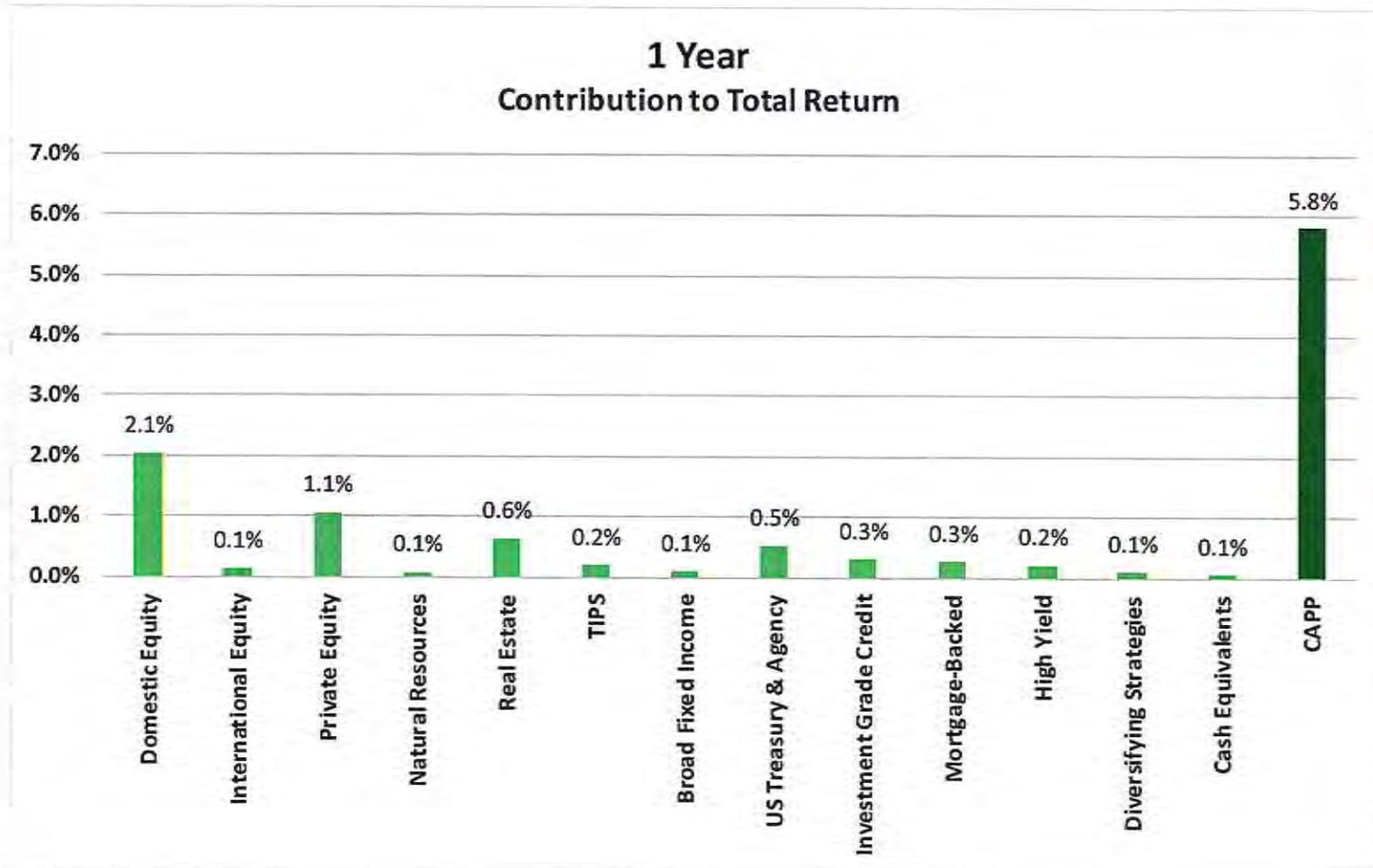


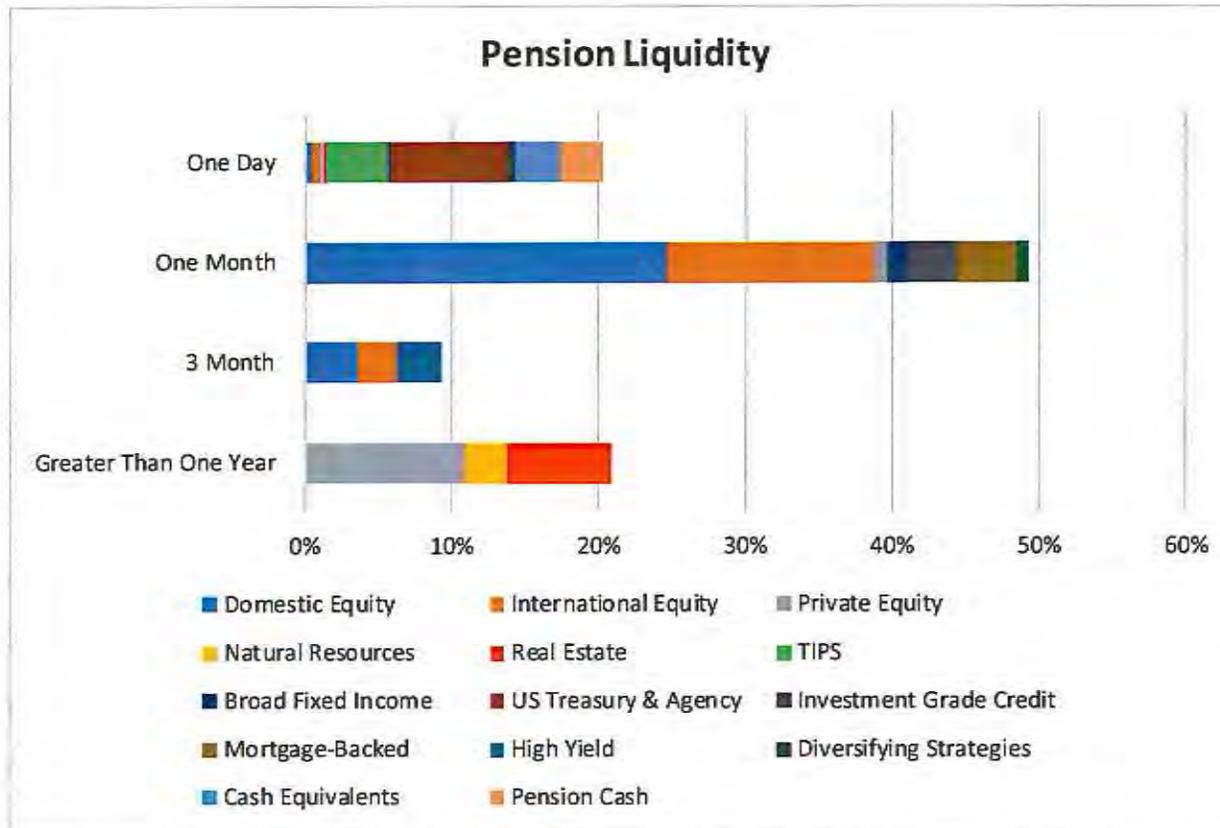
## Strategic focus during CIO recruitment will be:

- Analysis of adequate and advisable liquidity
- Better defining Diversifying Strategies asset class
- Asset Allocation recommendation for 2020 calendar year

## Tactical initiatives include:

- Continuing work toward enhancing Real Estate debt exposure in the portfolio
- Enhancing natural resource portfolio through addition of mitigation banking
- Due diligence and research into greater international private equity exposure



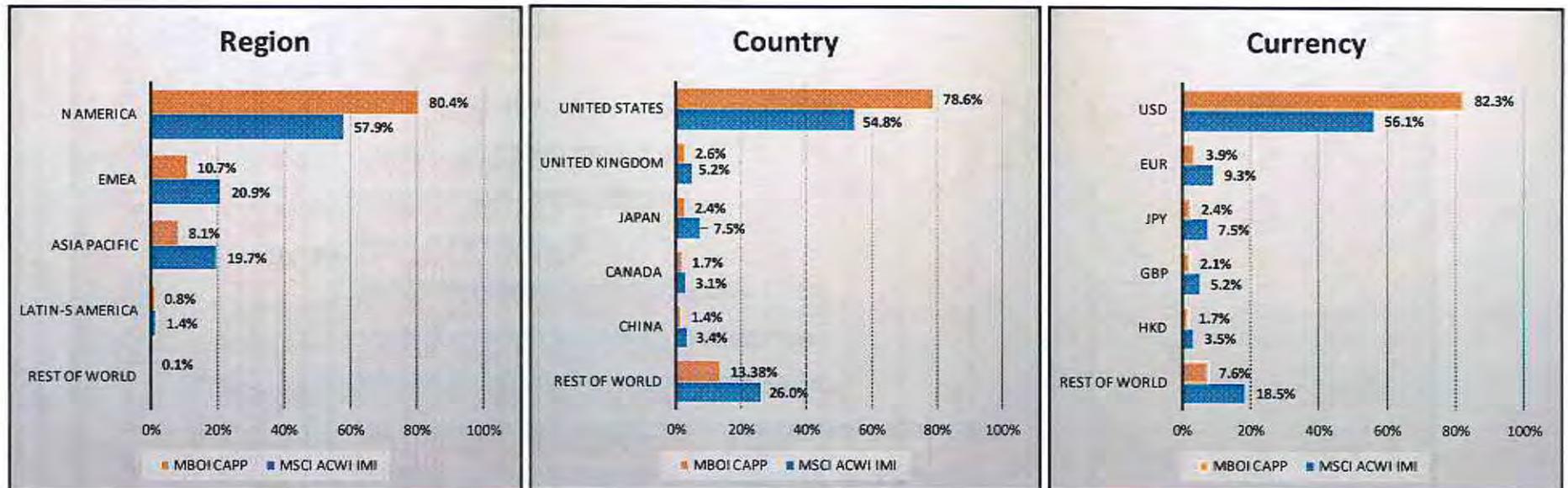


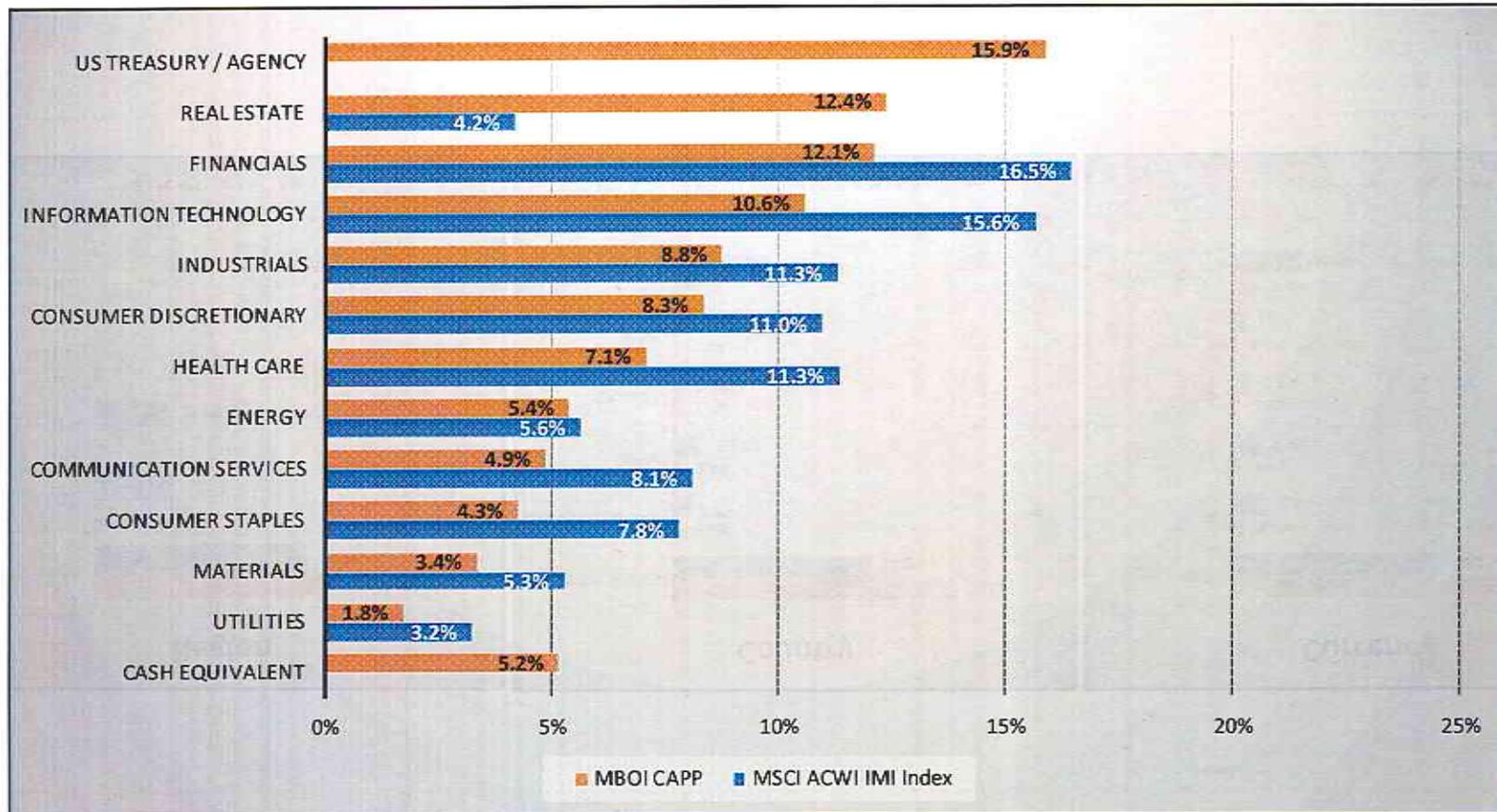
One Day = Treasuries/Gov't Agencies, TIPS, and Cash Equivalents at Pension Plan and CAPP level

One Month = Domestic and International Large Cap, Mid Cap Equities, ETFs, Investment Grade Fixed Income

Three Month = Domestic and International Small Cap Equities, Emerging Market Equities and High Yield Fixed Income

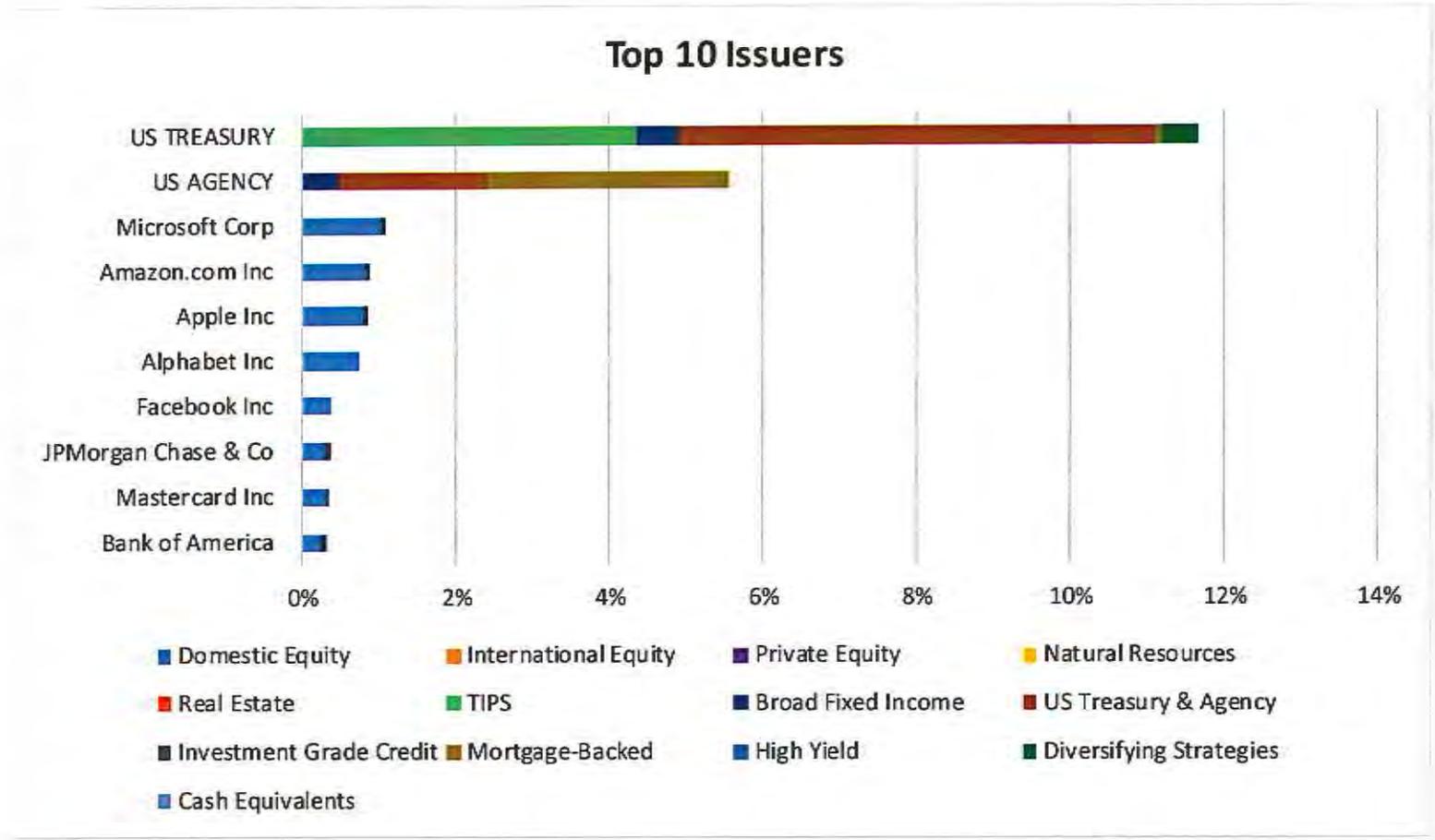
Greater Than One Year = Private Equity, Real Estate and Natural Resources



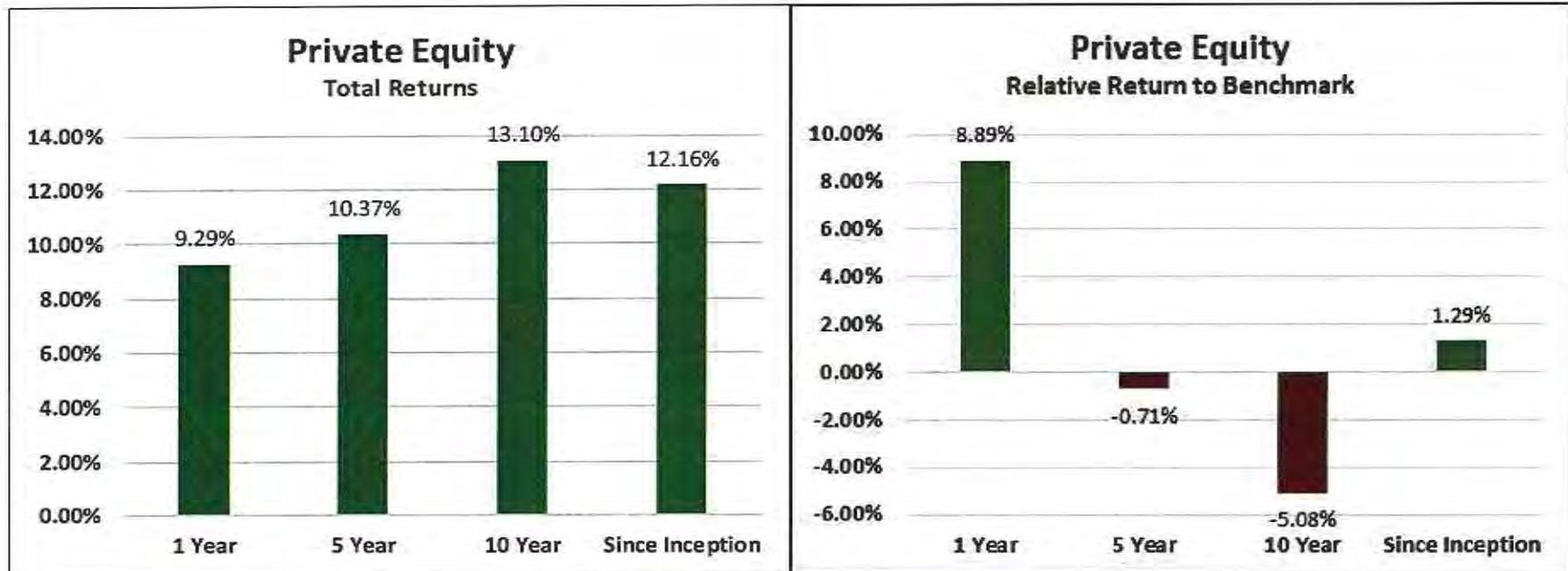




\*CAPP shall have no greater than 5% of its Net Asset Value managed by any one external manager using an active investment strategy



- Private equity deal making slowed in the first half of 2019 coming off a blistering hot 2018 which saw a record number of private equity-backed buyout deals completed.
- Valuations for buyouts in 2019 continues to climb into rarified air with a purchase price multiple of 10.9x EBITDA. The second quarter valuation marks eight consecutive quarters valuation increases.
- Leverage or debt usage for buyouts remains elevated as well at 6.2x EBITDA, coming in right at pre-GFC highs. The proliferation of covenant light loans remains concerning.
- Private equity dry powder continues to remain abundant with \$1.2 trillion held in private equity funds as of the second quarter.
- The private equity industry raised significant amount of capital through the second quarter. While the aggregate dollars raised was in line with previous periods, we are seeing a decrease in the number of funds closing.
- 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.



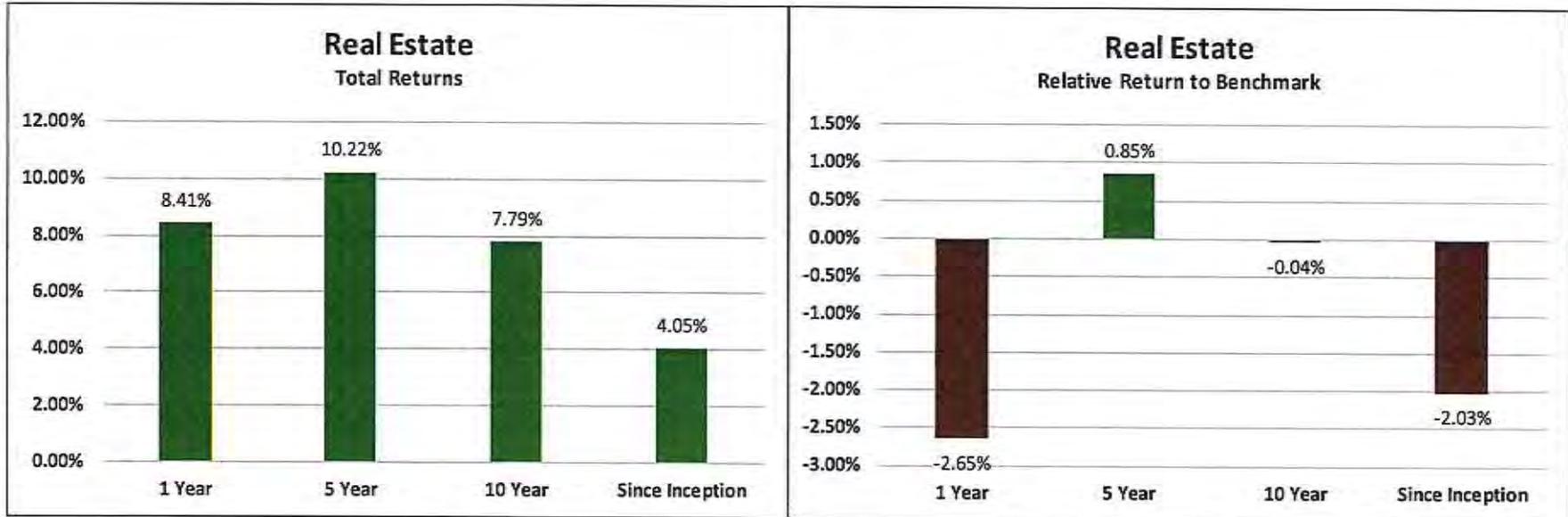
**Relevant Benchmark: Private Equity – PAC Custom Blend**

- 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

June 30, 2019

- Total Market Value of \$1.41 billion as of 6/30/19
- North American-centric at ~77%, ~14% 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, Asia exposure, and sector specialists
- Cash Flow Profile
  - Negative \$1.42 million for quarter ending 6/30/19
- Two new commitments during the recent quarter
  - Deerpath Capital Advantage V - \$50 million
  - Neuberger Berman Strategic Co-Investment Partners IV - \$30 million

- 
- US economy is on a stable footing, with a robust labor market, healthy levels of consumer spending and business inventories, all positive for real estate operating fundamentals which are slowing but still growing.
  - Real estate debt is still widely available and relatively low cost which continues to support the transactions markets and encourage development, but not an abundance of supply.
  - Total US commercial real estate sales volume was \$458B for the year ending March 2019, up slightly compared to the prior two 12-month periods.
  - Cap rates for US commercial real estate assets remain stable, attributed to a wall of domestic and global capital, steady economic growth and continued low interest rates.
  - The 2Q19 NCREIF return was modest with a total return of 1.51% vs. 1.80% in 1Q19, through 2Q19, the trailing four quarter total return was 6.51%.
  - REITs have enjoyed a very strong start to the year up nearly 15% year to date.
  - Real estate capital markets and fundamentals are expected to moderate over the next few years, overall expectations for 2019 and 2020 are flat to up slightly, moderating growth in GDP and jobs growth for 2019 to 2021 should lead to slower but still positive real estate demand and absorption.
  - 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 attract both domestic and foreign capital as the search for yield continues.
  - Real estate dry powder increased to \$345B through July 2019 up from \$306B year-end 2018.
  - Key takeaways – US economy is on stable footing with moderating but positive real estate fundamentals, debt markets are open, volumes are stable and remain high, pricing is holding, REITs performing well, continued moderation expected in coming years, fundraising is strong and dry powder is high.



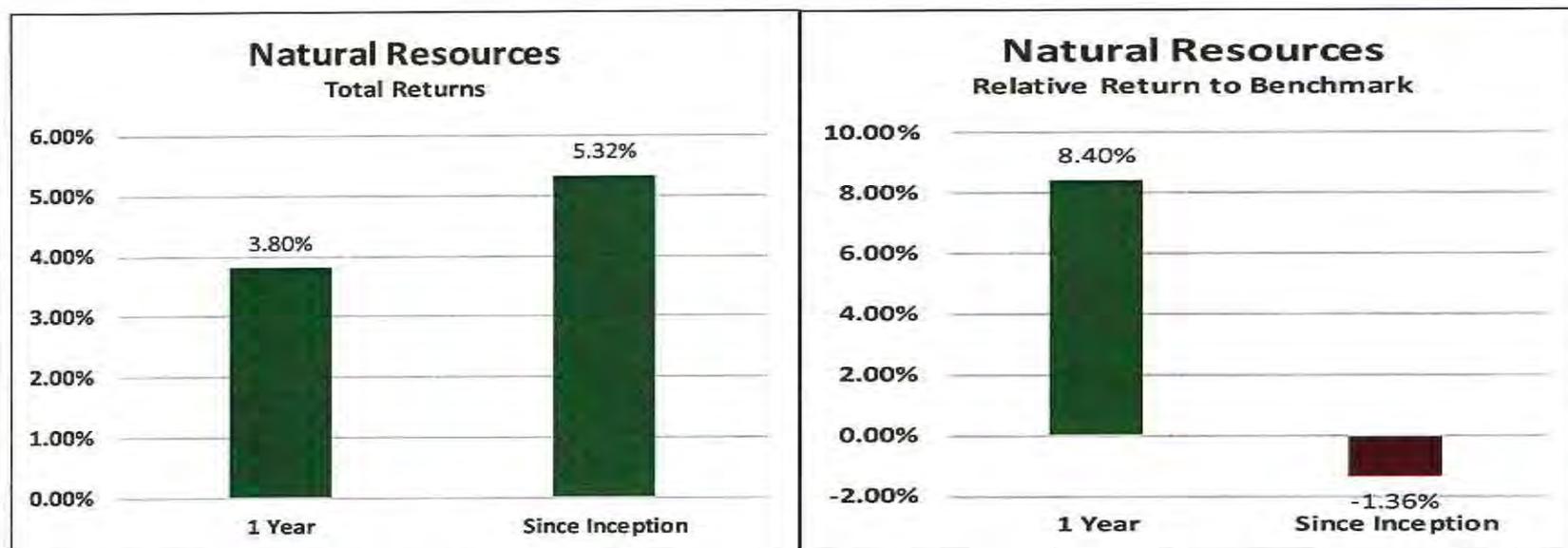
**Relevant Benchmark: Real Estate - PAC Custom Blend**

- 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

June 30, 2019

- Total Net Asset Value of approx. \$886M as of 6/30/19
- North American-centric, broadly diversified, less than 2% non-US
- Broadly diversified across property types
- Increased focus on property type specific operators
- Looking to add more real estate debt strategies, reduce core equity exposure, tactically add to existing REIT exposure
- Cash Flow Profile
  - Positive \$32M for quarter ending 6/30/19
- New commitments
  - \$30M commitment to CBRE Strategic Partners US 9, LP
- Total Leverage – 47% as of 3/31/19
  - Core – 19%
  - Non-Core – 62%
    - Value Add – 64%
    - Opportunistic – 49%

- Oil prices have slumped, but still up YTD and down on a year over year basis.
- OPEC decided to extend production limits for an extra 9 months until March 2020.
- US continues to grow oil exports, remains world's largest producer.
- US gas market depressed, world demand strong but US short on export capacity.
- MLP fundamentals remain intact with growing production, strong volumes, high capacity utilization and strong balance sheets.
- Sawlog prices have fallen in the PNW over the past six months as lumber demand fell in the domestic market, lumber prices in April reached their lowest levels in over four years, prices in the US South have seen some recovery.
- US homebuilding fell for a second straight month in June and permits dropped to a two-year low, suggesting the housing market continued to struggle despite declining mortgage rates.
- 34 natural resource-oriented funds reached a final close year to date 2019, raising a total of \$28.3B.
- Natural resource-oriented funds dry powder decreased to \$54B year to date through July.
- Key takeaways – Recovery continues, OPEC remains disciplined, US production continues to grow alongside global demand, the fundamental outlook for MLPs looks strong, timber/lumber prices are mixed but remain depressed overall, the housing market is off, fundraising market and dry powder continue at healthy levels.



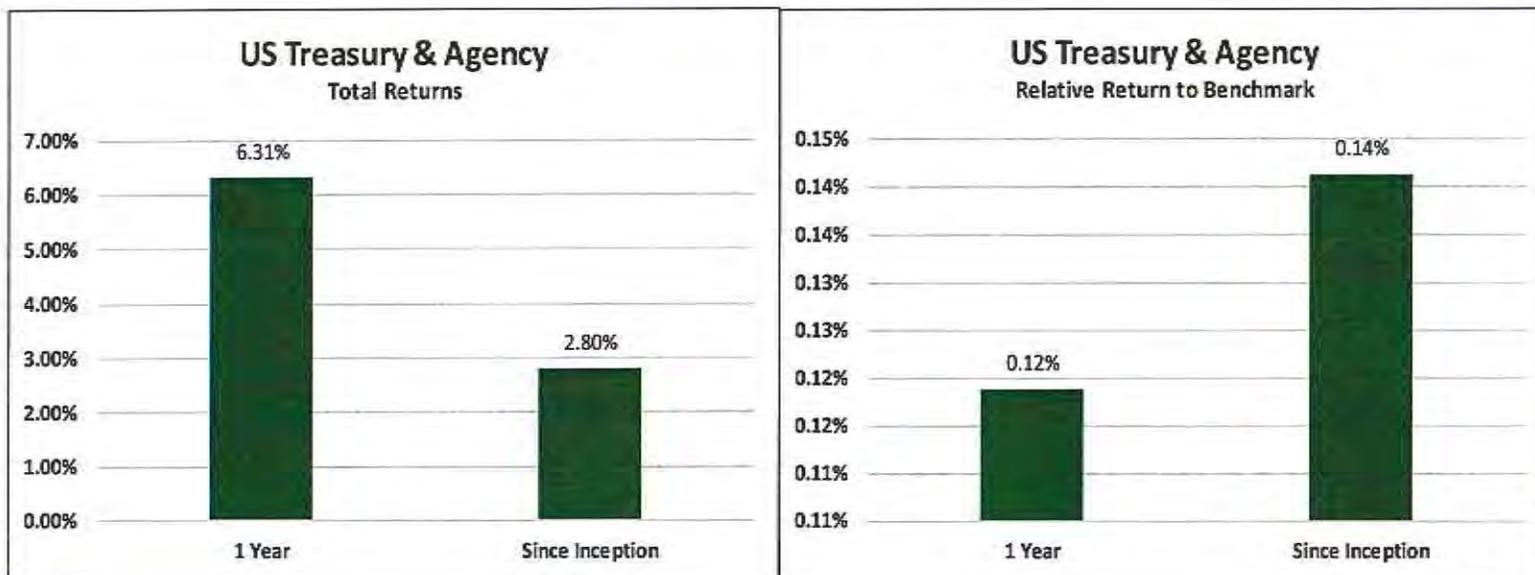
Relevant Benchmark: Natural Resources – MSCI AC World Commodity Producers Net Index

- Inception – 4/1/2017

- 
- Total Net Asset Value of Natural Resources - \$344M as of 6/30/19
    - Total Net Asset Value of Energy Portfolio - \$236M as of 6/30/19
    - Total Net Asset Value of Timberland Portfolio - \$108M as of 6/30/19
  - Both the energy and timber 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
  - Potential to add direct lending; continuing to explore other types of strategies for the asset class to further diversify and gain new exposures
  - Cash Flow Profile
    - Positive \$2M for quarter ending 6/30/19
  - Timber Portfolio Total Leverage – 5.96% as of 3/31/19

- The U.S. Treasury curve remained relatively flat over the last year. The front end of the curve inverted at the beginning of 2019.
- The Federal Reserve has shifted from raising interest rates to cutting rates as they become more concerned about global growth.
- The market expects the Federal Reserve to cut interest rates at least one more time in 2019.
- Headline inflation fell below 2% starting in December driven by lower energy prices. Core inflation has also been slipping but Core CPI was at 2.1% in June.
- Spreads on risk assets stayed in a relatively tight range the last 5 months ending the quarter below the 5 year average in corporates and agencies.

- Intermediate Corporate (+8.66%) was the best performing sector over the year and Intermediate TIPS (+4.77%) was the worst performing sector.
- Bond market liquidity remained healthy throughout the year. Investment Grade market volume as measured by FINRA (Financial Industry Regulatory Authority) averaged \$19.1B/day vs. the 5-year average of \$16.1B/day.
- Total investment grade corporate issuance was \$1.16T vs. \$1.39T the prior year.
- The Federal Reserve announced at the July meeting that it will cease reduction of its balance sheet in August. Principal payments on MBS of up to \$20B/month will be reinvested in Treasuries as the Federal Reserve seeks to hold primarily Treasuries.



Benchmark: Bloomberg Barclays US Intermediate Treasury Index

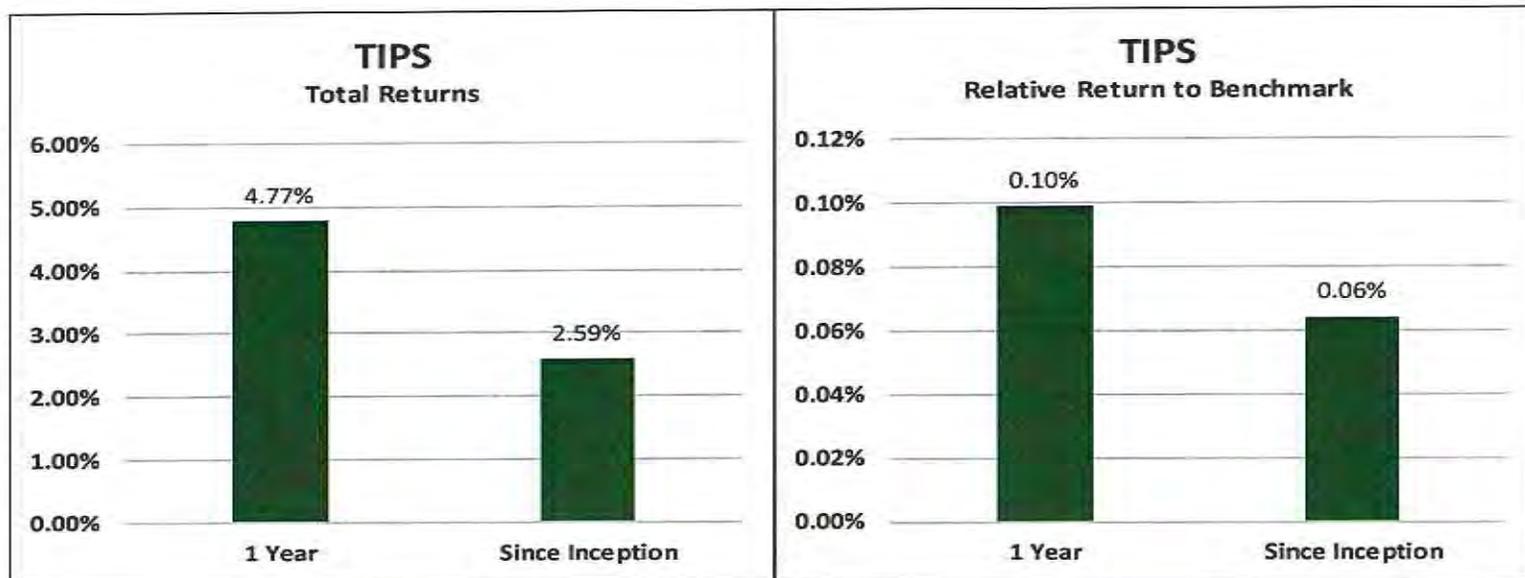
- Inception – 4/1/2017

### **Performance**

- Positive total return for the year of 6.31% driven by coupon payments and substantially lower interest rates.
- Outperformed benchmark by 12 bps over the year, net of fees.

### **Characteristics and Activity**

- Total market value of approx. \$955M at quarter end. Reduced the portfolio by \$50M during the quarter.
- Duration was slightly below the benchmark at quarter end.
- Portfolio was slightly underweight the 2-3 year portion of the curve relative to the benchmark at quarter end.
- US Agency CMBS and US Agency securities were slightly above the middle of the range relative to guidelines at quarter end.



Benchmark: Bloomberg Barclays US Intermediate TIPS Index

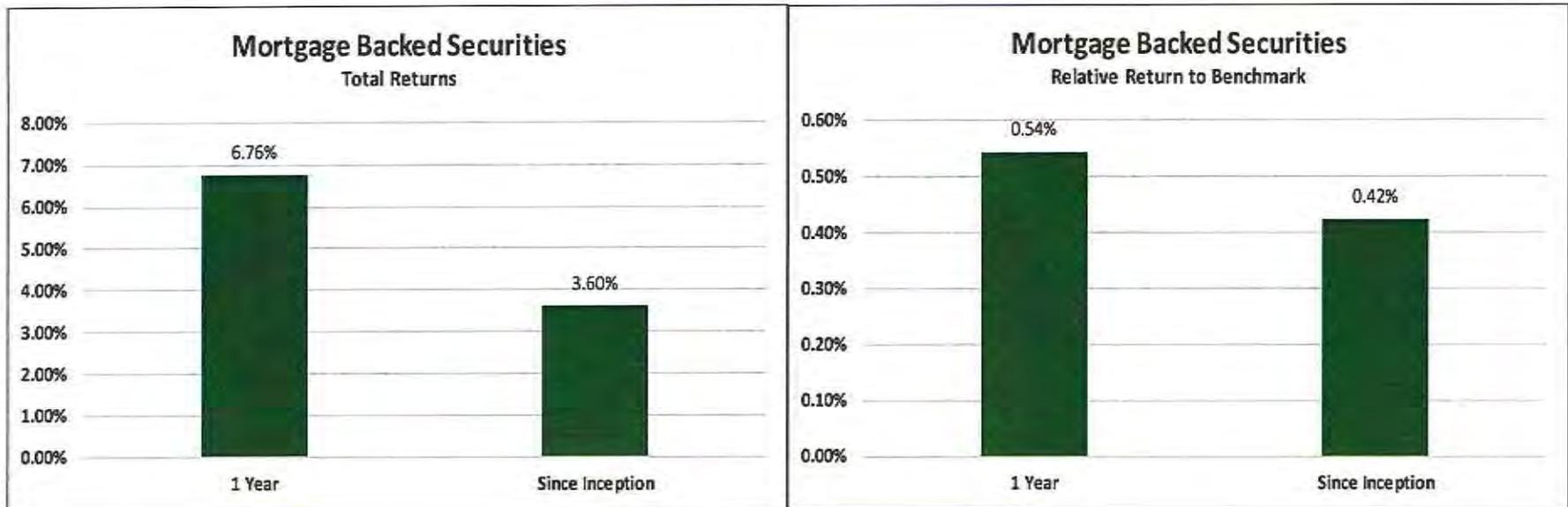
- Inception – 4/1/2017

**Performance**

- Positive total return for the year of 4.77% driven by lower interest rates but offset by lower inflation expectations.
- Outperformed benchmark by 10 bps over the year, net of fees.

**Characteristics and Activity**

- Total market value of approx. \$507M at quarter end. Added \$50M to the portfolio during the quarter.
- 10-year breakeven inflation level dropped to 1.70% at quarter end.
- No significant deviation from the benchmark characteristics.



Benchmark: Bloomberg Barclays US MBS Index

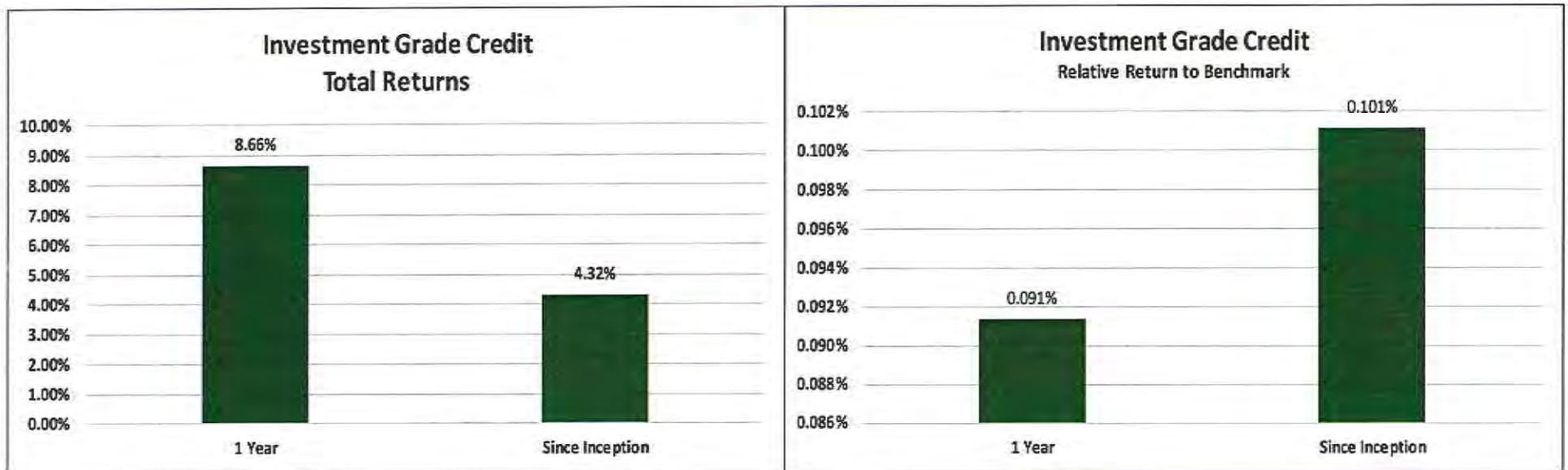
- Inception – 4/1/2017

### **Performance**

- Positive total return for the year of 6.76% driven by coupon payments, and lower interest rates.
- Outperformed benchmark by 54 bps over the year, net of fees.

### **Characteristics and Activity**

- Total market value of approx. \$463M at quarter end.
- Duration was modestly above the benchmark at quarter end.
- Significantly overweight 20 year MBS and underweight 15 and 30 year MBS versus the benchmark during the year.
- The portfolio was toward the top of the range in Non-Agency CMBS relative to guidelines at quarter end.



Benchmark: Bloomberg Barclays Intermediate Corporate Index

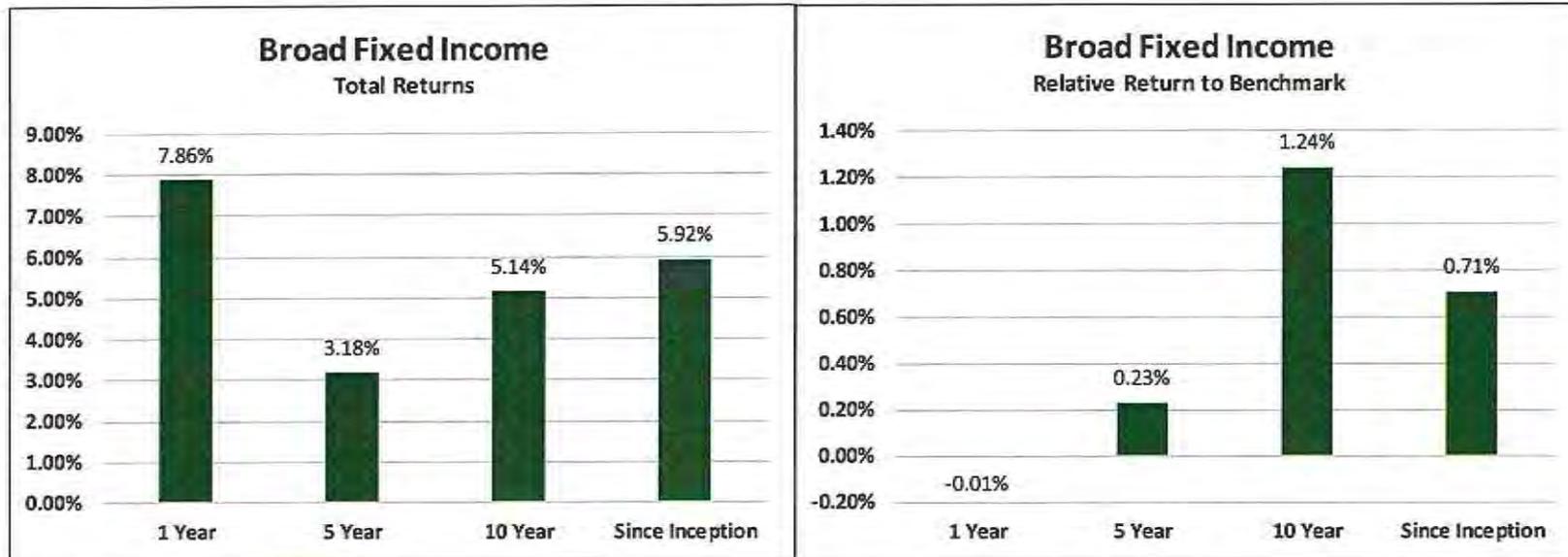
- Inception – 4/1/2017

## **Performance**

- Positive total return for the year of 8.66% driven by coupon payments, lower interest rates and slightly tighter spreads.
- Outperformed benchmark by 9 bps over the year, net of fees.

## **Characteristics and Activity**

- Total market value of approx. \$414M at quarter end.
- Duration was neutral to the benchmark at quarter end.
- Portfolio was overweight the 5-7 year portion of the curve and underweight the wings relative to the benchmark at quarter end.
- Overweight Financials and ABS, underweight Industrials and Utilities at quarter end.
- Maintained our bias toward higher quality holdings versus the benchmark.



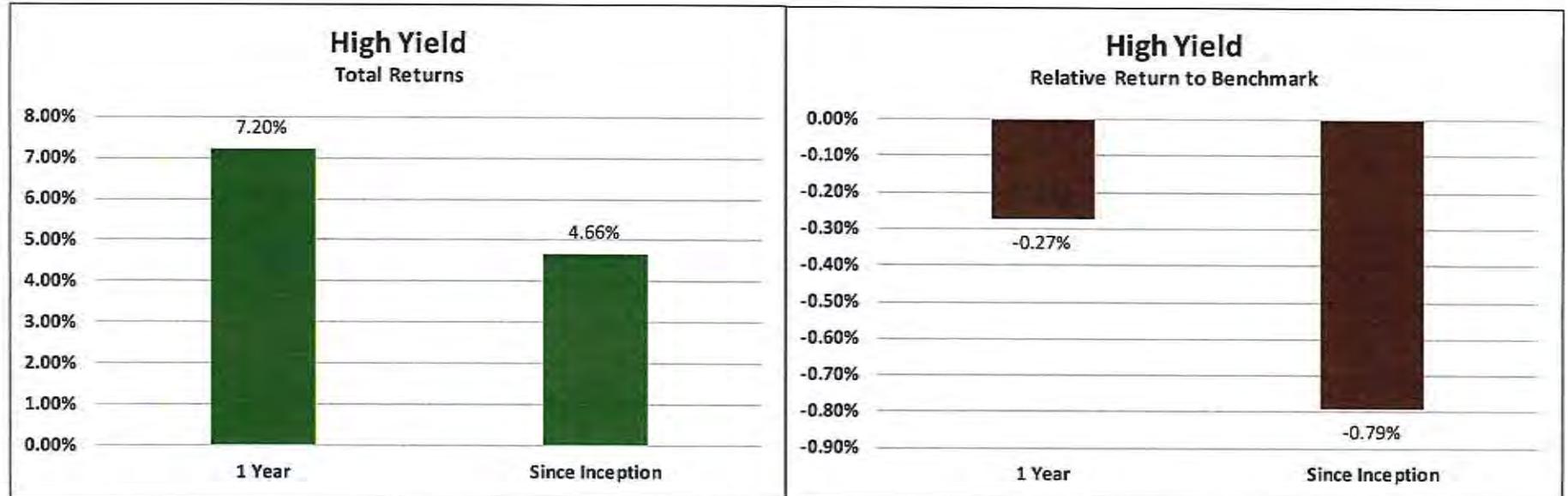
**Benchmark: Broad Fixed Income – PAC Custom Blend**

- Bloomberg Barclays US Aggregate
- Inception Date: 4/1/1997

June 30, 2019

- The Broad Fixed Income asset class performance since April 1, 2017 includes only the external fixed income manager, Reams.
- For the quarter, the Broad Fixed Income asset class underperformed its benchmark by -16 basis points. Overall the attribution showed small positives and negatives in most areas. The most significant being that the positive effect of the underweight in corporates was offset by the negative impact of security selection within that sector.
- For the last twelve months, the asset class performed in line with its benchmark.

- Recall that the portfolio had been carrying a large overweight in US Treasuries for several quarters. This position was reversed with a large move out of Treasuries into MBS. The result was a change from an 8.5% overweight Treasuries to a 5.6% underweight, and a 1.6% underweight in MBS to a 13.3% overweight.
- Duration dropped to a significant underweight compared to the benchmark, but this was largely a transitory effect of the change in positioning discussed above. Since the end of the quarter the portfolio duration has moved back to slightly below the benchmark duration.
- The asset class has outperformed over the 5 year and 10 year periods ended June 30.
- There were no flows into or out of the asset class during the quarter.



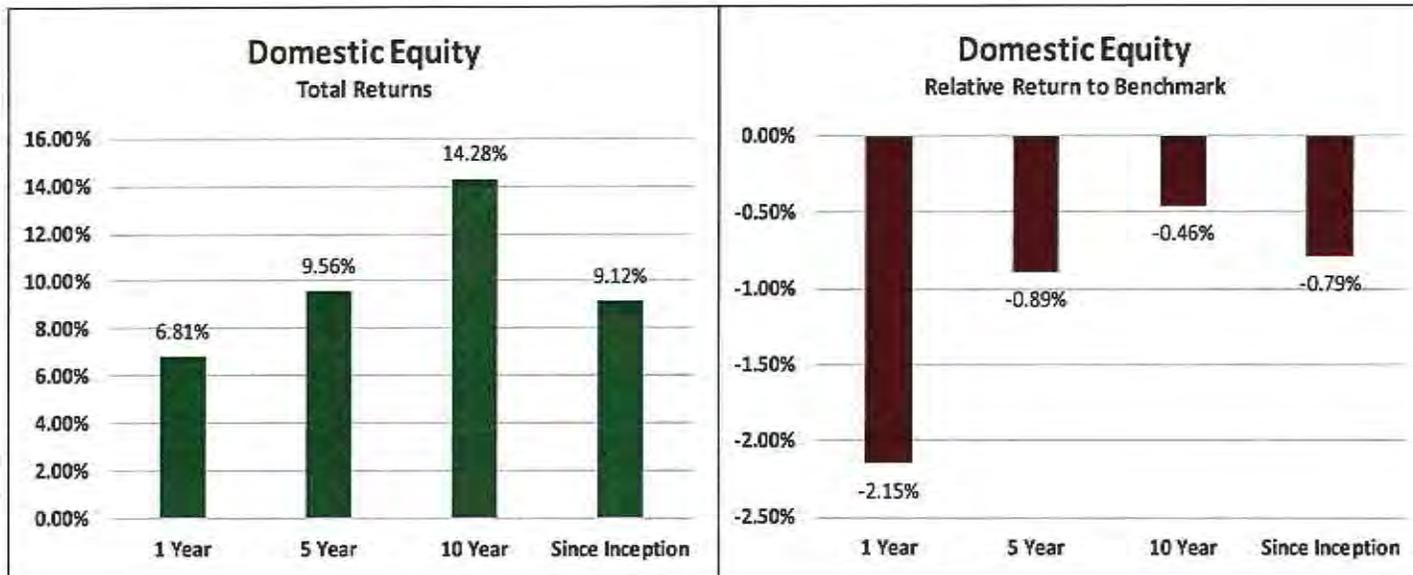
Benchmark: Bloomberg Barclays US High Yield – 2% Issuer Cap

- Inception Date: 4/1/2017

June 30, 2019

- 
- High yield spreads ended the quarter where they started, after blowing out to 440+ at the end of May.
  - The Fed continued its rhetoric on lowering interest rates in 2019 which has been a positive for the high yield market in general.
  - Default rates still remain well below long-term averages. How tariff disputes will impact high yield issuers as a whole is still uncertain.
  - High yield spreads and are still near historical tights at 370+ Treasuries.

- The Post portfolio was terminated in the quarter with proceeds moving to the Shenkman and Oaktree portfolios. This move affected both the CAPP and the Trust Fund Investment Pool.
- The defensive positioning within the high yield asset class remains despite the consolidation to three portfolios following the termination discussed above.
- Recall that by design, the high yield asset class at MBOI carries a significant weighting in downside-protecting portfolios.
- Duration of the high yield 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 high yield asset class underperformed by -2 basis points for the quarter.
- For the last twelve months ended June 30, the asset class underperformed by -27 basis points.

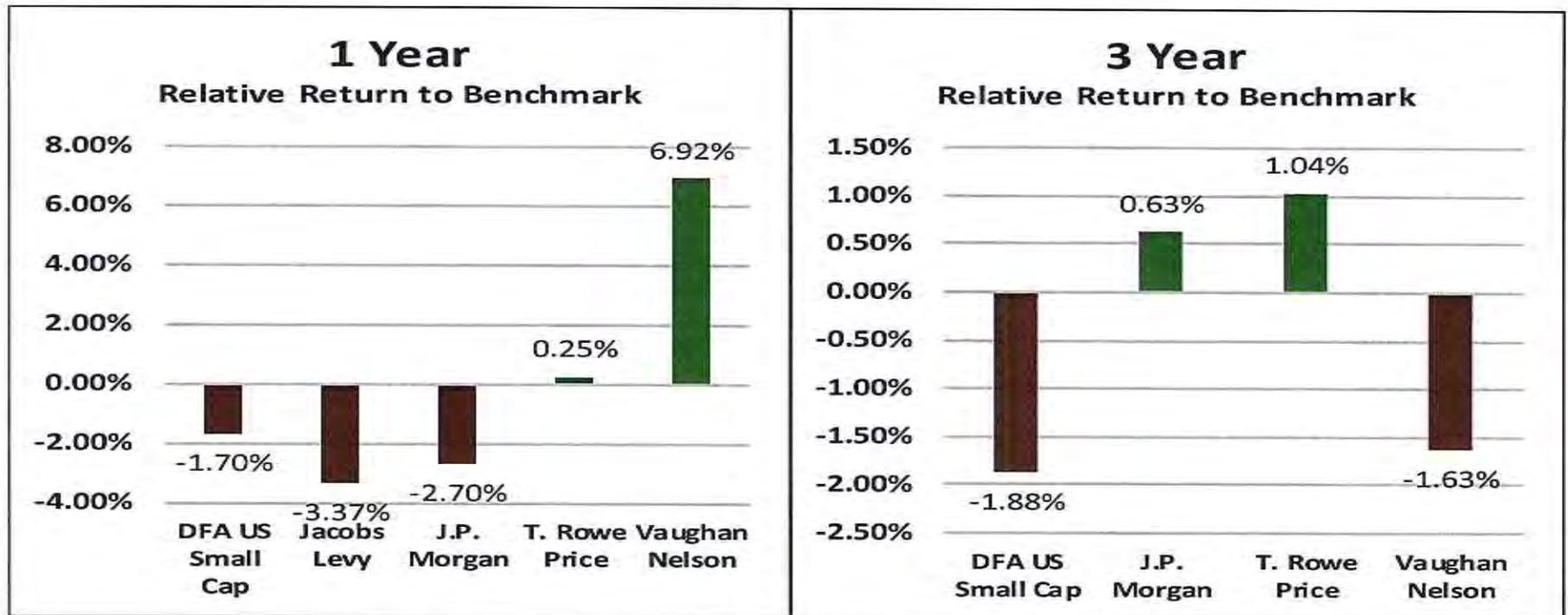


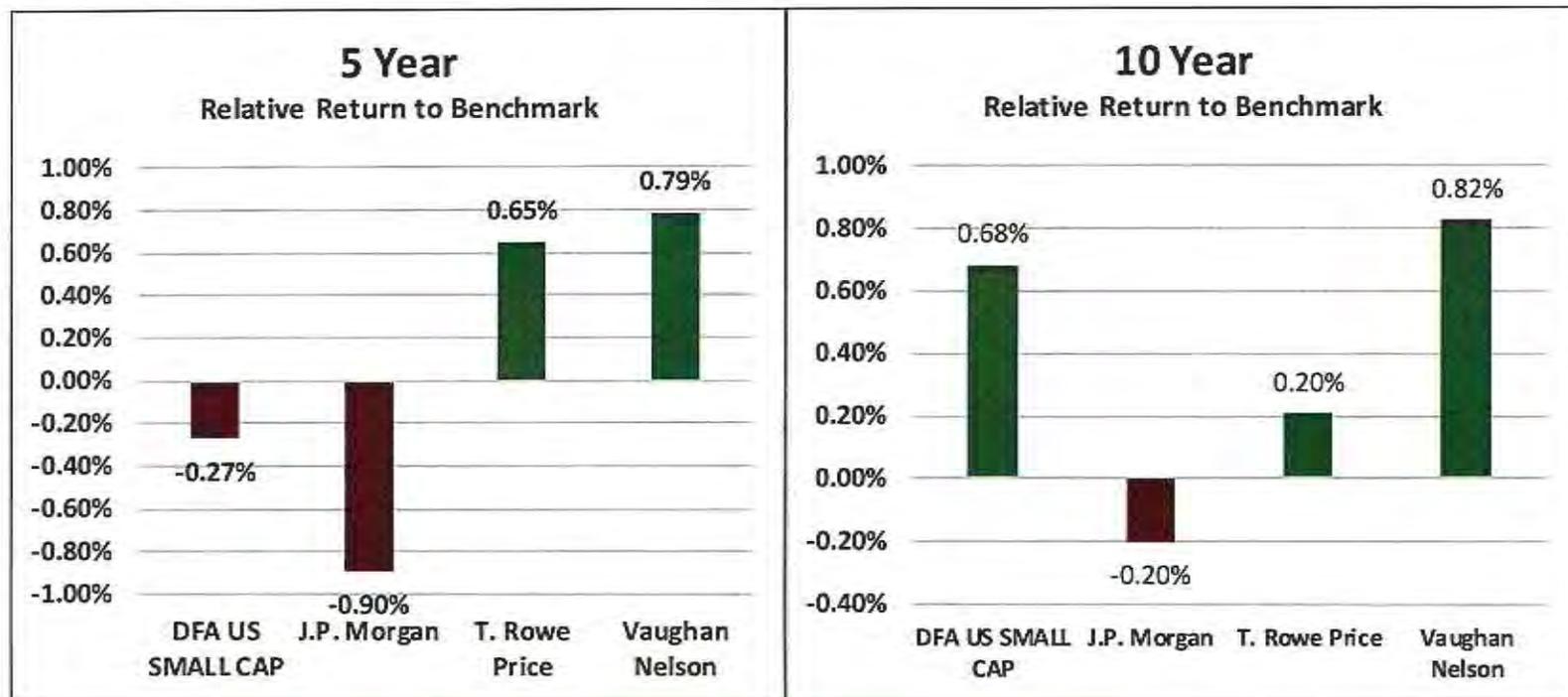
**Benchmark: Domestic Equity – PAC Custom Blend**

- 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

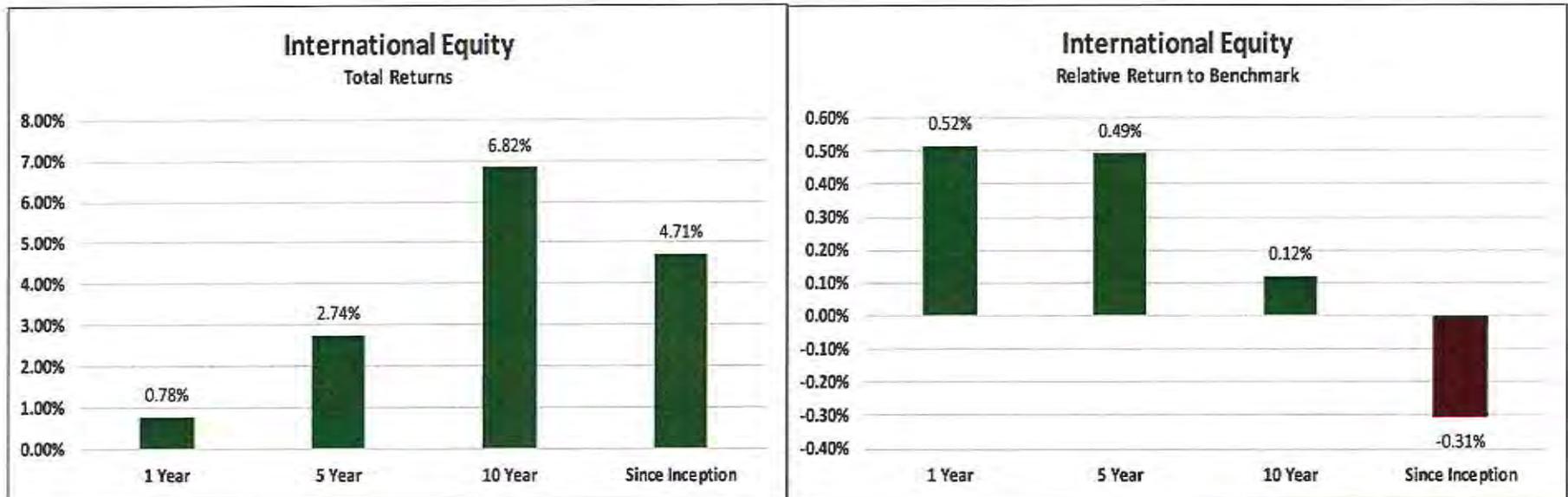
- US equities tacked on further returns to the rally that has persisted since the December lows, although the most recent returns have occurred within a more volatile trading environment.
- The macro factors that have influenced the market for the past several quarters continued to drive investor sentiment. The China trade dispute ebbed and flowed with comments and meetings while the Fed continued to moderately confuse the markets with its rhetoric.
- The bottom line appears to be that the trade dispute will be here in at least some form for the foreseeable future and the Fed is in an easing mode given slowing economic growth and the headwinds of tariffs.
- Large cap stocks produced gains far greater than small cap stocks as the market prefers safety as it deals with the macro uncertainties. This is evident in the large cap indices which have moved to new highs while the small cap indices have yet to return to the highs of last fall.
- At the end of June, the S&P 500 Index was valued at 17.1x estimated next 12-month earnings.

- The domestic equities asset class underperformed its benchmark during the quarter by -7 basis points, and lagged for the last twelve months by -215 basis points.
- For the quarter and last twelve months, size allocation (overweight to small-cap stocks) detracted from performance as the large cap stocks generated returns significantly greater than the small cap stocks. Manager selection was a detractor as well although not as much as the size allocation. Basically it was a perfect storm for the domestic equities asset class for the last twelve months in particular.
- The asset class has lagged its benchmark for the 1 year, 5 year, and 10 year periods ended June 30.





- Index funds account for the majority of allocation to large-cap stocks.
- Small-cap stocks remain overweight relative to the benchmark at 14.9% of the pool.
- Cash at the asset class level is 1.7%.
- The structure of the domestic equities asset class reflects the changes in the manager lineup that occurred in April. Recall that five managers were terminated and one was downsized as part of a restructuring of the asset class.



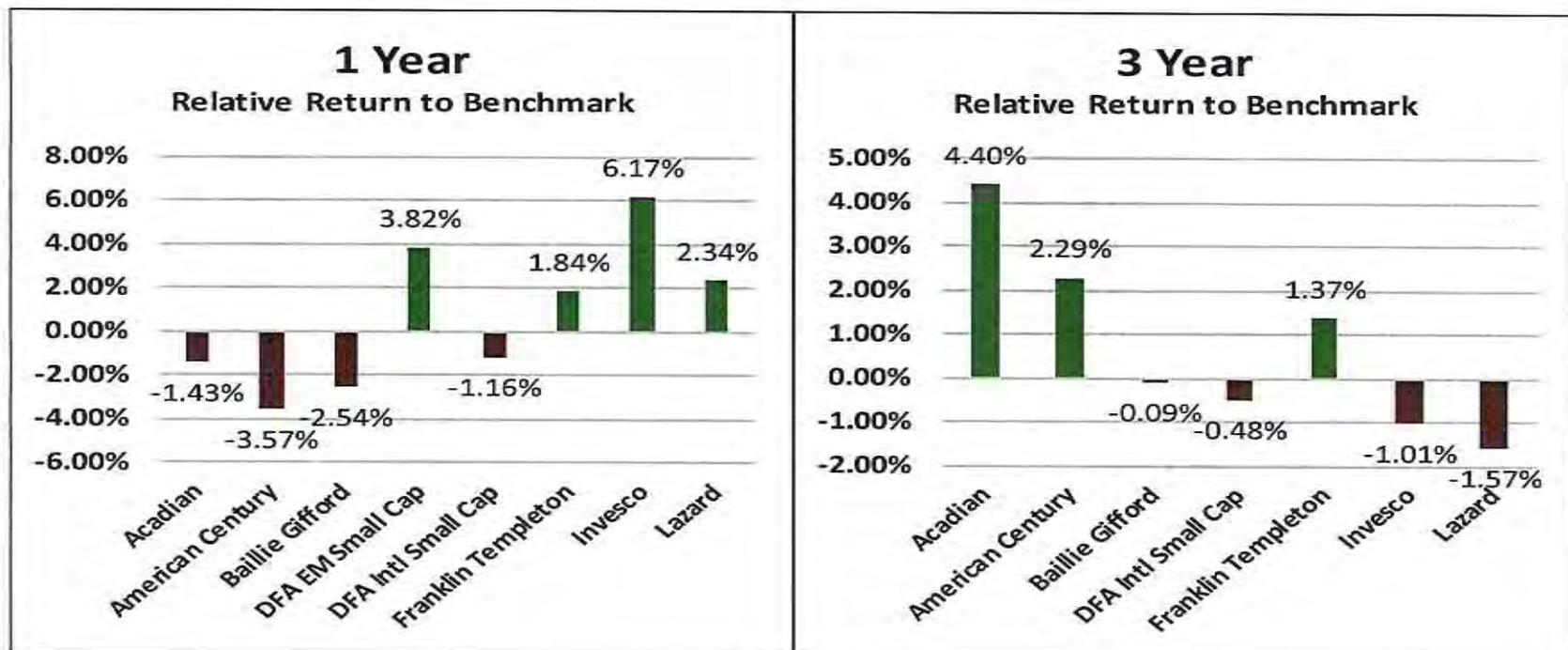
**Benchmark: International Equity – PAC Custom Blend**

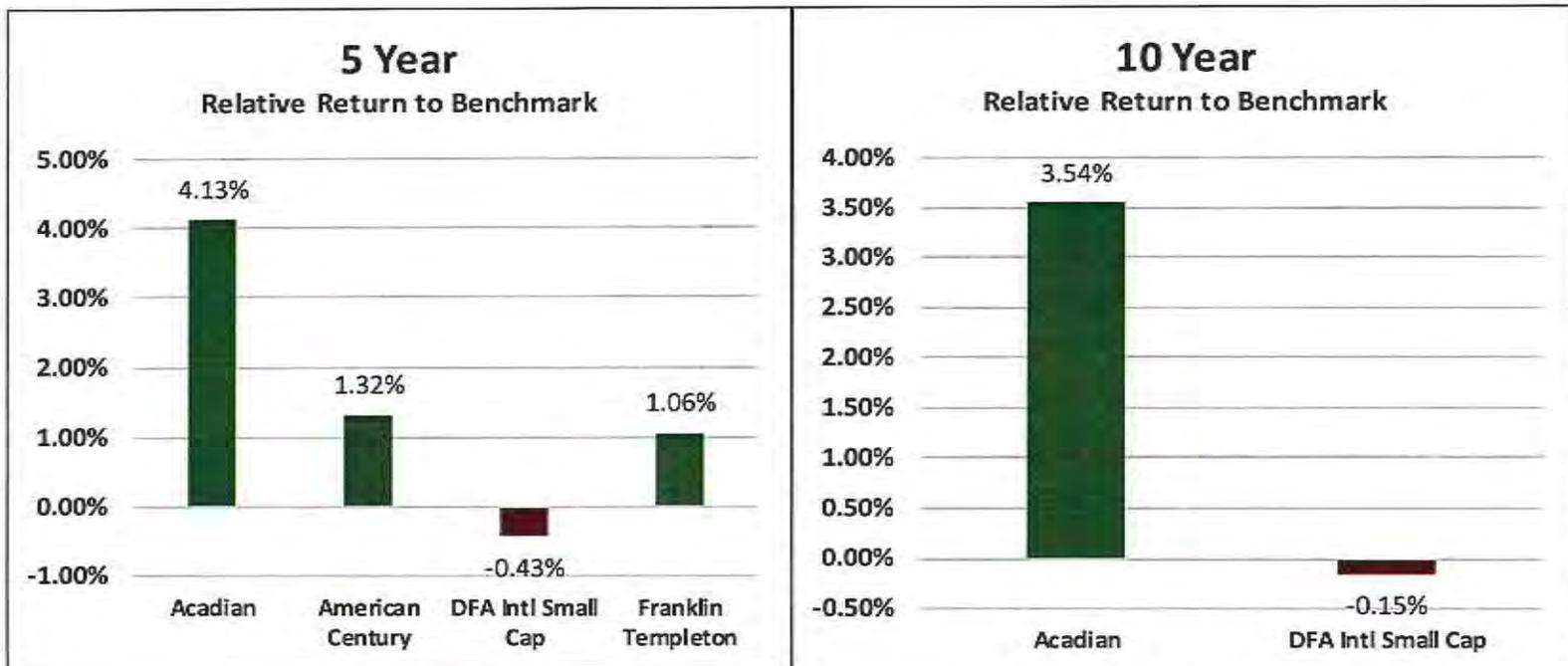
- From inception to 10/31/2006: MSCI EAFE, Net
- 11/1/2006 to 6/30/2007: MSCI ACWI ex-US, Net
- 7/1/2007 to 2/28/2014: 92.5% ACWI ex-US + 7.5% ACWI ex-US Small Cap
- 3/1/2014 to present: MSCI ACWI ex-US IMI, Net
- Inception Date: 4/1/1997

June 30, 2019

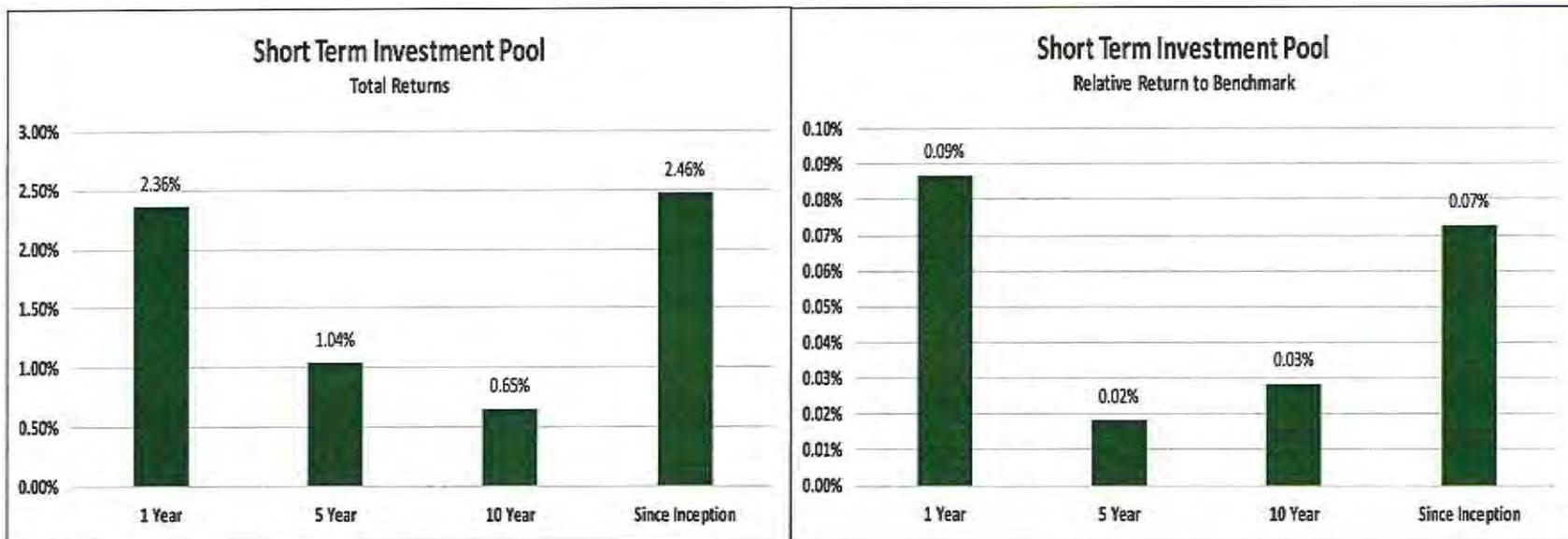
- International stocks moved higher in the quarter, yet still lagged the performance of US stocks.
- The international economies as a whole are not providing the growth or safety of the US economy at this point in the cycle and investors continue to be largely aware of the difference. At this point the international markets are cheap on a relative basis but they have issues that will most likely not be resolved soon.
- Emerging markets provide much of the growth investors seek abroad but those markets are heavily influenced by China's economic activity which has slowed and is at some risk due to the tariff dispute with the US.
- The dollar has remained relatively strong which has not helped the relative returns of stocks held in the local currencies by US investors.

- At quarter end, the MSCI World ex-US Index (developed markets) was valued at 13.4x estimated next 12-month earnings, while the MSCI Emerging Markets Index was valued at 11.7x estimated next 12-month earnings.
- The international equities asset class outperformed its benchmark during the quarter by 57 basis points and outperformed for the last twelve months by 52 basis points.
- Size allocation (overweight to small-cap stocks) and manager selection were additive for the performance of the international equities asset class in the quarter and for the last twelve months.
- The asset class has outperformed its benchmark for the 1 year, 5 year, and 10 year periods ended June 30.





- The large-cap allocation retains a significant weight to index funds.
- Small-capitalization stocks remain overweight relative to the benchmark at 15.1%.
- There is a slight underweight to emerging markets.
- Cash at the asset class level is 2.5%.
- Staff continues to be in the final stages of selecting a partial long/short manager.
- There were no cash flows into or out of the asset class during the quarter. And there were no changes in the manager lineup.



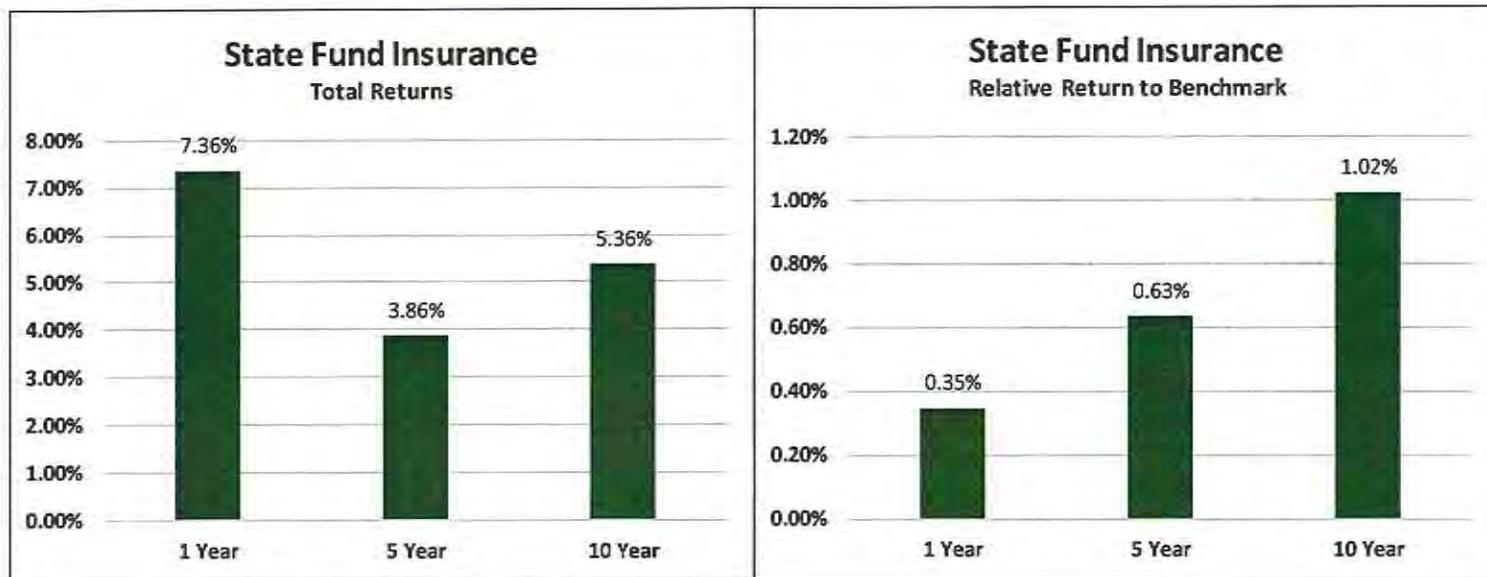
**Relevant Benchmark:** From inception to 4/30/2018: LIBOR 1 Month  
 5/1/2018 to present: Federal Reserve US Treasury 1M Constant Maturity Index  
 • Inception – 4/1/1997

## **Performance**

- The yield on STIP was 2.41% at the end of June.
- Out performed the index by 9 bps over the year, net of fees.
- Good performance versus the index over 3, 5 & 10 years.

## **Characteristics & Activity**

- Treasuries, Agencies and Government money market funds made up just over 40% of the Pool on 06/30/19, up from the prior year.
- Local Government participants' percentage was 35% on 06/30/19, down slightly from the prior year.
- The STIP assets were \$3.93 billion on 06/30/2019 up \$625 million over the last 12 months.
- The STIP reserve was \$47.5 million on 06/30/19 up \$15.1 million over the last twelve months.



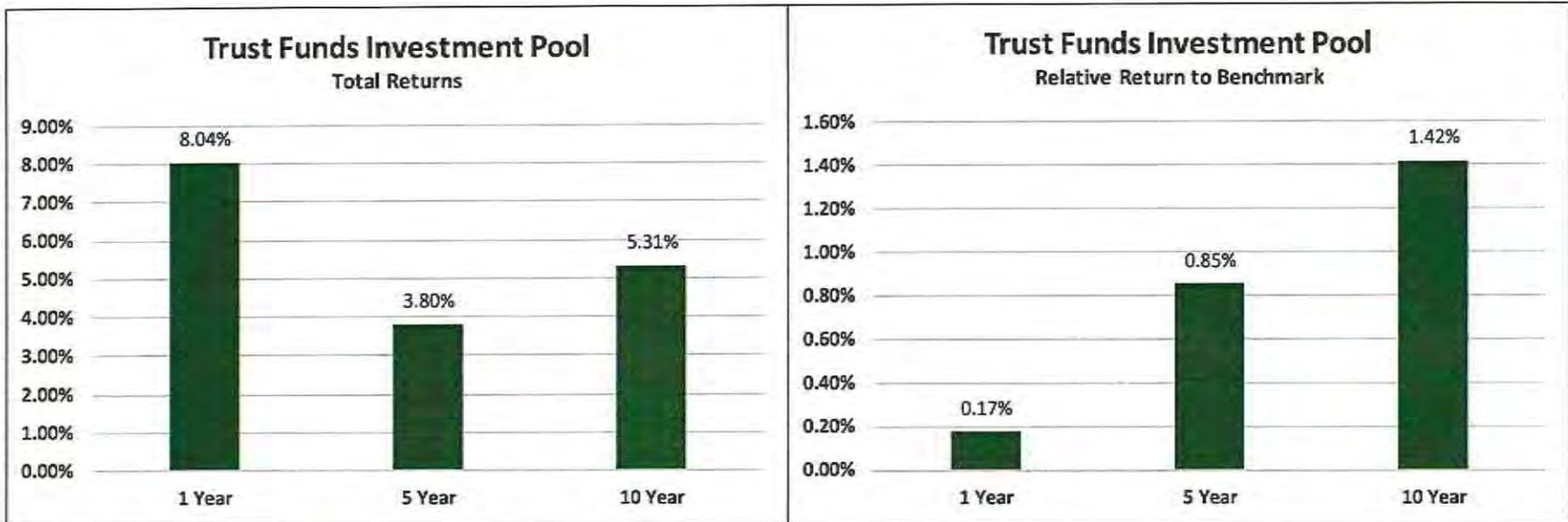
Relevant Benchmark: State Fund Custom Benchmark: Proportionately weighted Bloomberg Barclays Int. U.S. Govt. Credit Bond Index, S&P 500 Index, MSCI ACWI ex U.S. Index, NCREIF ODCCE Index

### **Performance**

- Total portfolio return was 7.36% for the year. Equity returns led the way followed closely by fixed income and real estate.
- Solid performance over every time frame vs. the benchmark.
- Total portfolio outperformed the benchmark by 35 bps and bond portfolio outperformed the benchmark by 36 bps over the year.

### **Characteristics & Activity**

- Total market value of approx. \$1.51B at quarter end.
- Decreased core real estate by approx. \$3M during the quarter.
- Duration was slightly below the benchmark at quarter end.
- Maintained our overweight to spread product with a bias toward higher quality corporates and AAA securitized bonds.



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

### **Performance**

- Good returns from investment grade bonds, high yield and real estate resulted in relative outperformance for the year.
- Solid performance over every time frame versus the benchmark.
- Total portfolio outperformed the benchmark by 17 bps and the internal bond portfolio outperformed the benchmark by 38 bps.

### **Characteristics & Activity**

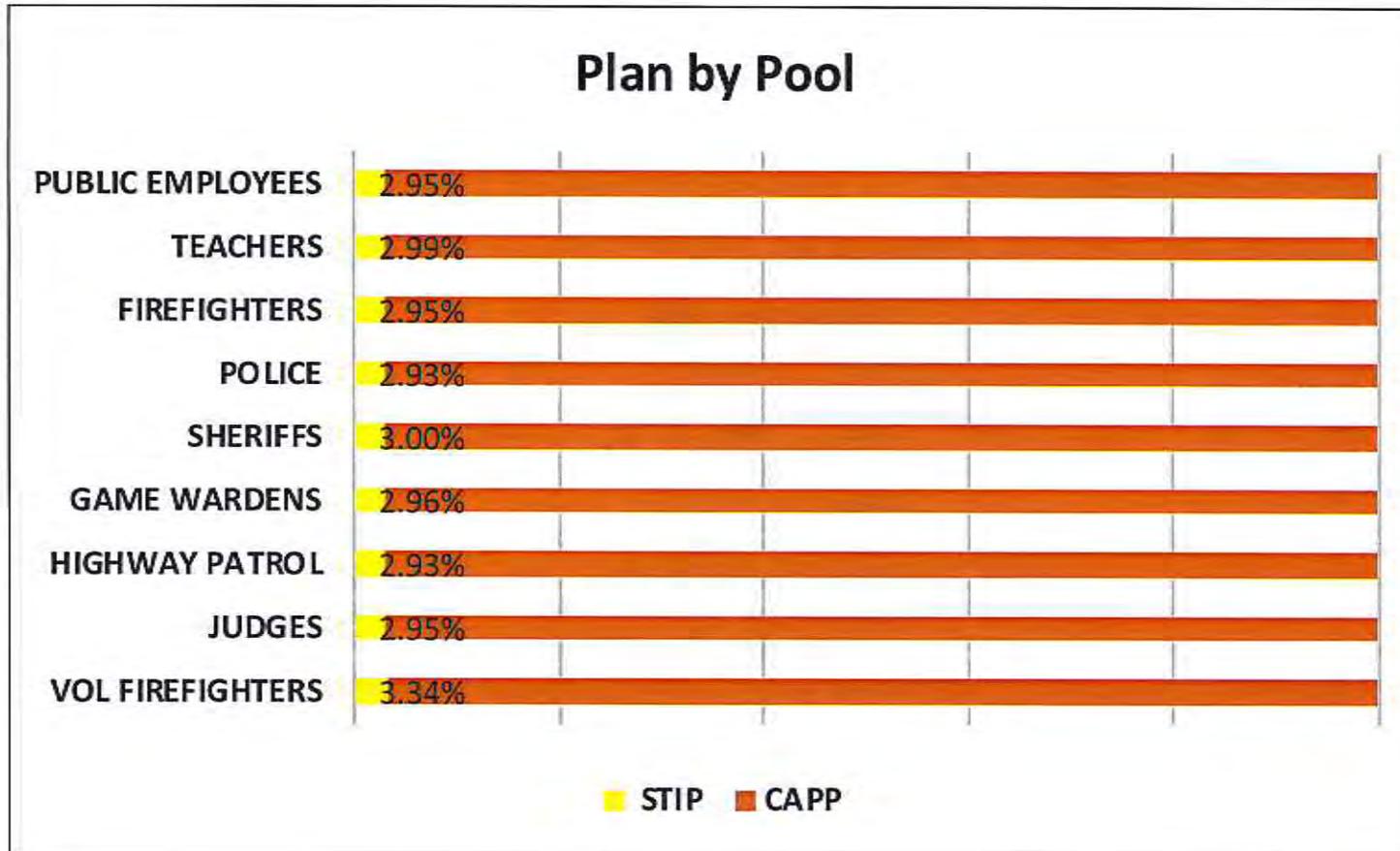
- Total market value of approx. \$2.51B at quarter end.
- No change to high yield allocation during the year.
- Decreased core real estate by approx. \$6M during the quarter.
- TFBP duration was slightly below the benchmark at quarter end. Significantly underweight the long end of the curve.
- TFBP maintained overweight to Corporates, CMBS and ABS and underweight to Treasuries and MBS.

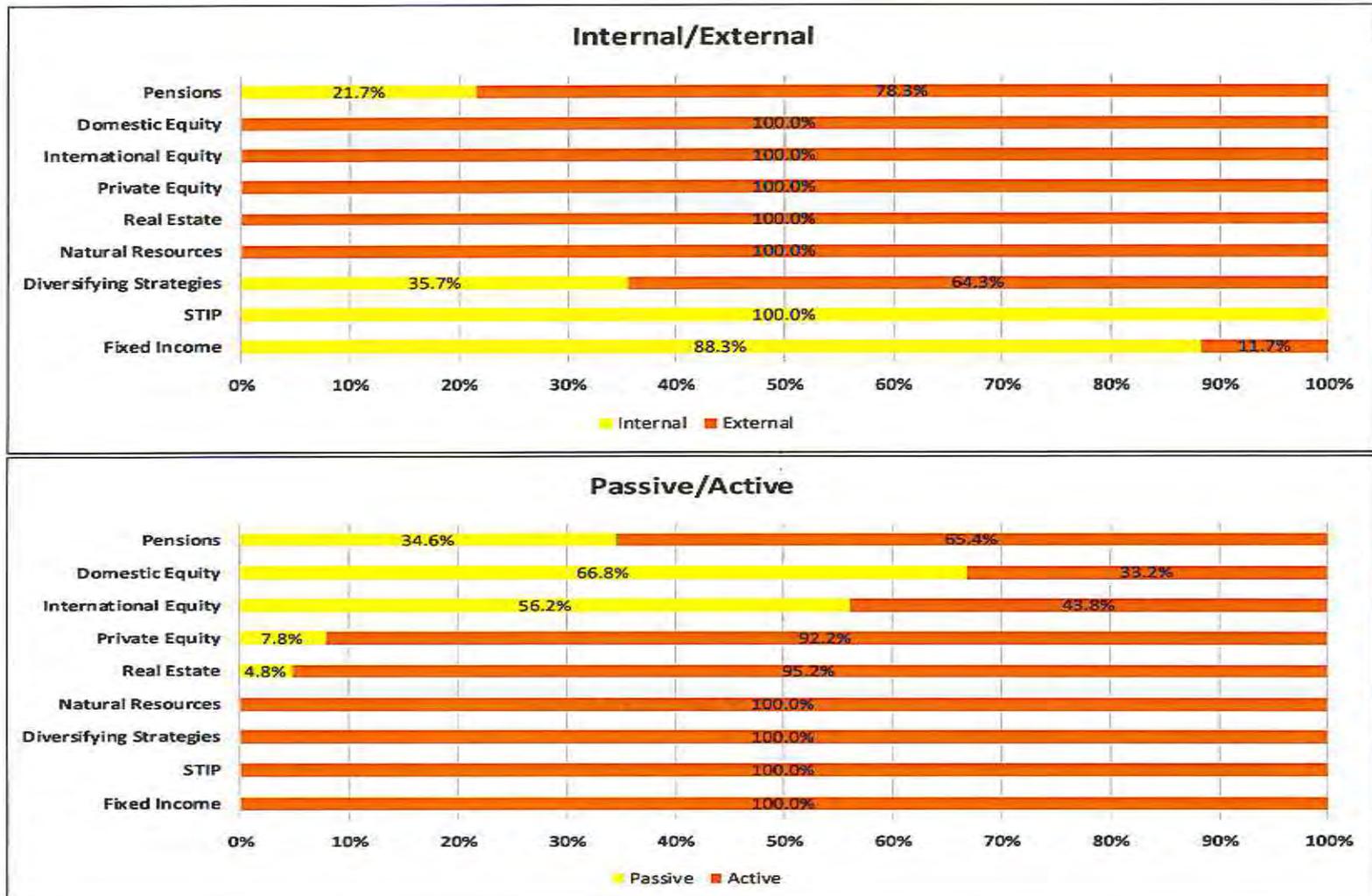
# APPENDIX

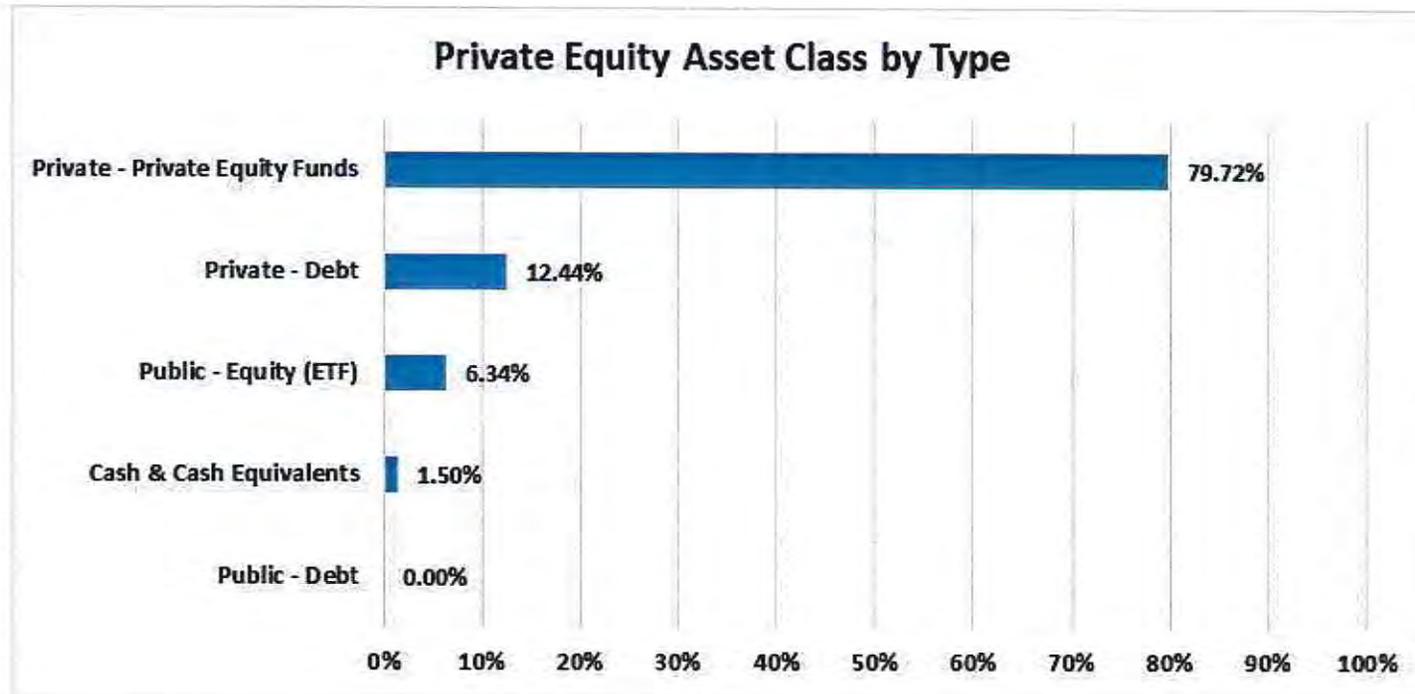
---

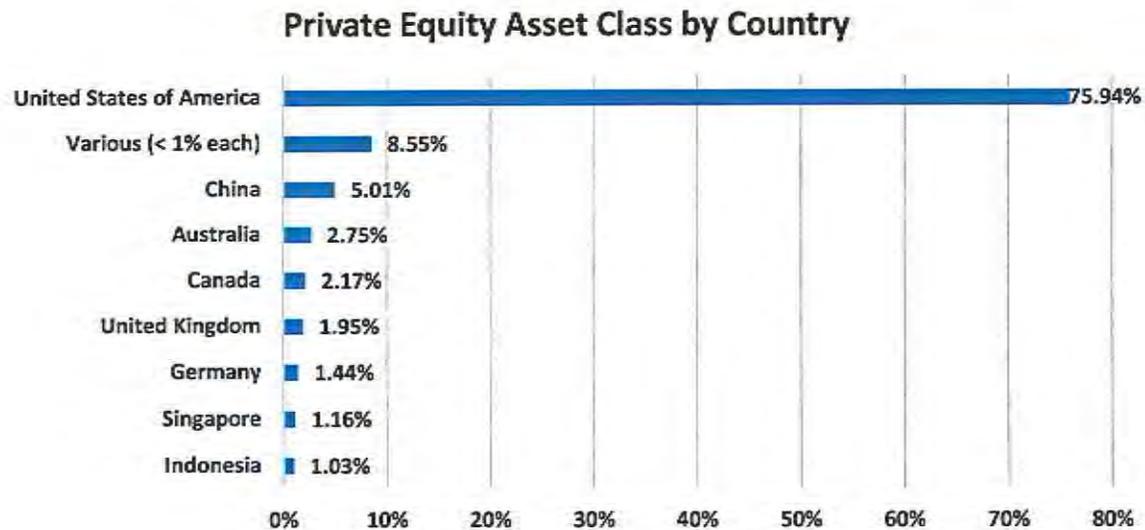
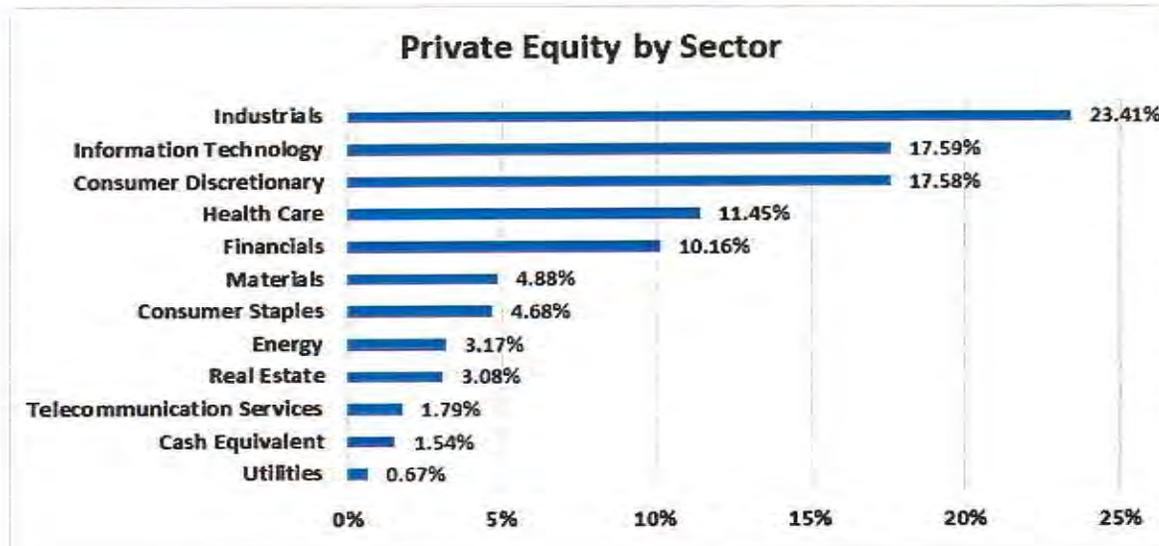
## CIO Update – Pension Plans Allocations by Pool

---

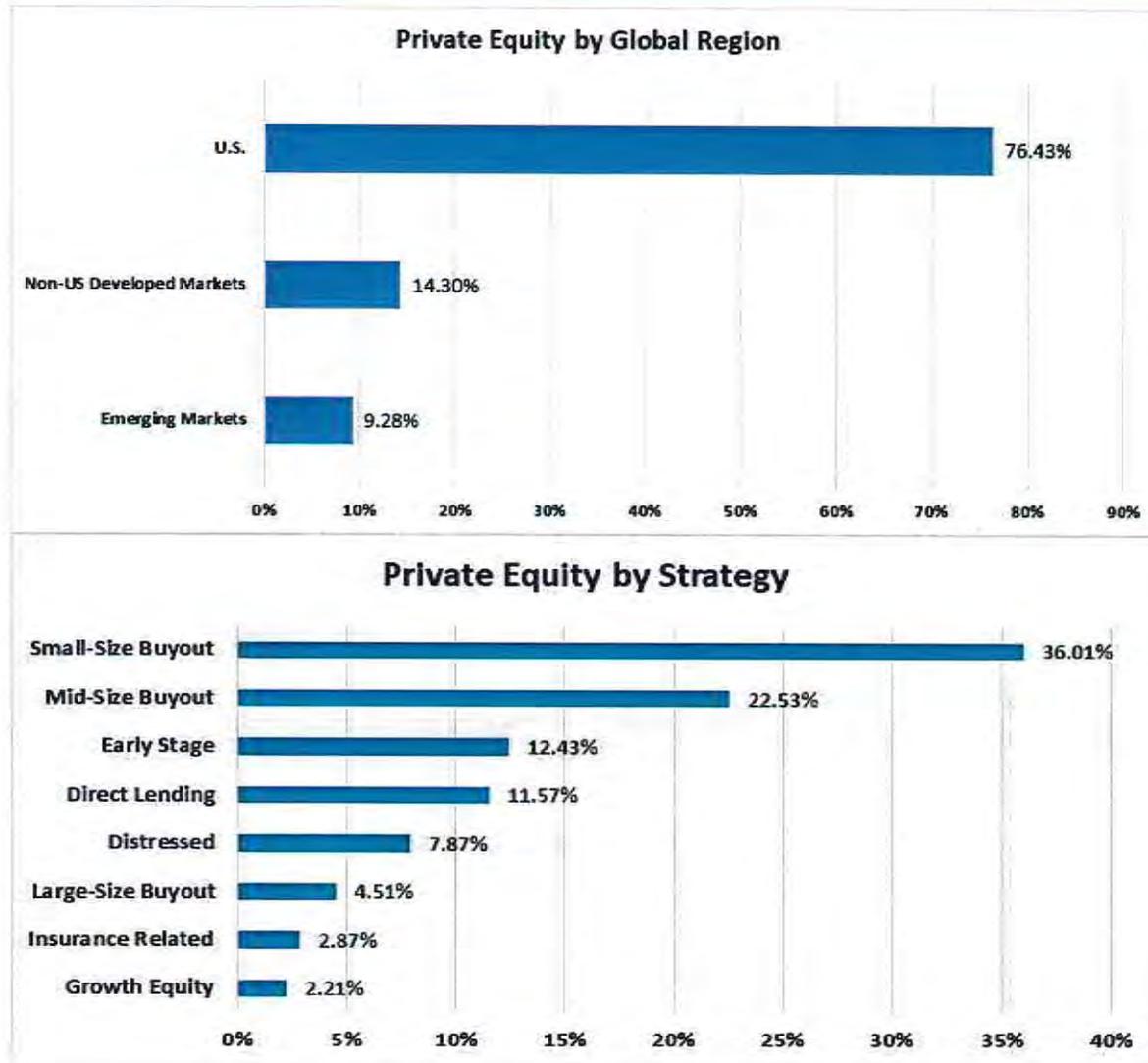




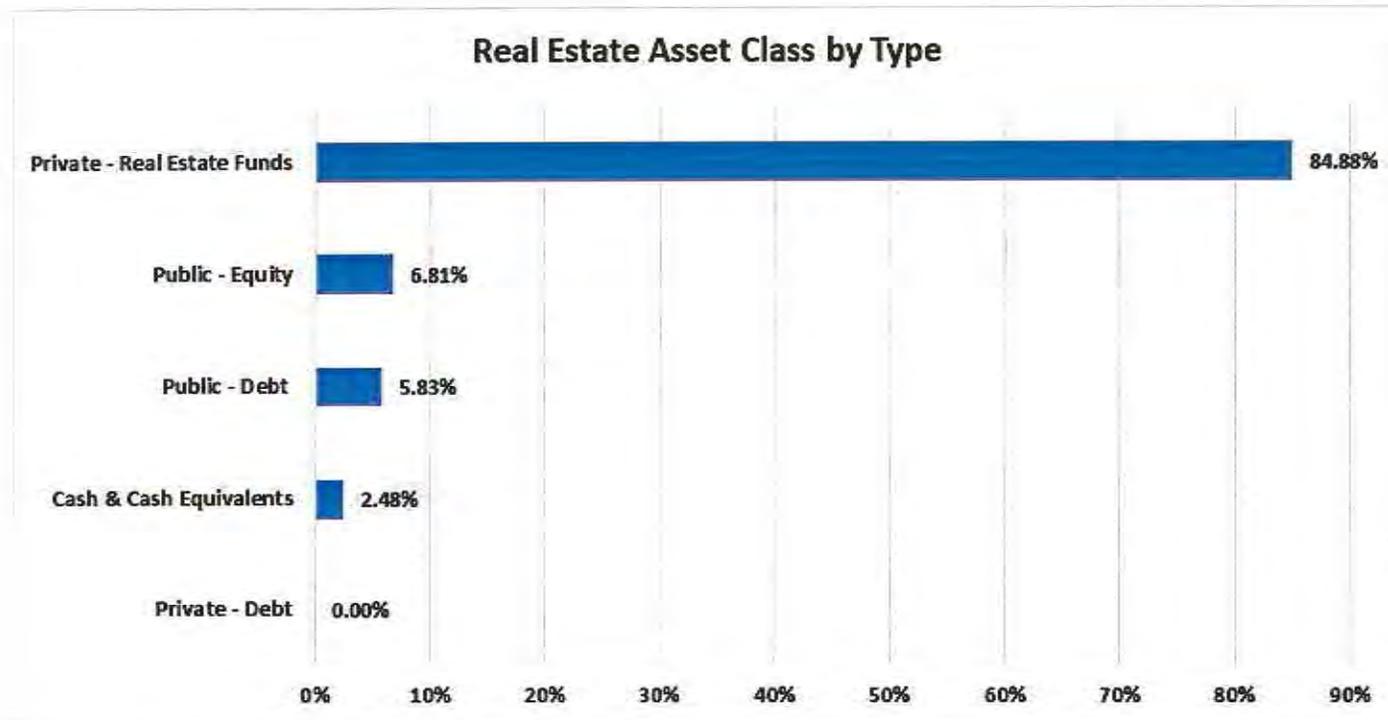


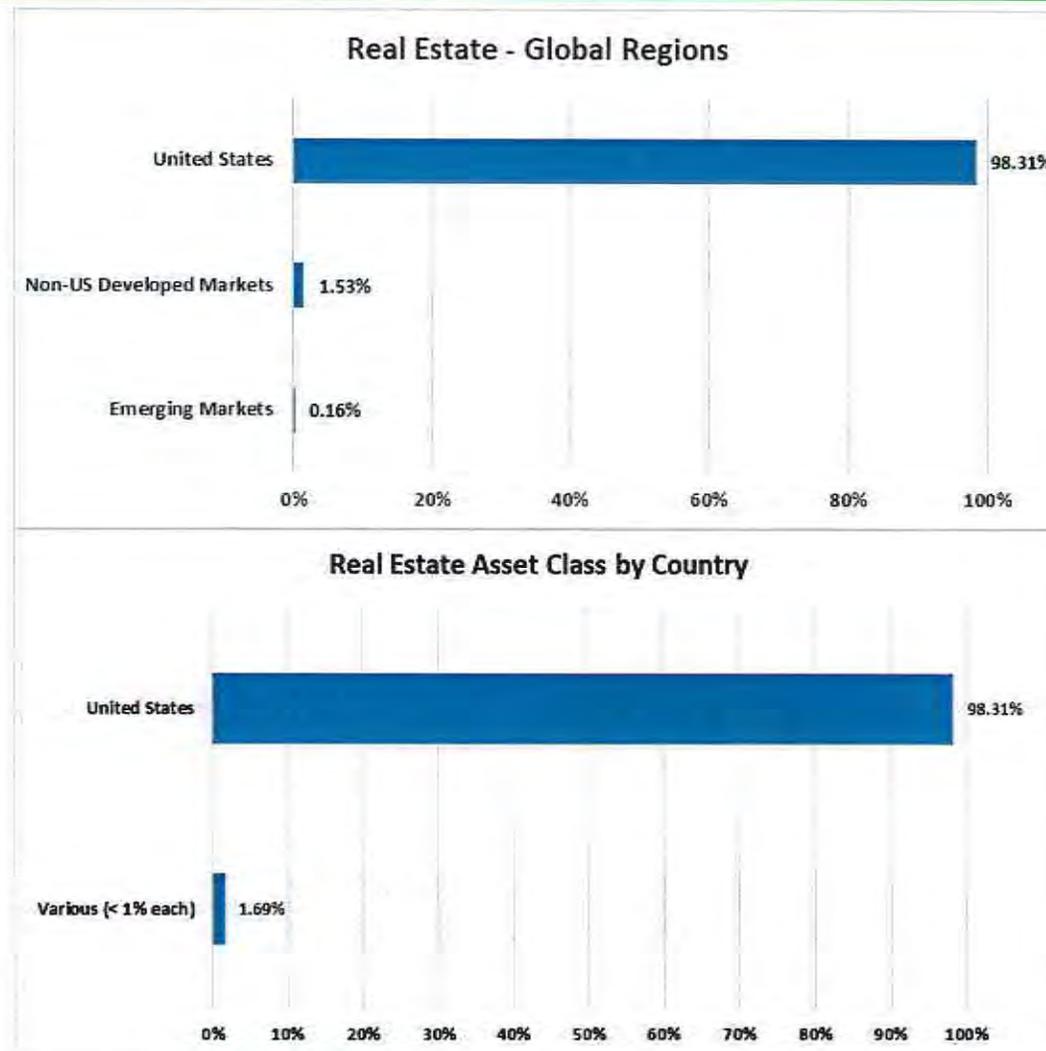


Note: Data reflects most recent GP-reported holdings as of 3/31/19  
**June 30, 2019**

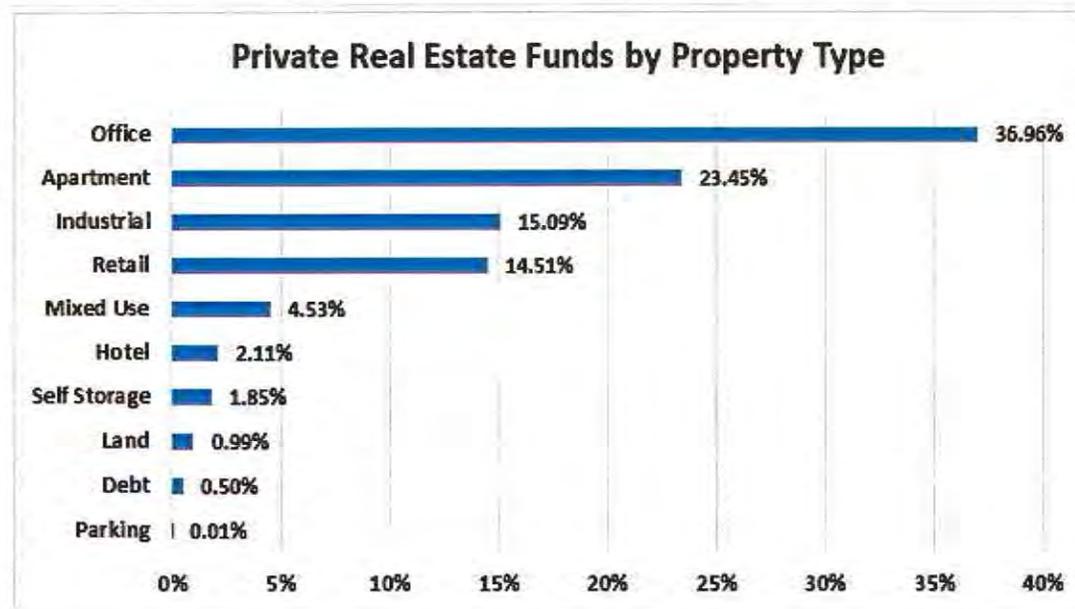
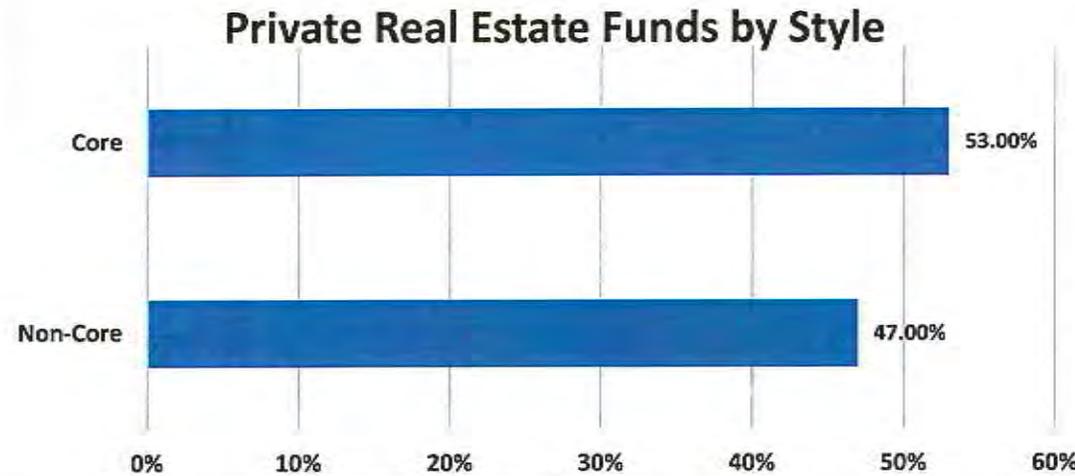


Note: Data reflects most recent GP-reported holdings as of 3/31/19  
June 30, 2019

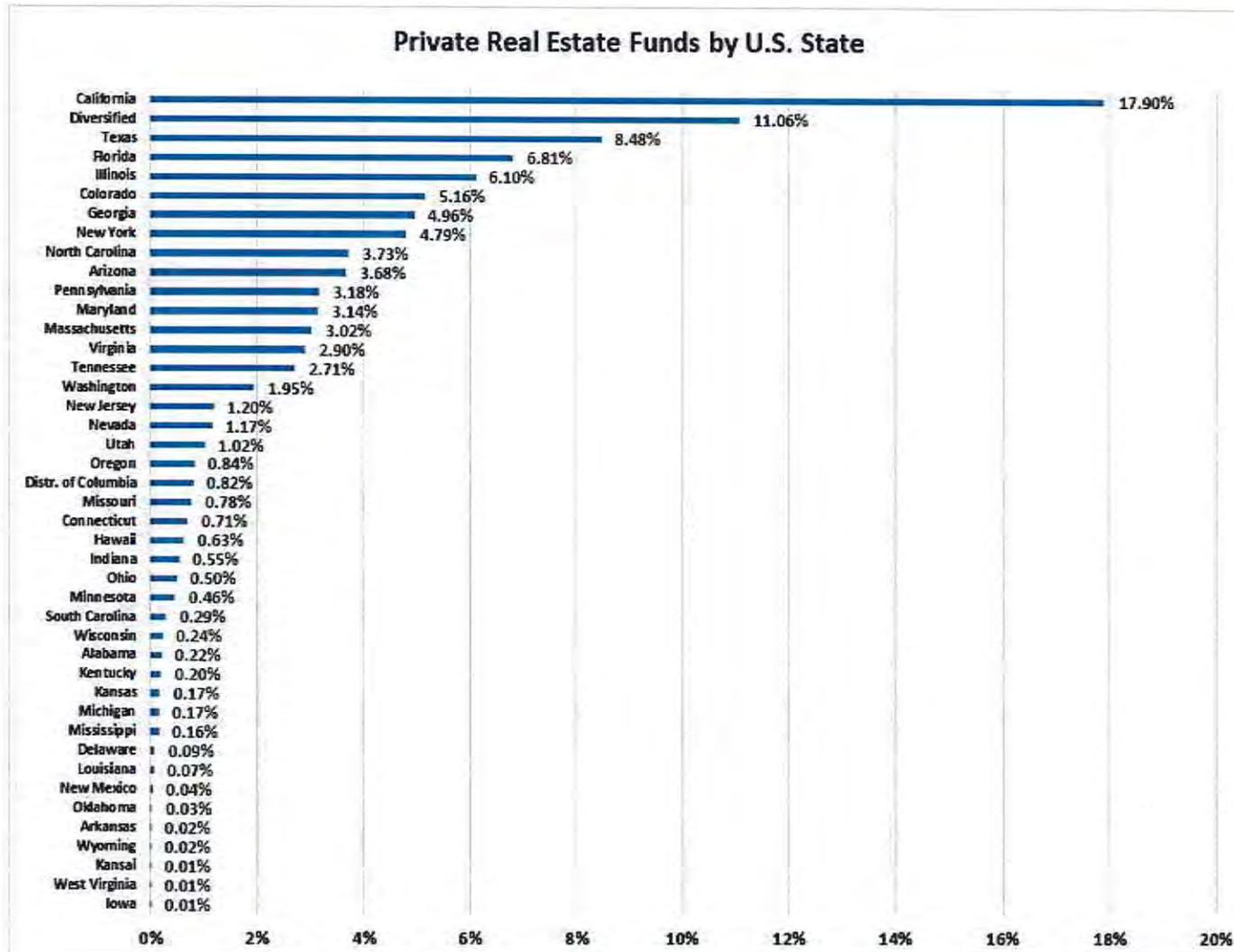




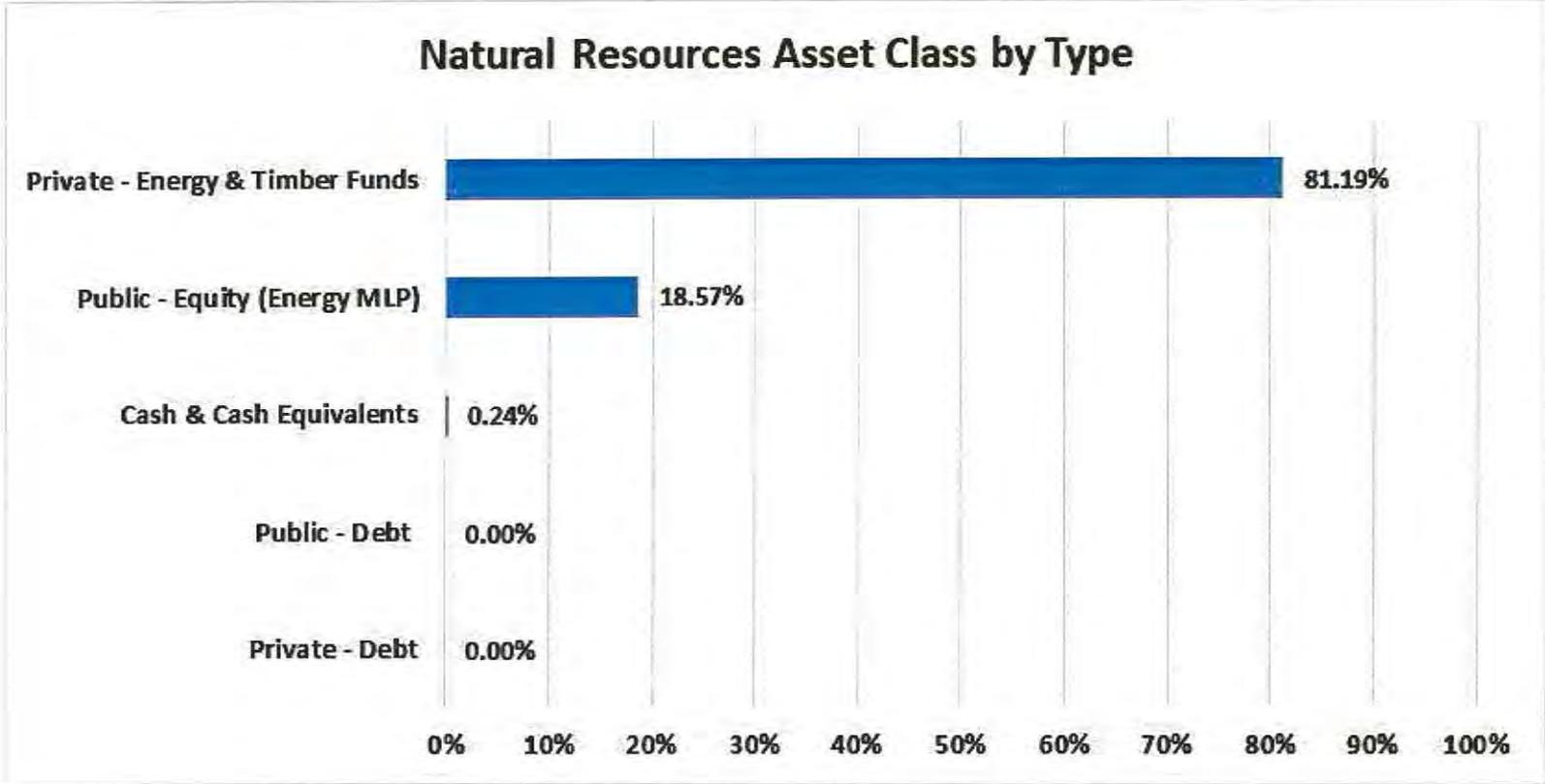
Note: Data reflects most recent GP-reported holdings as of 3/31/19  
June 30, 2019

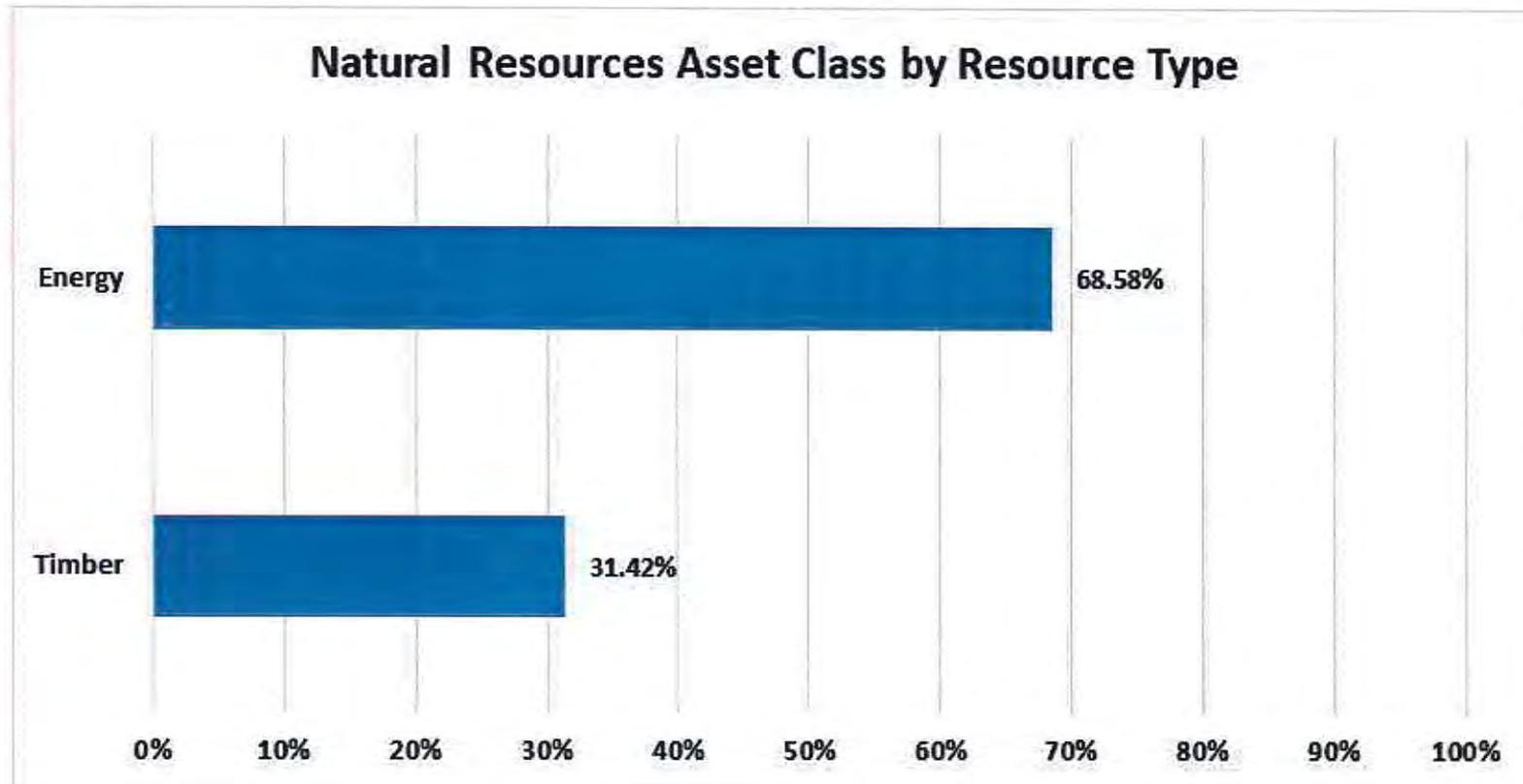


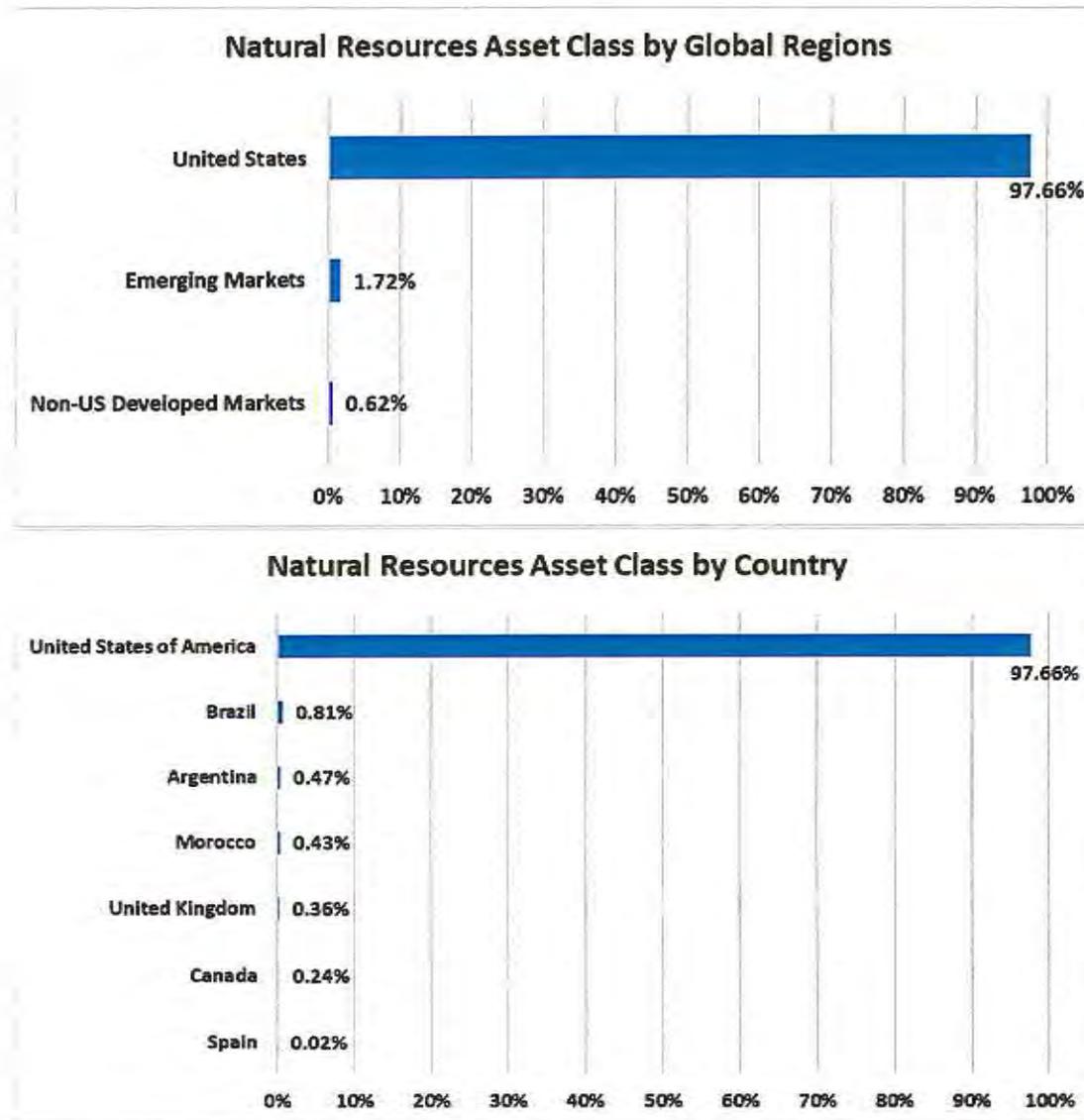
Note: Data reflects most recent GP-reported holdings as of 3/31/19  
**June 30, 2019**



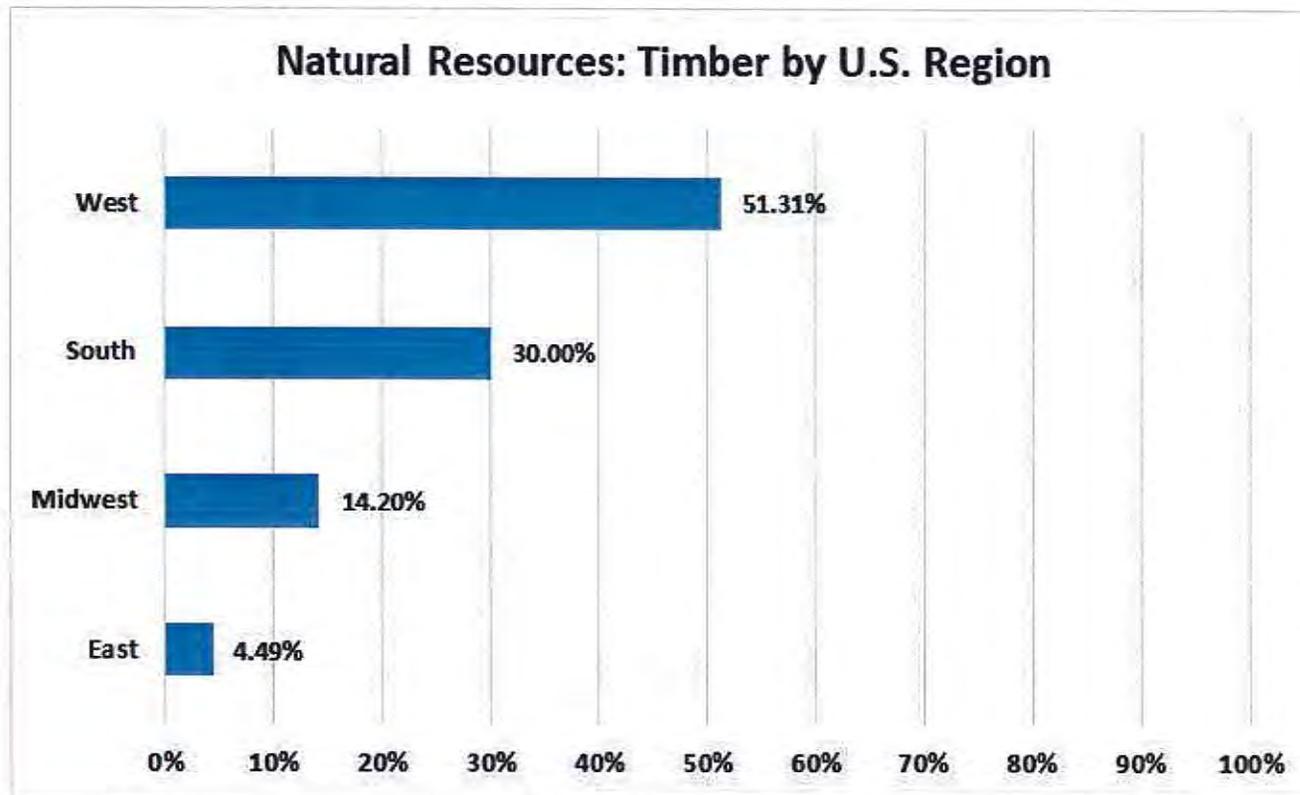
Note: Data reflects most recent GP-reported holdings as of 3/31/19  
**June 30, 2019**



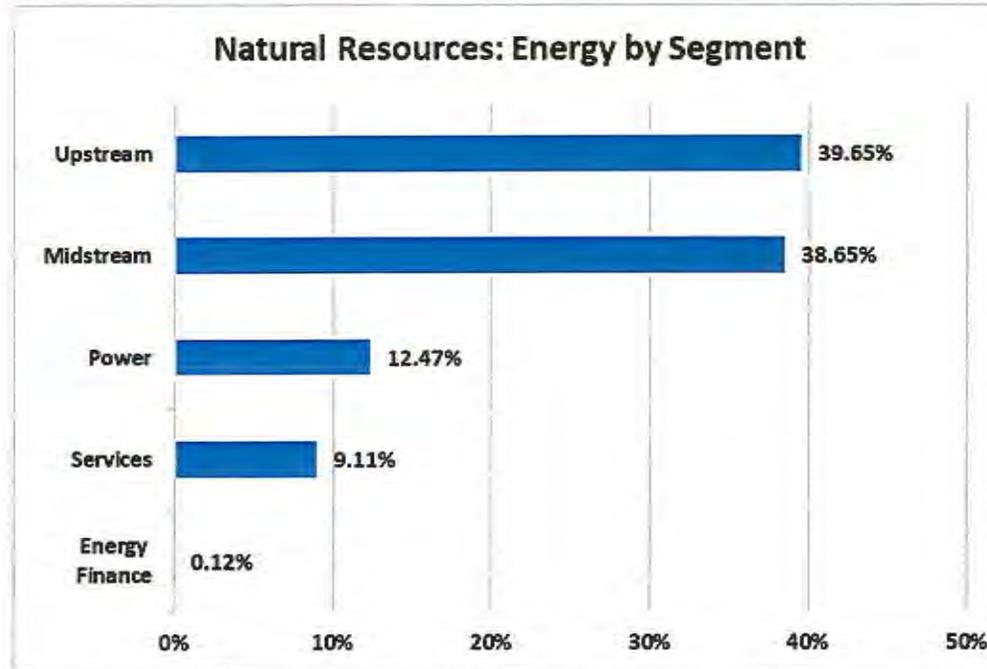




Note: Data reflects most recent GP-reported holdings as of 3/31/19  
**June 30, 2019**



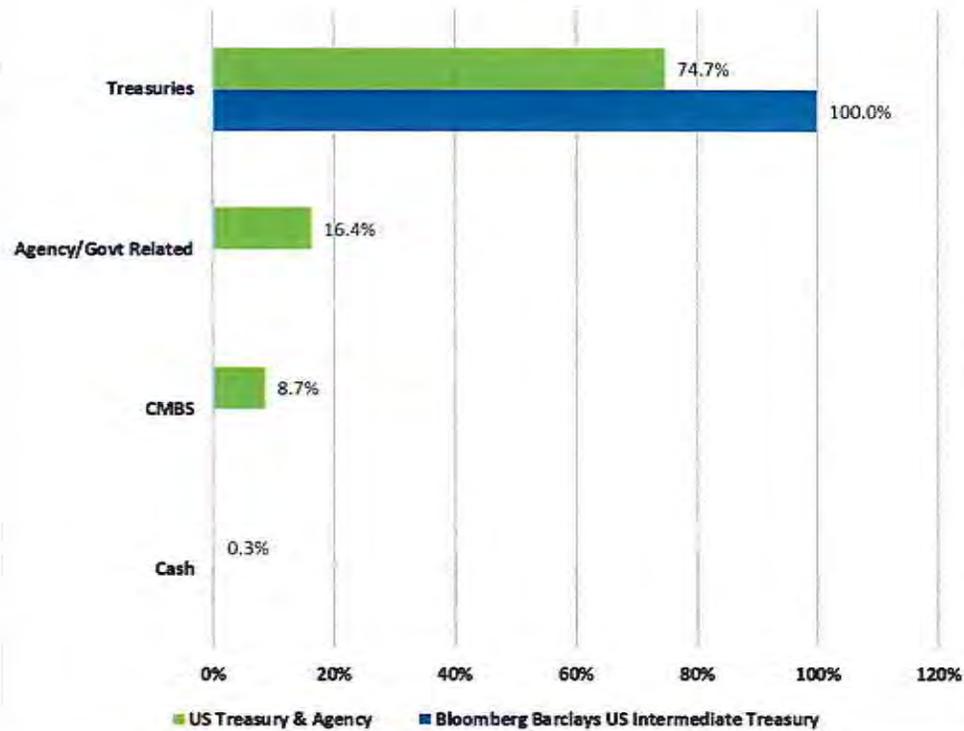
Note: Data reflects most recent GP-reported holdings as of 3/31/19  
June 30, 2019



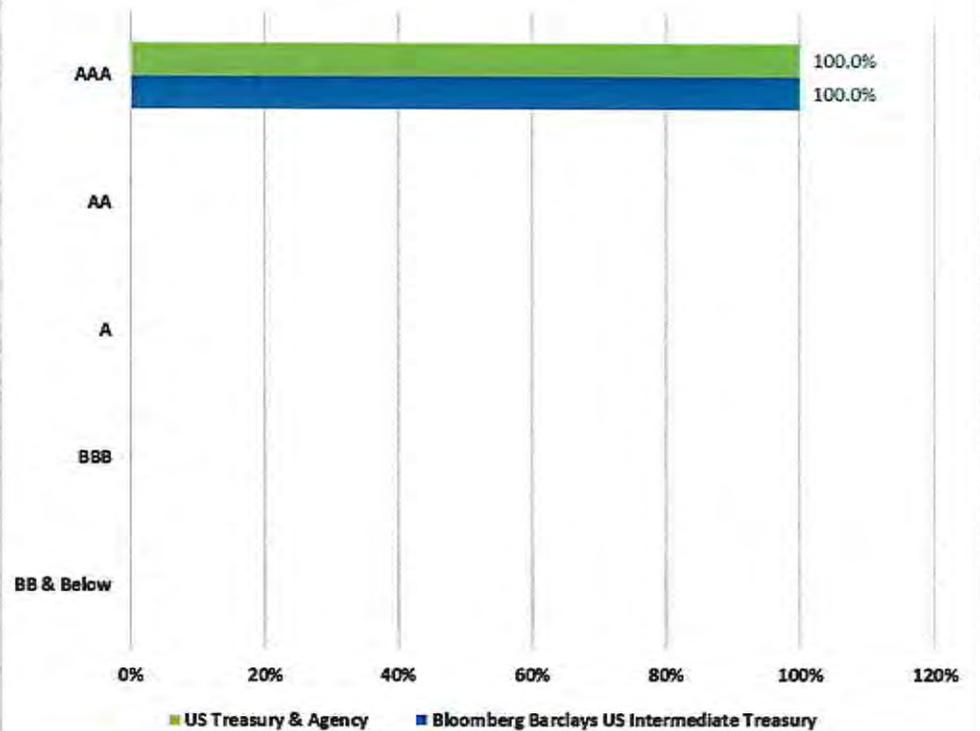
- Upstream**                      Exploration and production
- Services**                      Businesses that provide ancillary services and equipment required to explore for, produce and transport oil and gas
- Power**                              Generation plants that create power
- Midstream** 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

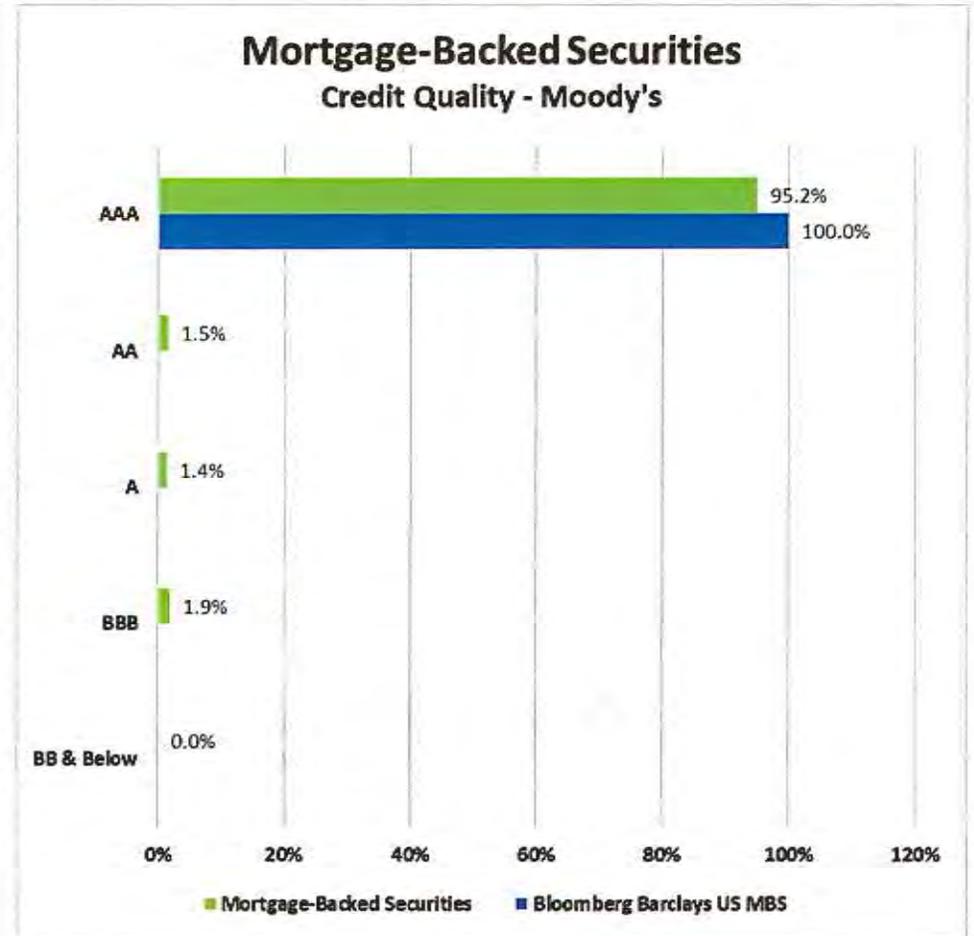
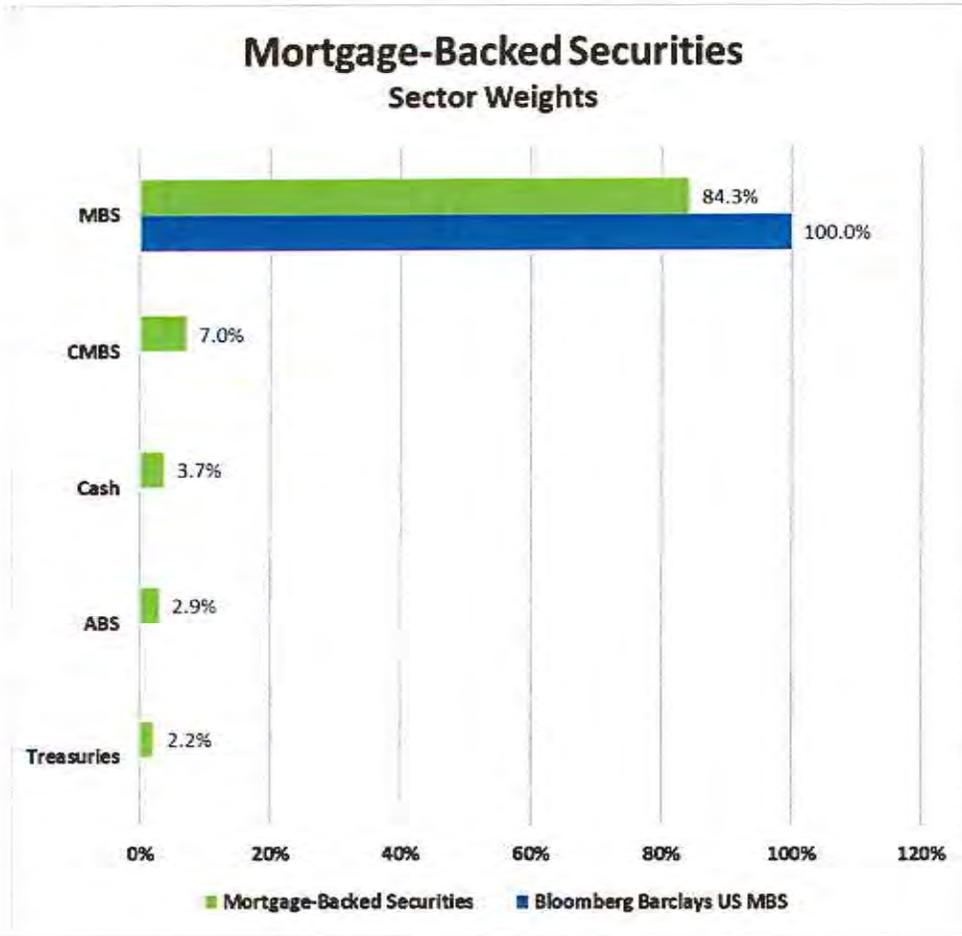
Note: Data reflects most recent GP-reported holdings as of 3/31/19  
**June 30, 2019**

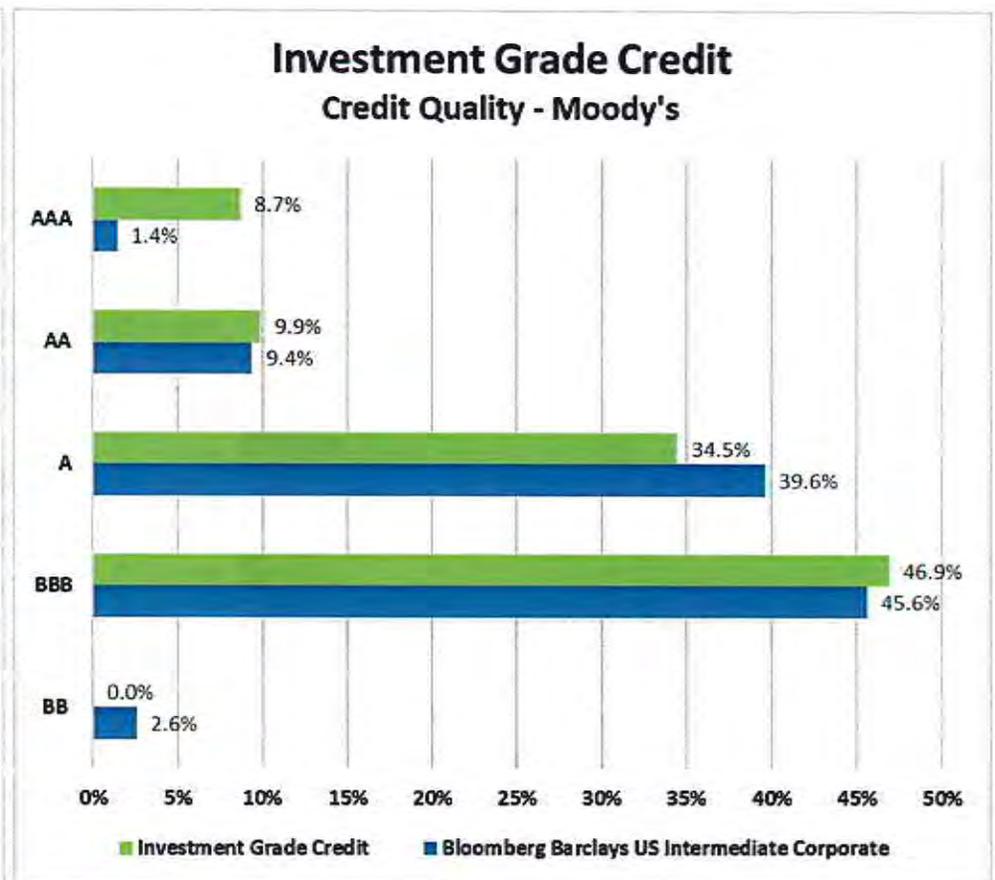
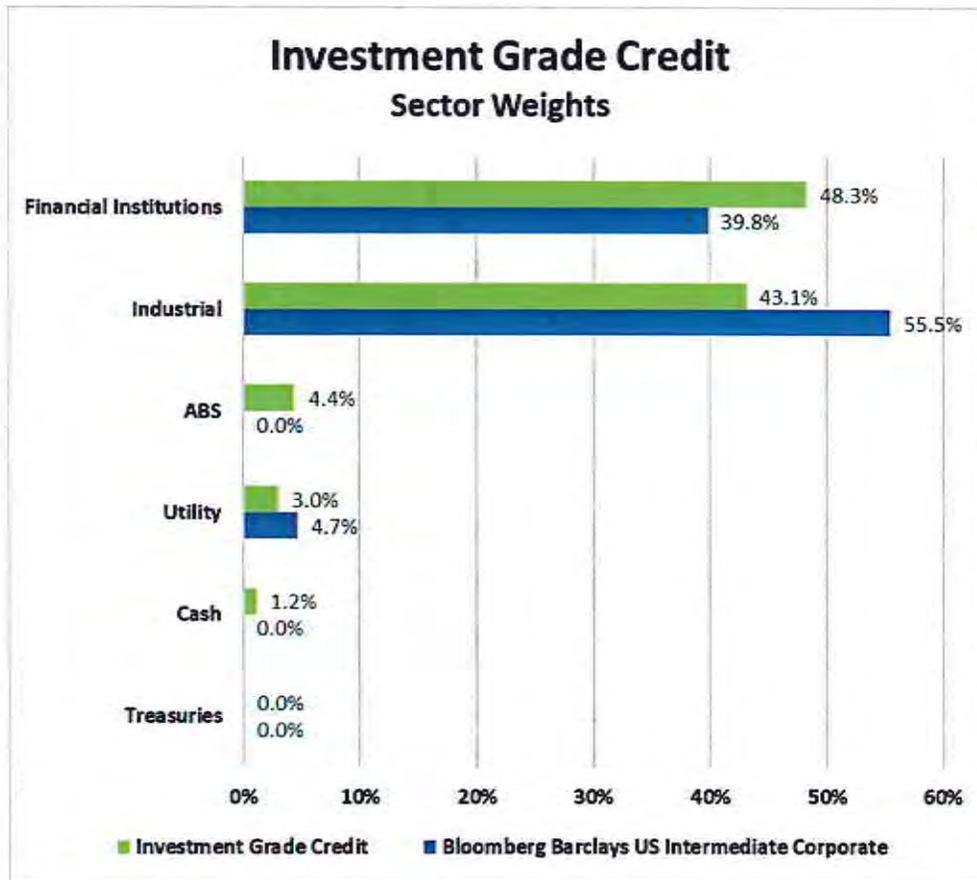
**US Treasury & Agency  
Sector Weights**

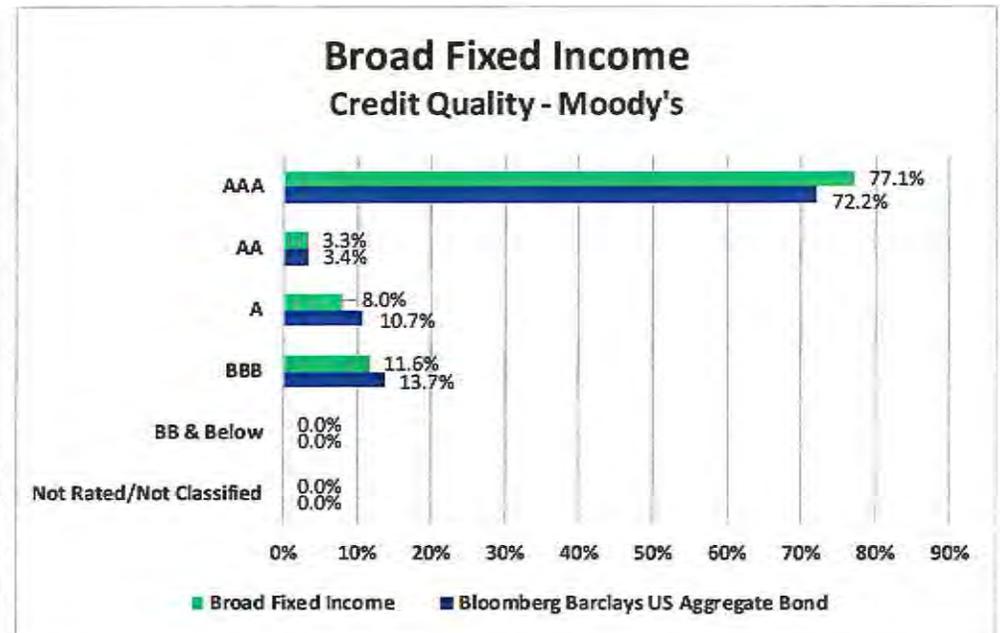
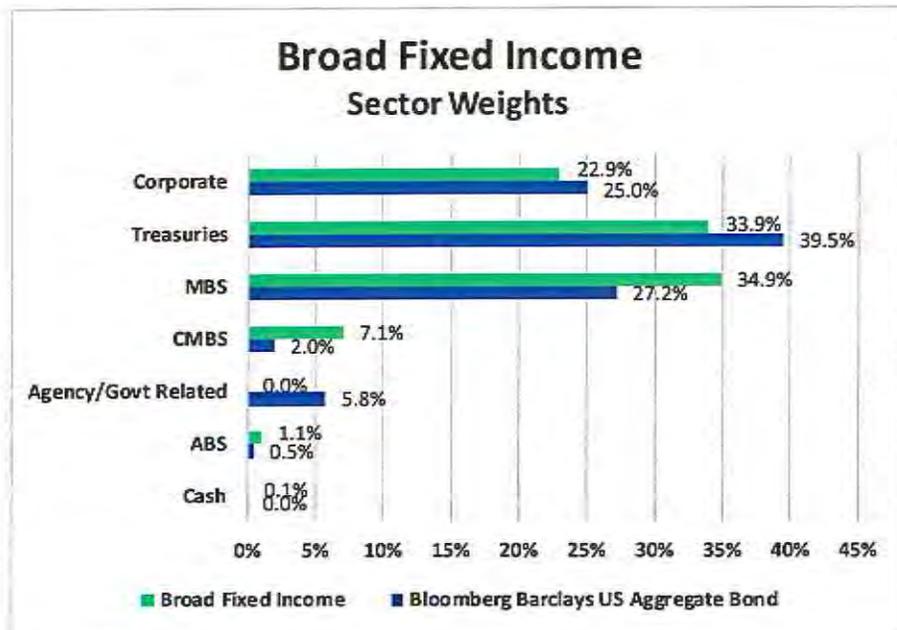


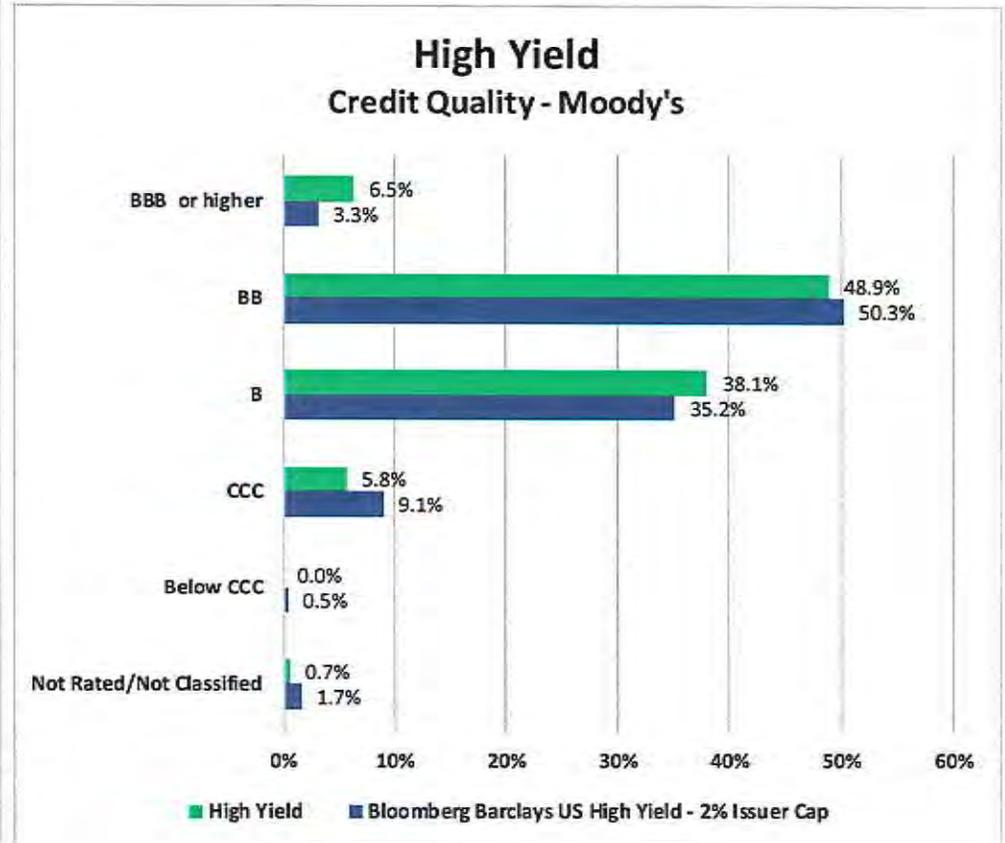
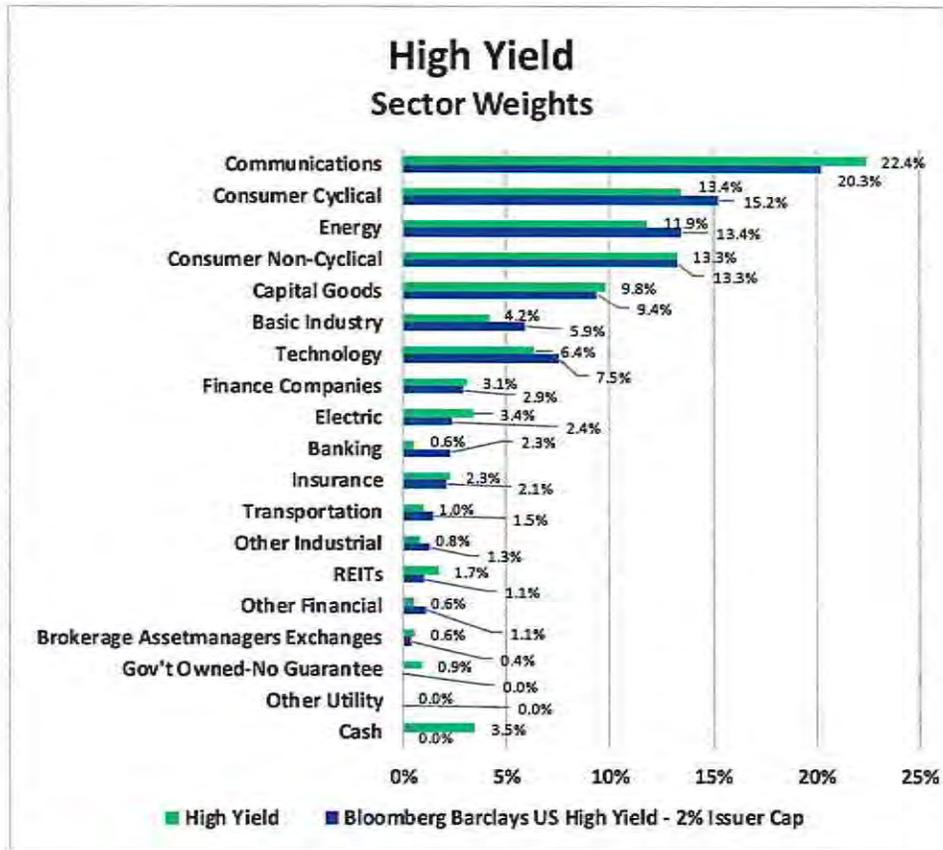
**US Treasury & Agency  
Credit Quality - Moody's**

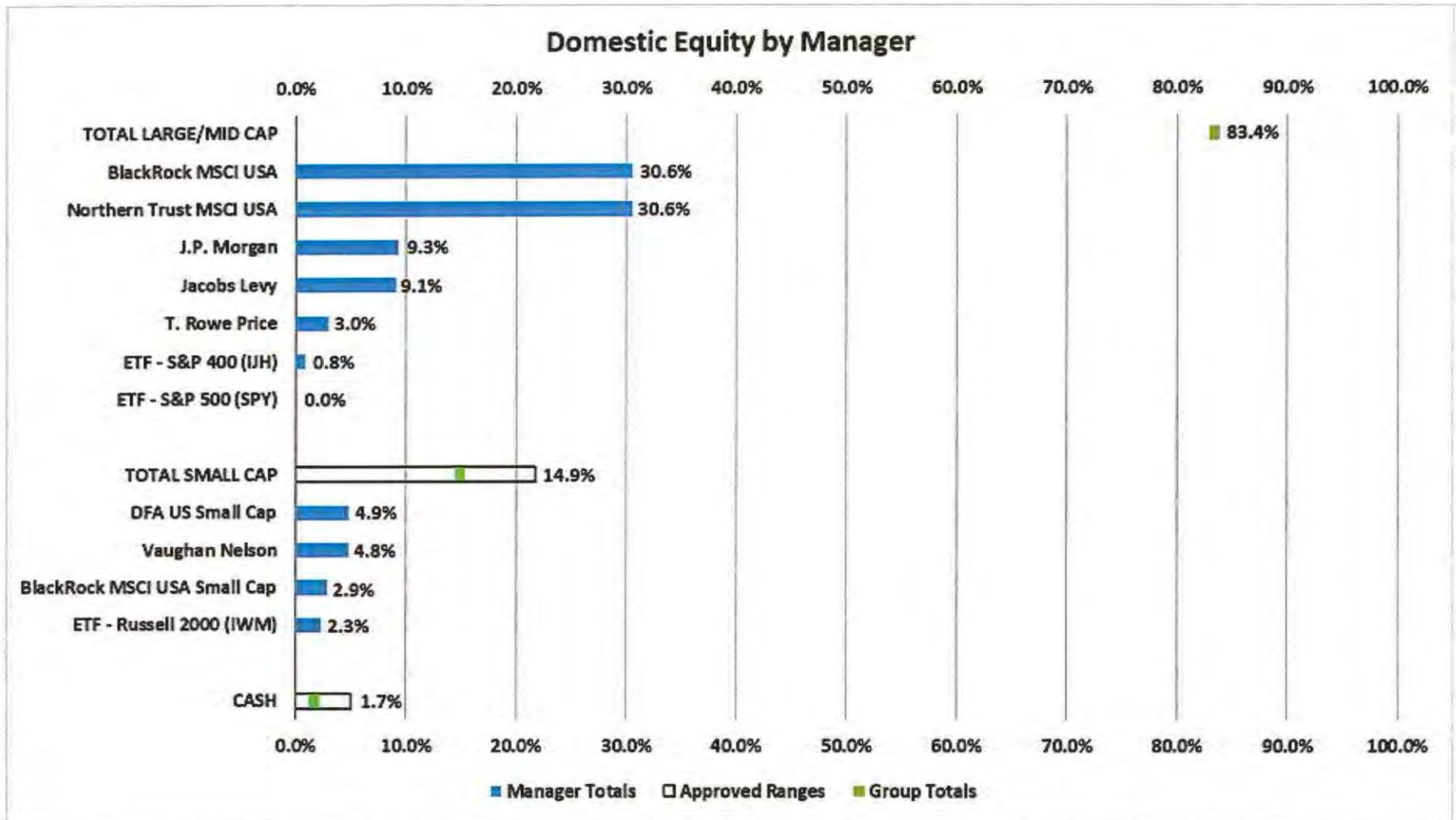


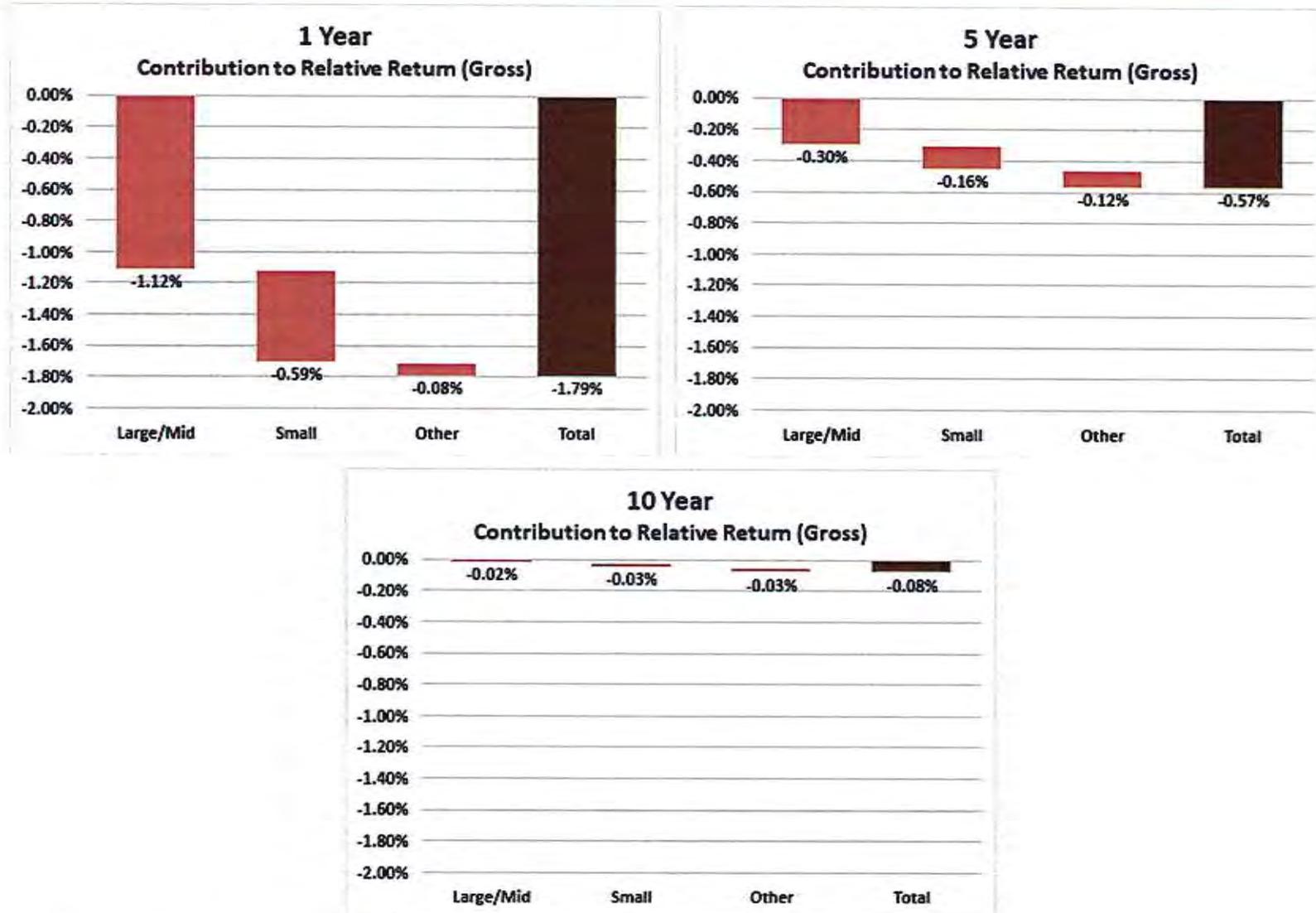






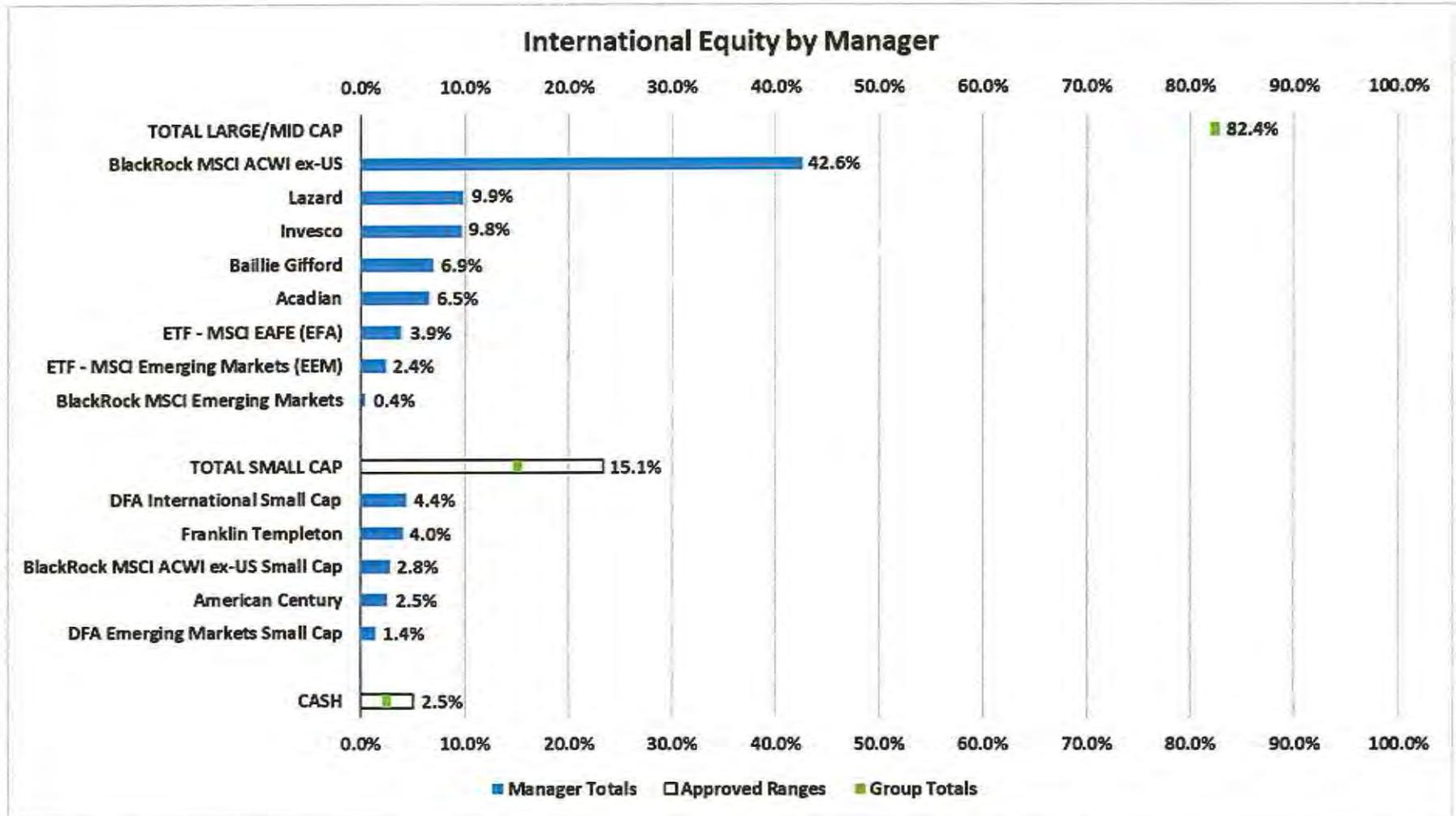


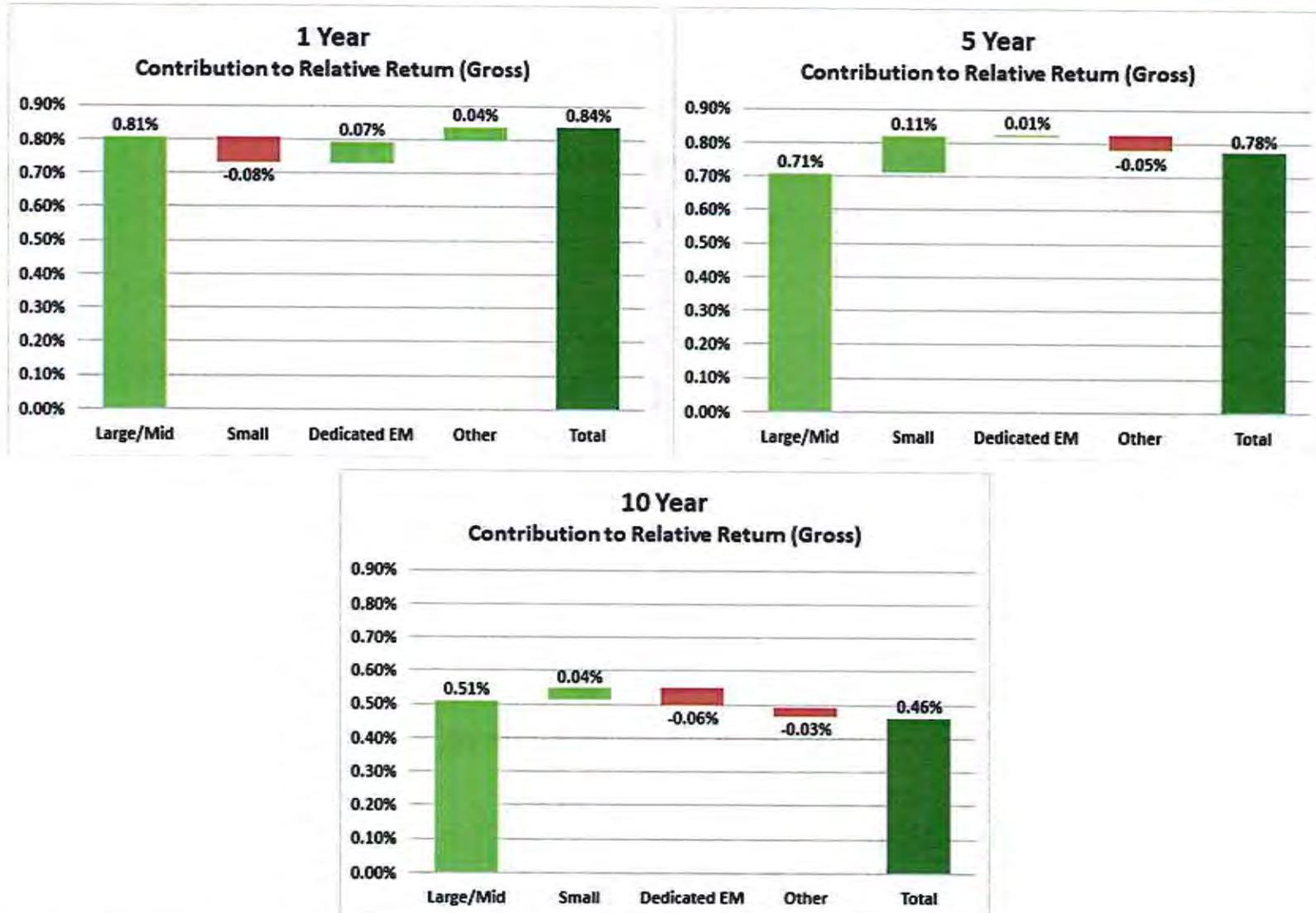




Benchmark: Domestic Equity – PAC Custom Blend

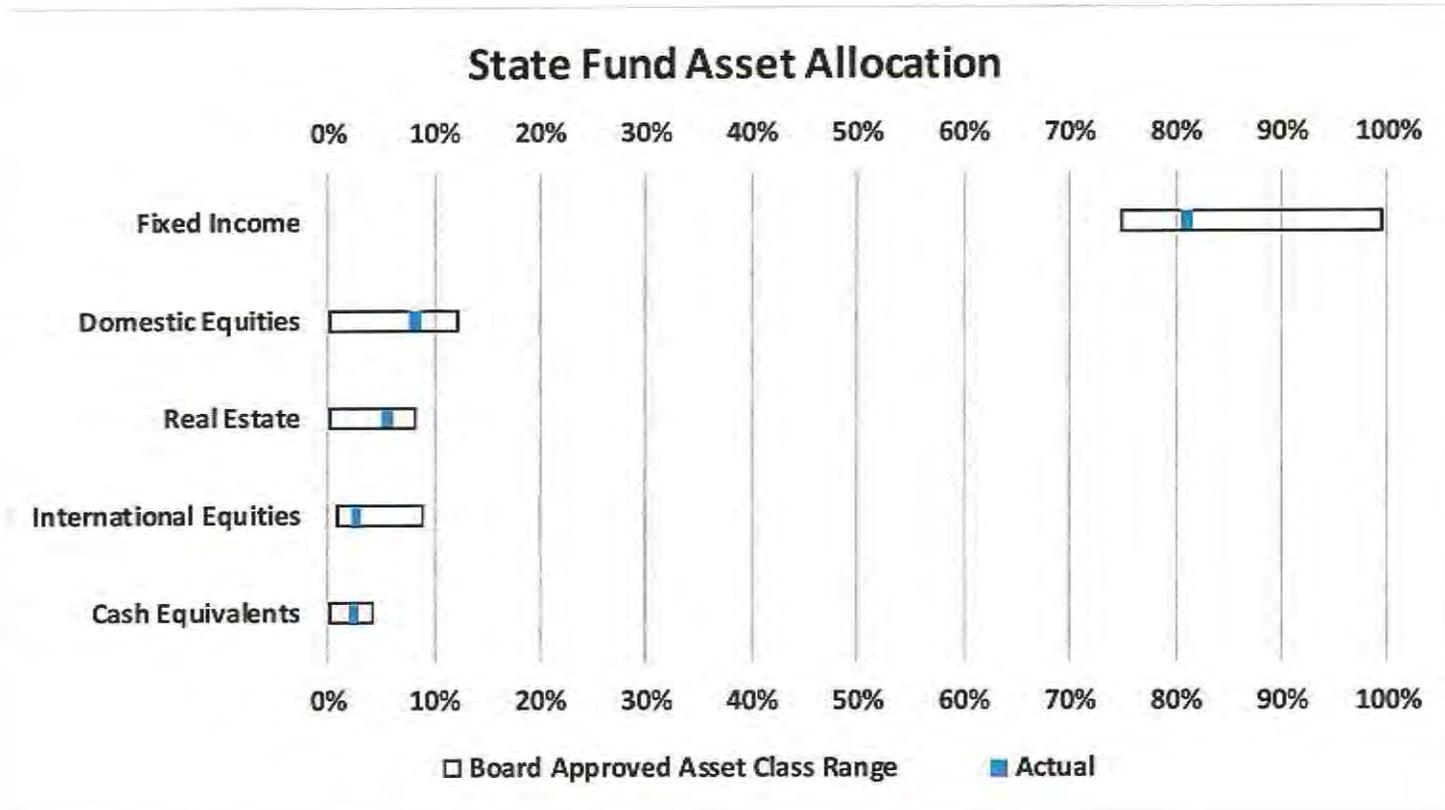
June 30, 2019

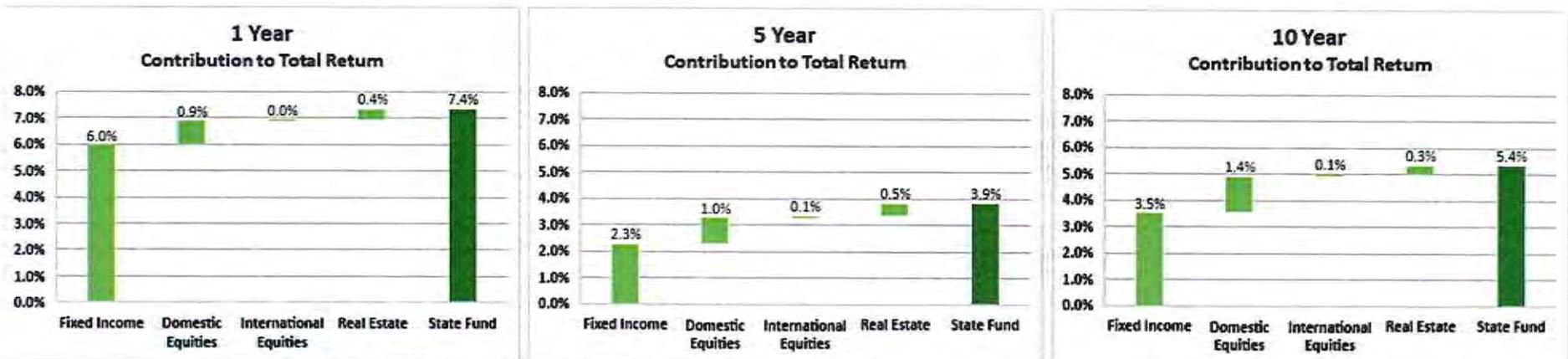


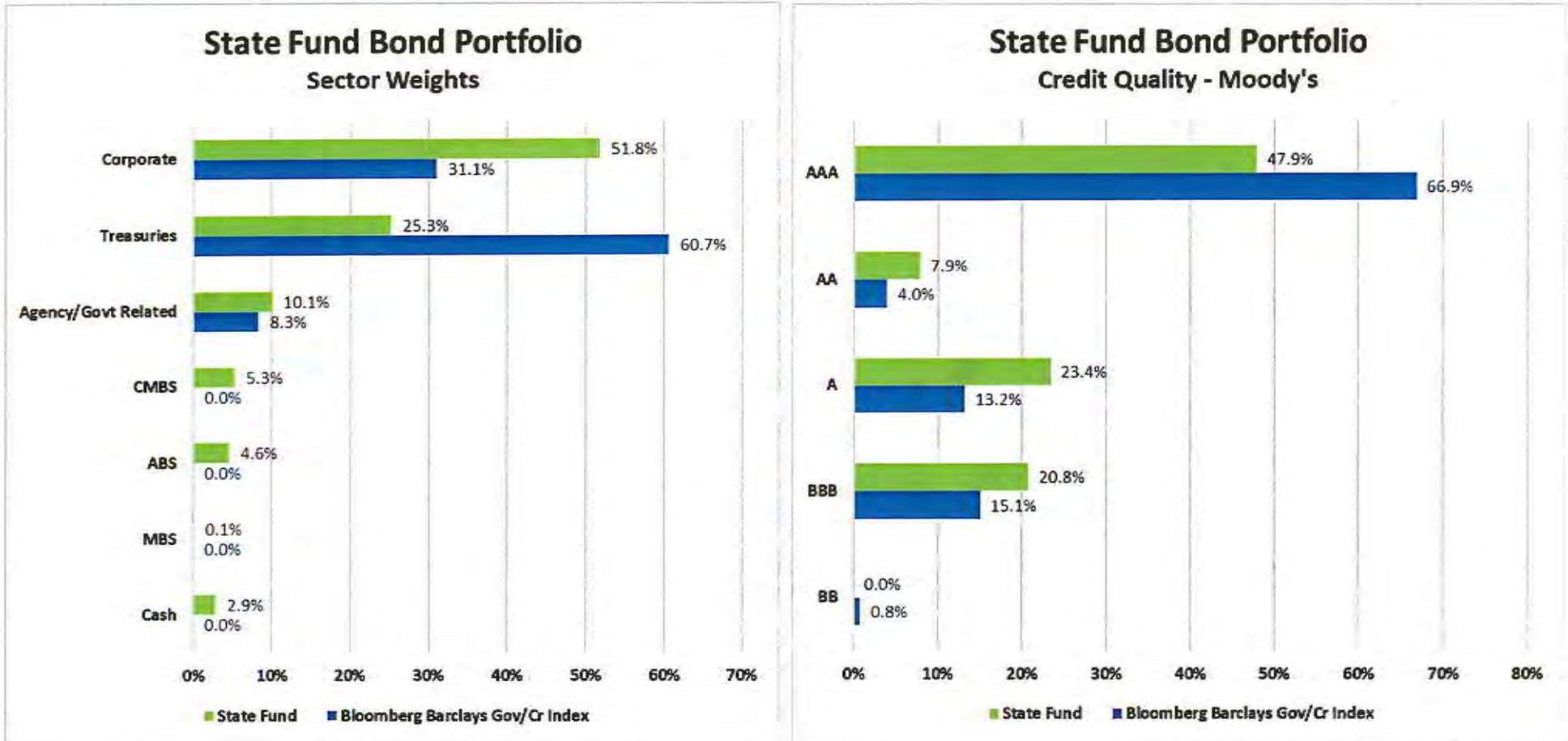


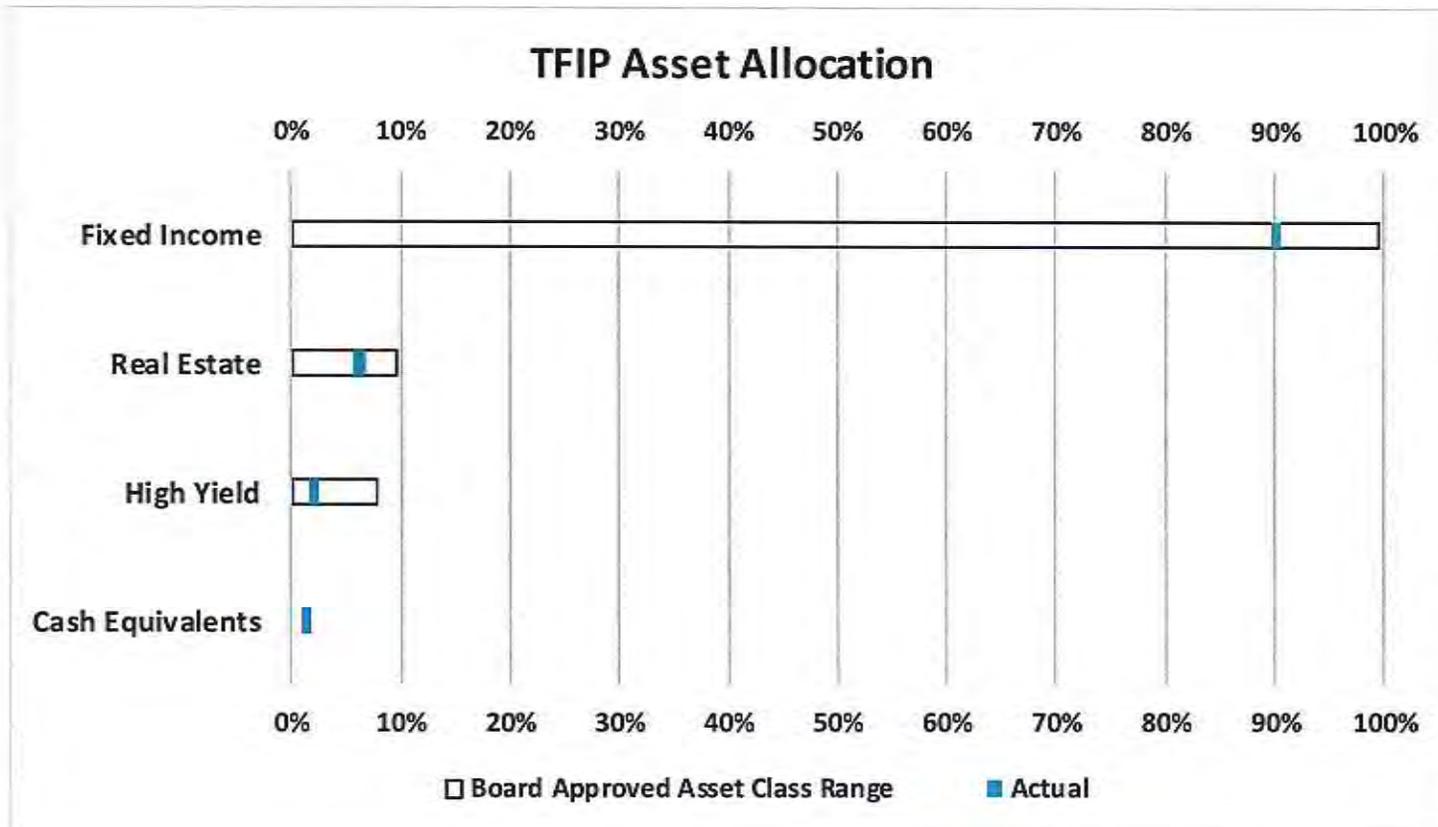
Benchmark: International Equity – PAC Custom Blend

June 30, 2019

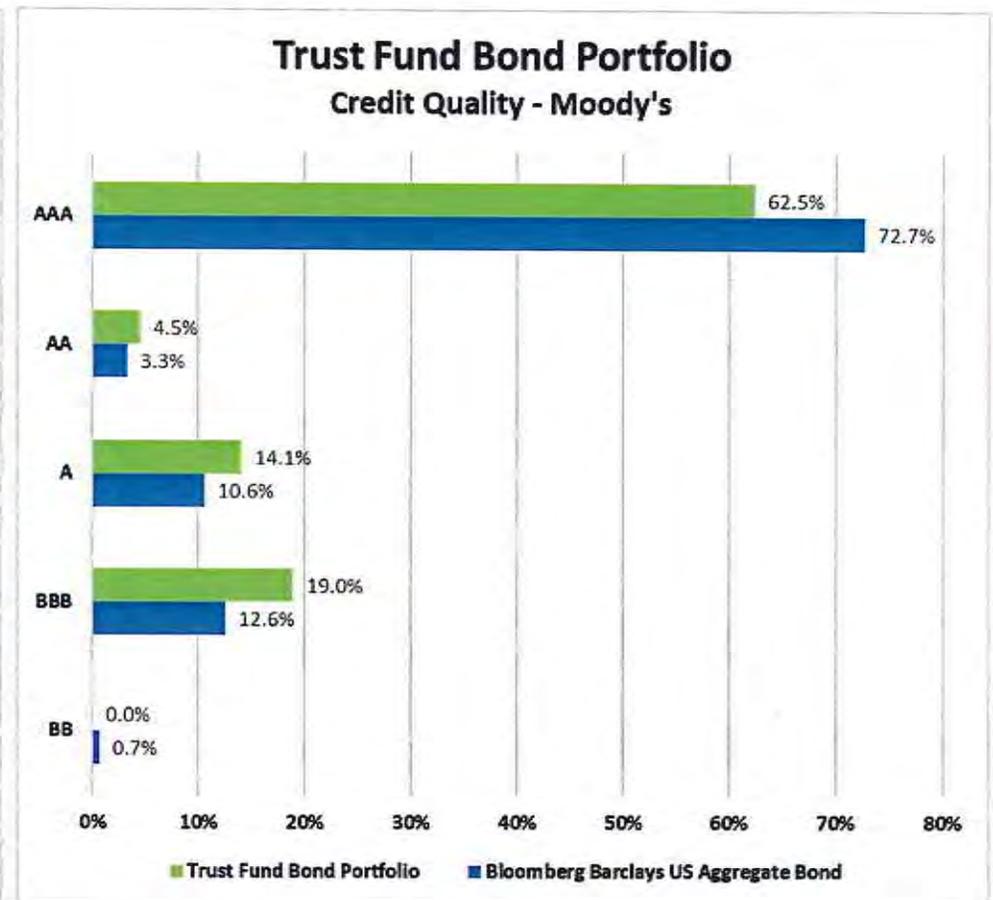
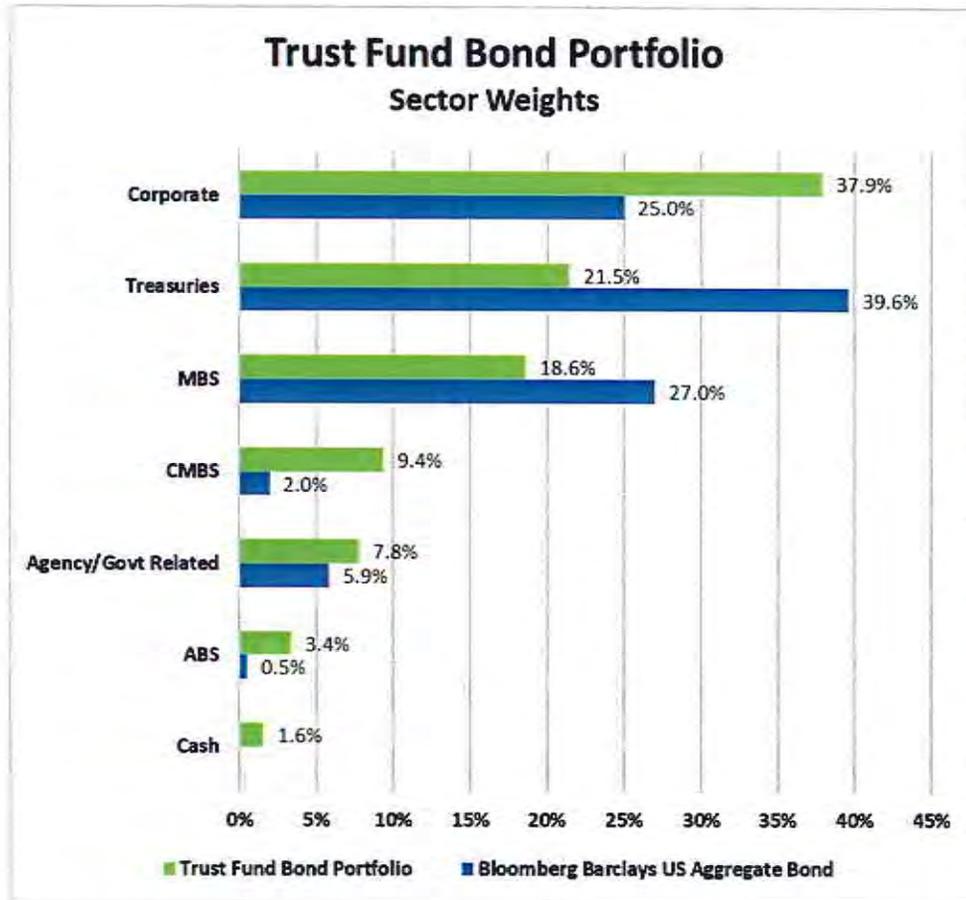


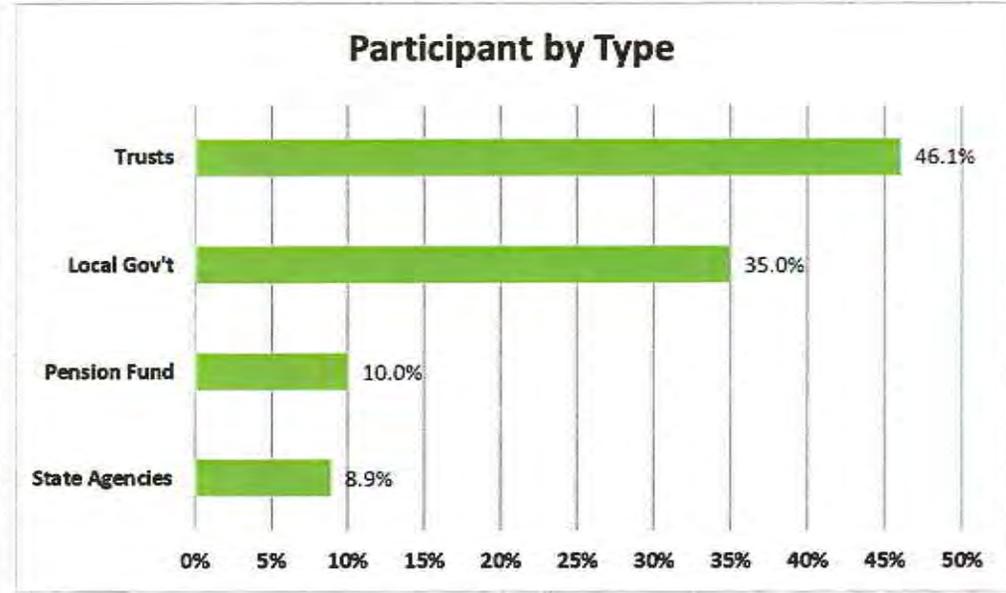
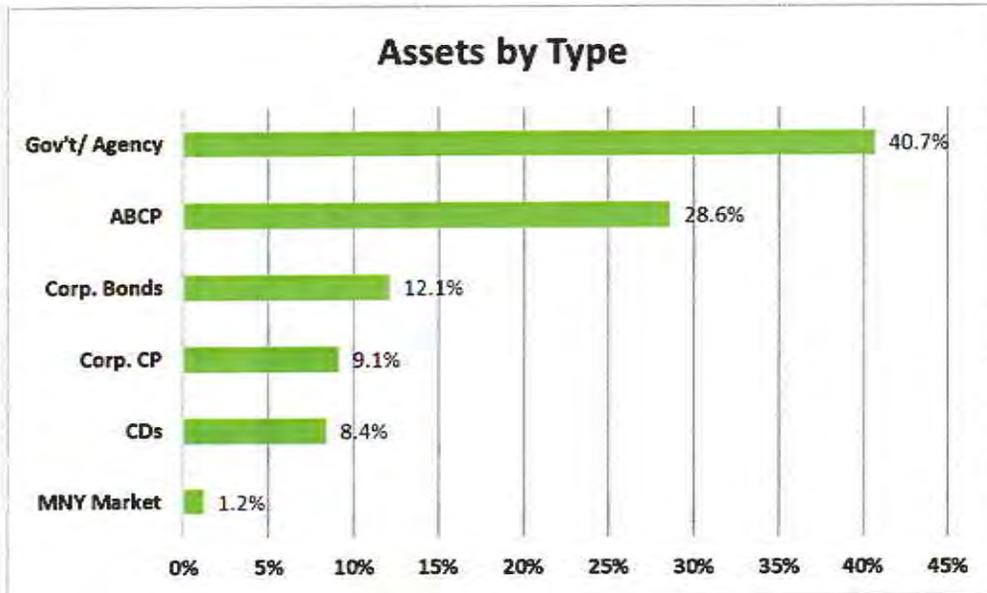














MONTANA

---

BOARD OF INVESTMENTS

# Real Estate Asset Class Review

August 2019

# Table of Contents

<b>Real Estate and Its Role Within CAPP</b>	<b>3</b>
<b>Types of Real Estate Investing</b>	<b>4</b>
<b>Styles of Real Estate Investing</b>	<b>5</b>
<b>Strategies of Real Estate Investing</b>	<b>6</b>
<b>Real Estate Returns – Sources and Drivers</b>	<b>7</b>
<b>Real Estate Benefits and Risks</b>	<b>8 - 9</b>
<b>Pacing</b>	<b>10 - 16</b>
<b>Performance and Net Asset Value</b>	<b>17</b>
<b>Composition Graphs</b>	<b>18 - 21</b>
<b>Top Real Estate Investments by Net Asset Value</b>	<b>22</b>
<b>Real Estate Market Environment, Strategy &amp; Rationale</b>	<b>23 – 25</b>
<b>Property Views</b>	<b>26</b>
<b>Appendix</b>	<b>27 - 38</b>
<b><i>MBOI Real Estate Investment Process</i></b>	<b><i>28 - 34</i></b>
<b><i>Real Estate Asset Class Schedule of Investments</i></b>	<b><i>35 - 38</i></b>

# Real Estate Asset Class and Its Role Within CAPP

- Provide the Consolidated Asset Pension Plan (CAPP) with exposure to diversified real estate opportunities in a prudent manner, while achieving the highest possible return.
- Diversify across types of real estate investing, number of funds, vintage years, real estate types and geographies.
- Approved Ranges
  - Total Real Estate— 4% to 12% of CAPP
    - Core Real Estate – no less than 30% of Real Estate Asset Class
    - Any single Non-Core fund or Separately Managed Account - no more than 7.5% of the Real Estate Asset Class
    - Accounts investing in publicly traded Real Estate – no more than 20% of Real Estate Asset Class
    - International Real Estate – no more than 30% of Real Estate Asset Class
    - Direct co-investments – no more than 10% of Real Estate Asset Class
    - Cash held at asset class level – no more than 5% of the Real Estate Asset Class market value
    - Leverage limits -
      - Individual fund basis up to 75%
      - Total Real Estate Asset Class up to 60%
    - Leverage policy range per strategy
      - Core - 0% - 50%
      - Non-Core - 0% - 75%
- Benchmark
  - MSCI US REIT Index (since April 2017)

# Types of Real Estate Investing

## Public

Publicly listed  
and traded frequently

## Private

Privately held  
and infrequently traded

	Public	Private
Equity	A	B
Debt	C	D

## Equity

Owns a residual interest in  
the property

## Debt

Lends funds to an owner or  
purchaser of real estate

### (A) Public Equity

- Common stock of publicly traded Real Estate Investment Trusts (REITs) (active)
- Exchange-Traded Funds (ETFs) (passive)

### (B) Private Equity

- Limited Partnerships - Open or Closed-End Funds (active)

### (C) Public Debt

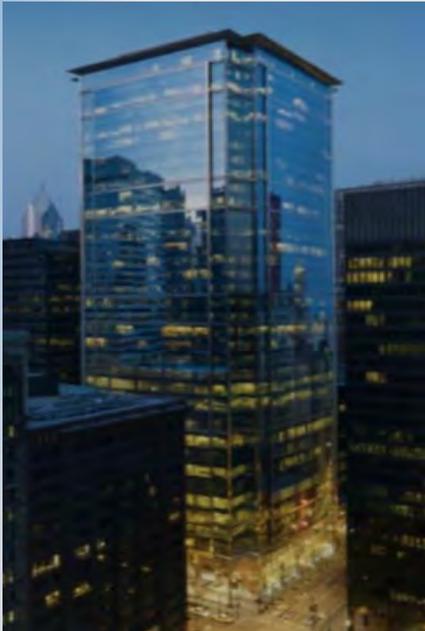
- Mutual Fund (active)

### (D) Private Debt

- Limited Partnerships - Open or Closed-End Funds (active)

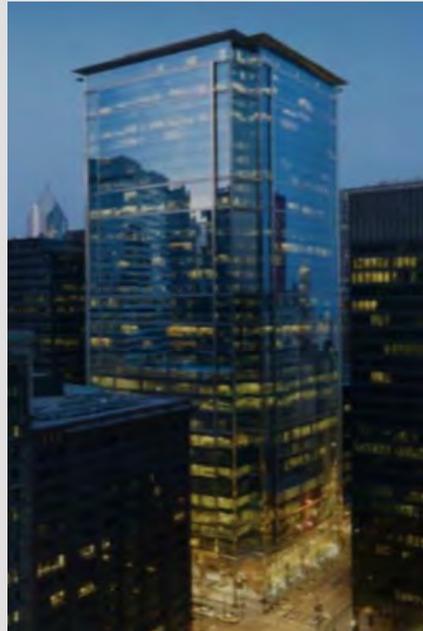
# Styles of Private Real Estate Equity/Debt Investing

## CORE



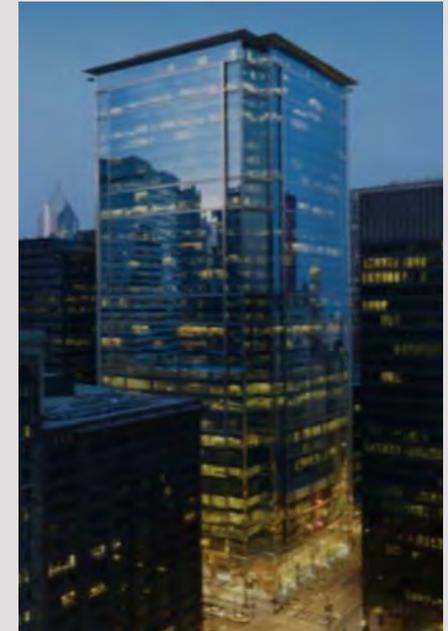
- ✓ Investors own equity or debt
- ✓ Highest occupancy rates
- ✓ Least leveraged
- ✓ Most liquid
- ✓ Numerous buyers and sellers
- ✓ Investment return mostly from rental cash flows, not appreciation

## NON-CORE: VALUE-ADDED



- ✓ Investors own equity or debt
- ✓ Mid-range occupancy rates
- ✓ Moderate use of leverage
- ✓ Needs operating improvements, i.e. reduction of expenses
- ✓ Needs minor renovations
- ✓ Investment return more from appreciation than rental cash flows

## NON-CORE: OPPORTUNISTIC



- ✓ Investors own equity or debt
- ✓ Low occupancy rates
- ✓ Higher use of leverage
- ✓ Needs major operating improvements, i.e. change of use
- ✓ Needs major renovations
- ✓ Investment return nearly all from appreciation

# Strategies of Private Real Estate Equity Investing

- **Allocators**

- Create joint venture partnerships with local real estate operators, who:
  - Have local market expertise and networks
  - Source new acquisitions
  - Charged with day-to-day operations of fund properties
- Local operators typically invest equity alongside the fund manager and receive incentive compensation

- **Operators**

- Vertically integrated across all real estate investment activities, including acquisitions to dispositions, leasing, property and asset management, construction and development

# Real Estate Returns – Sources and Drivers

## Sources

### Appreciation

- Increases or decreases in the market value of an asset

### Income

- Rents received less operating expenses

## Drivers

Location

Physical condition

Supply/demand

Credit quality of tenants

Cap rates

Employment levels

Amenities

Occupancy

Square footage of property

Rent roll

Capital expenditures

Market volatility

# Real Estate - Benefits



- ✓ Return enhancement
- ✓ Diversification
- ✓ Inflation hedge
- ✓ Contractual income
- ✓ Ability to influence performance

# Real Estate - Risks



- ✓ Business risk
- ✓ Financial risk
- ✓ Liquidity risk
- ✓ Inflation risk
- ✓ Operational risk
- ✓ Legal risk

# Pacing

**Commitment plan on when and how much to invest in real estate to maintain allocation within the approved ranges**

## *Items to consider*

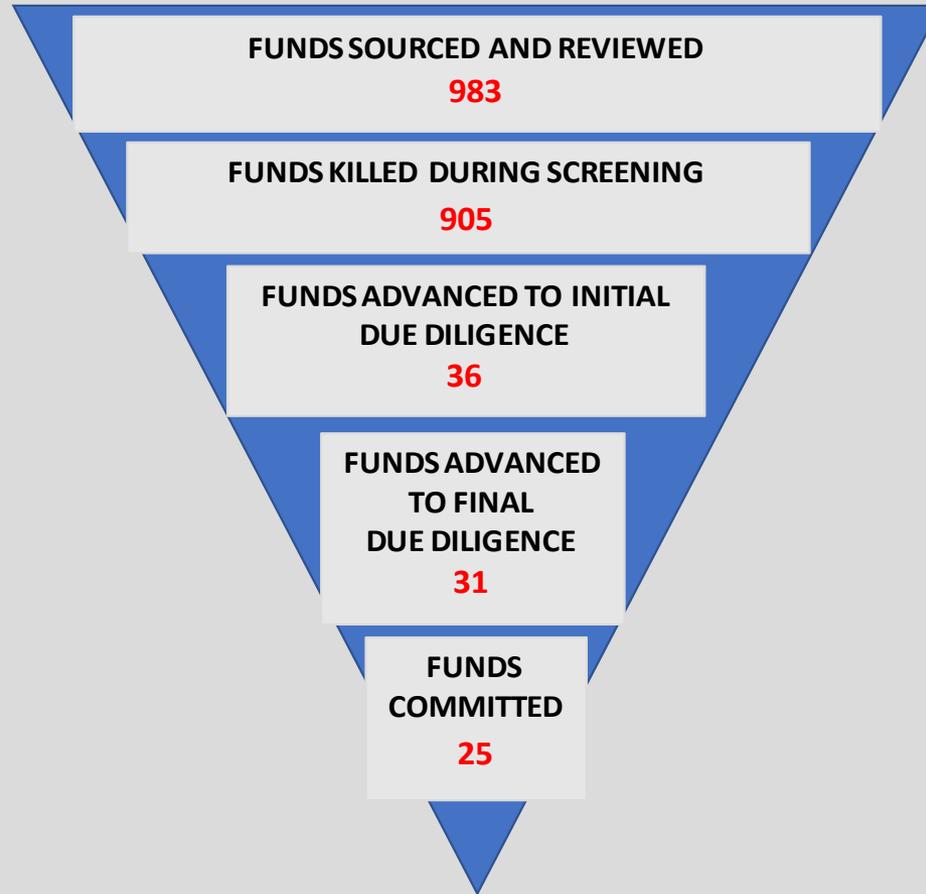
- ✓ Timing of when commitments are drawn down
  - ✓ Timing of distributions as funds mature
  - ✓ How capital calls and distributions contribute to maintaining the allocation within approved ranges

# Pacing

RVK provides pacing studies that address the following:

- Evaluates current real estate exposure relative to total plan assets
- Considers the following factors:
  - Paid in Capital (Contributed Funds/Cash In)
  - Distributed Capital (Distributed Funds/Cash Out)
  - Valuation
  - Allocation within the range
- Takes into account the annualized growth rate for the total plan assets
- Provides flexibility to explore various scenarios

# Real Estate Deal Flow – Past 5 Years 2015 - YTD 2019



# Actual/Expected Pacing

## Private Real Estate Equity - Core Fund Pacing:

- Added to and accomplished more diversified geographic and property type exposure through new relationships, anticipate reducing overlapping exposure to fund growth in real estate debt

## Private Real Estate Equity - Non-Core Pacing:

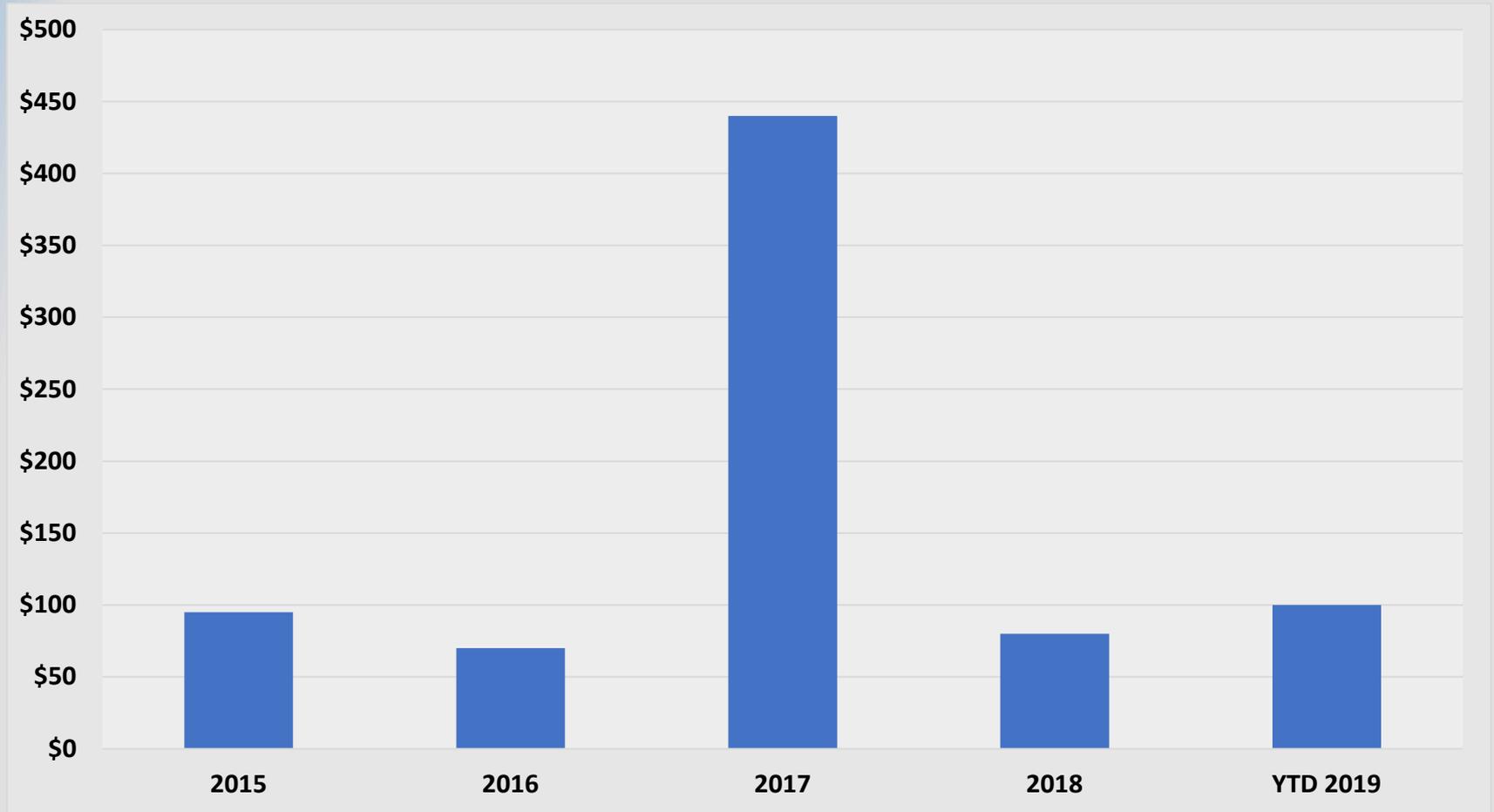
\$ Expected Long-term Annual Allocation Goal	-	\$120M
# Expected Funds per Year	-	4
\$ Expected Commitment size	-	\$30M

# Actual/Expected Pacing

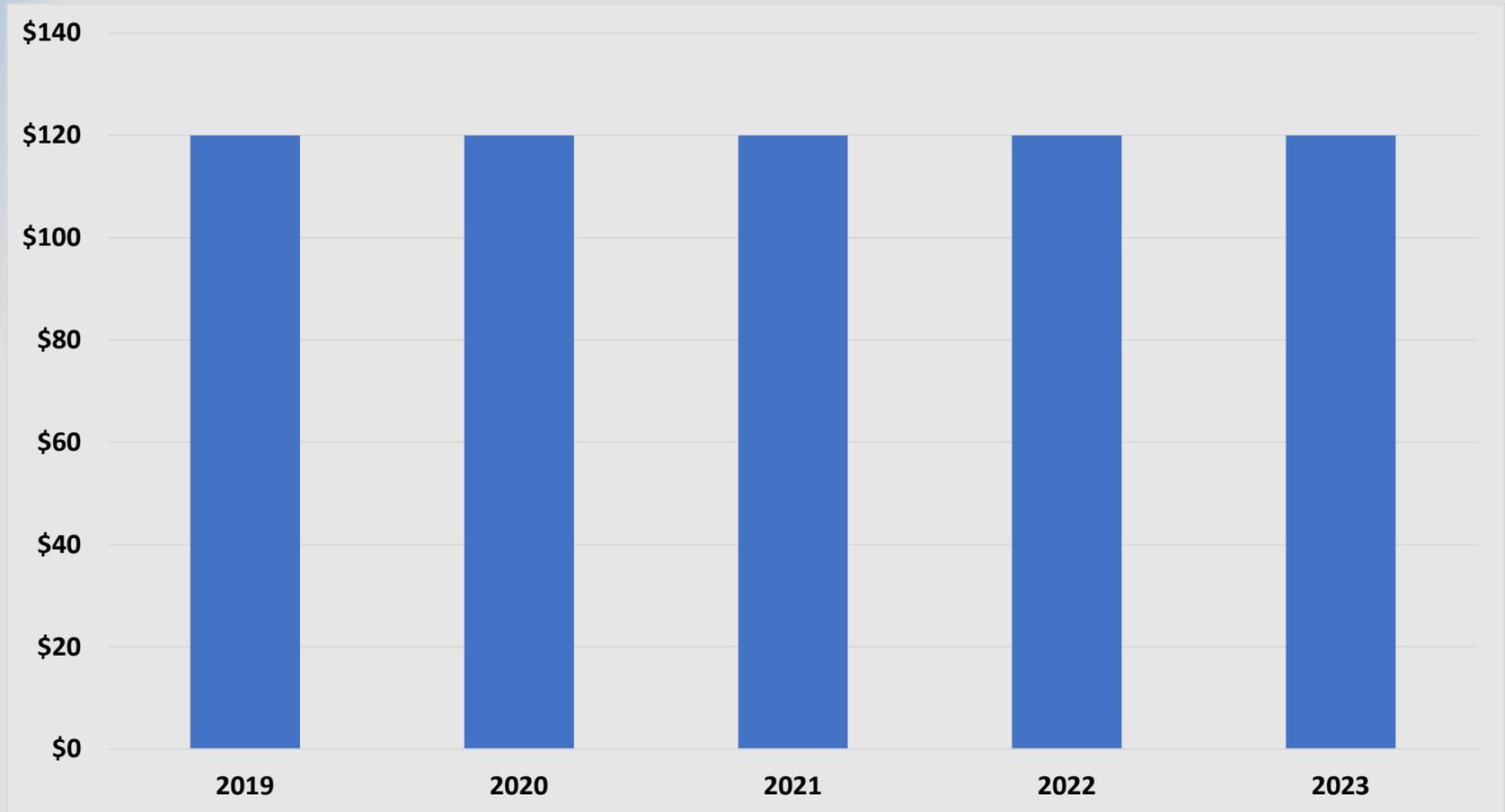
## **Private Real Estate Debt:**

- Exploring the continued addition of real estate debt, near-term pacing uncertain at this time, staff working with RVK

# Actual Pacing – Commitments Past 5 Years



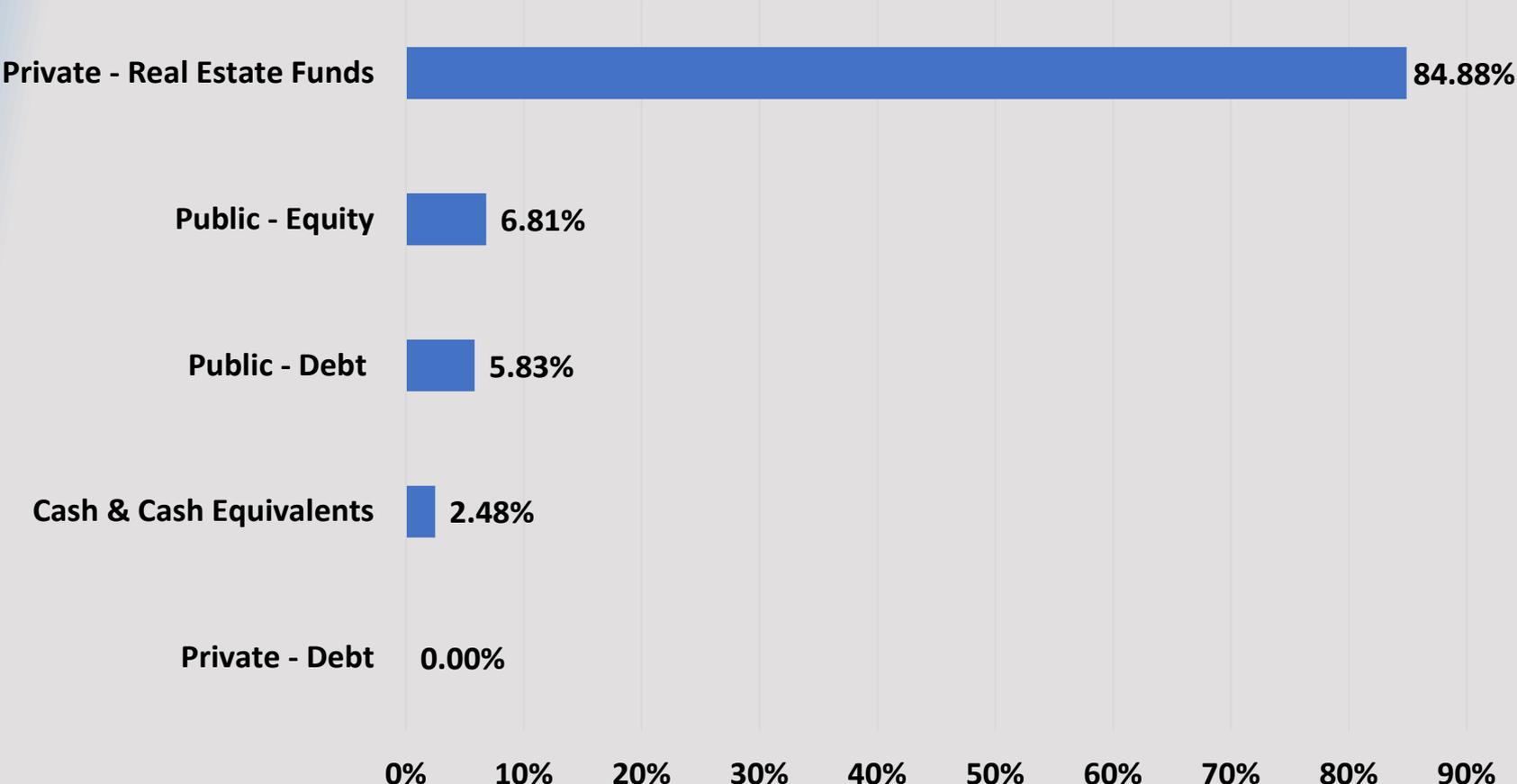
# Expected Pacing – Commitments Going Forward



# Performance and Net Asset Value

- Time-Weighted Return (TWR) Performance as of 6/30/2019, net of fees
  - Since inception 4.05%
  - 1 year 8.41%
  - 5 year 10.22%
  - 10 year 7.79%
- Sizing as of 6/30/2019 - \$886,429,201
  - % of CAPP 7.73%

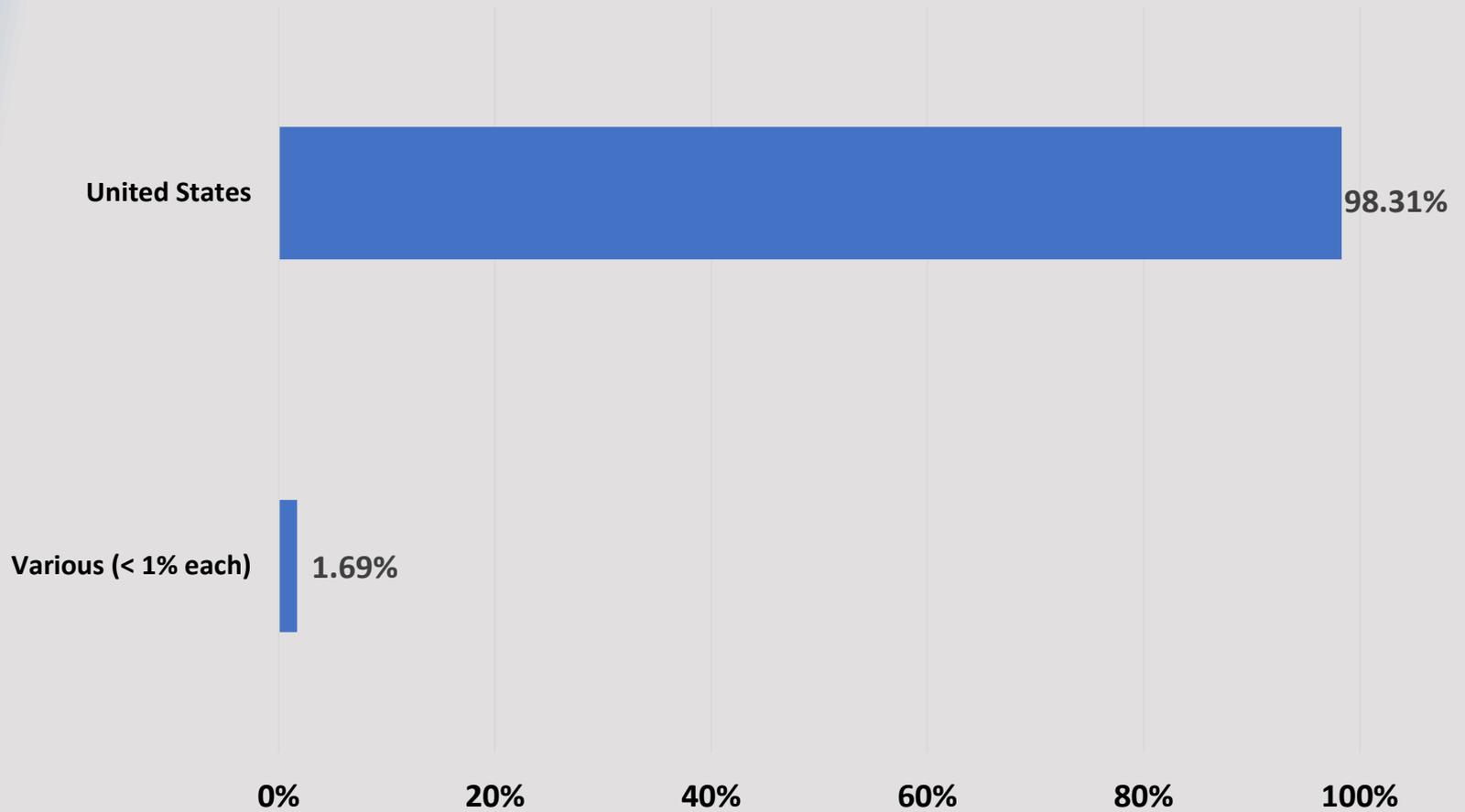
# Real Estate Asset Class by Type



\* Best available cash adjusted numbers as of 6/30/19

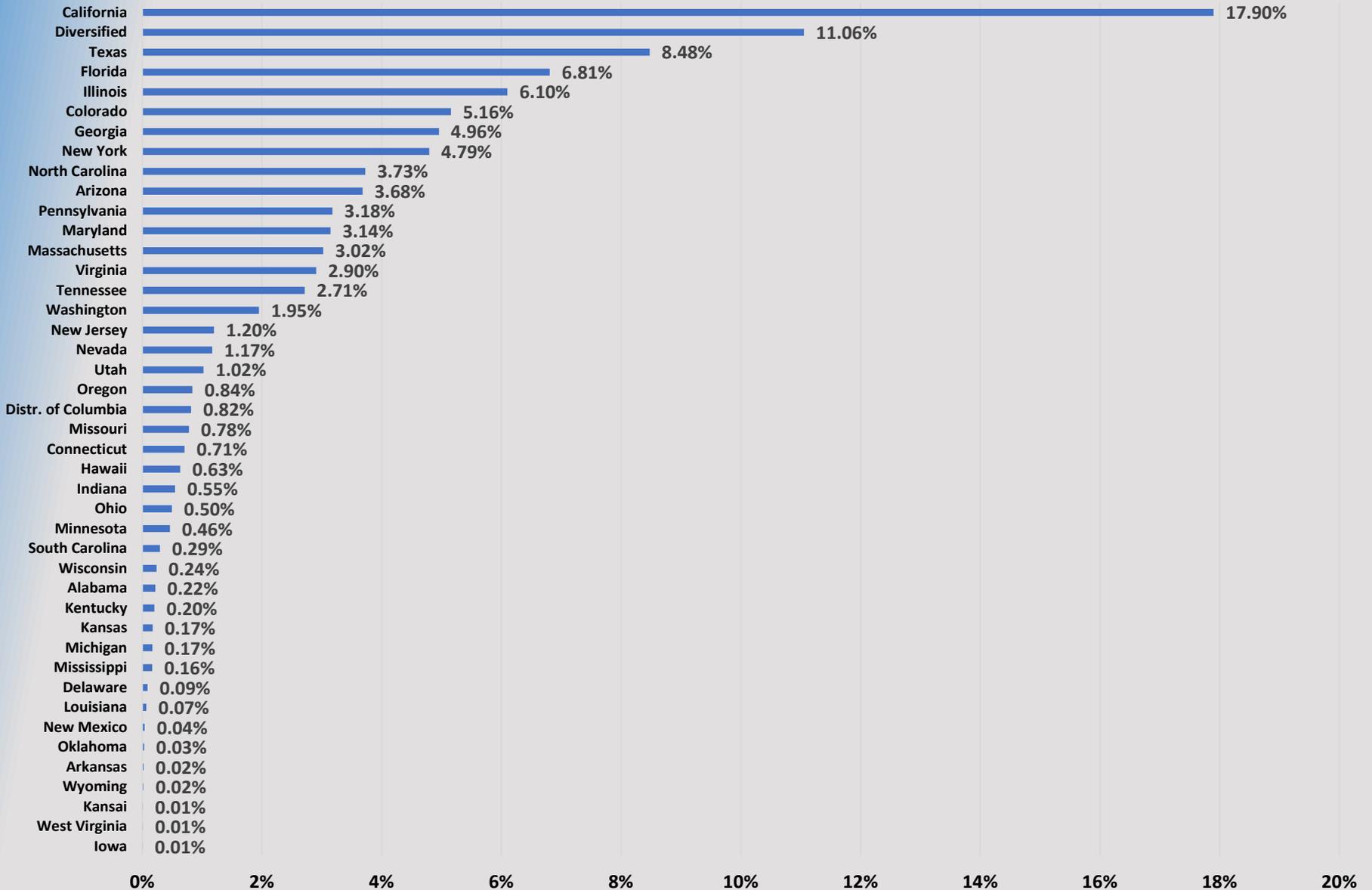


# Real Estate Asset Class by Country



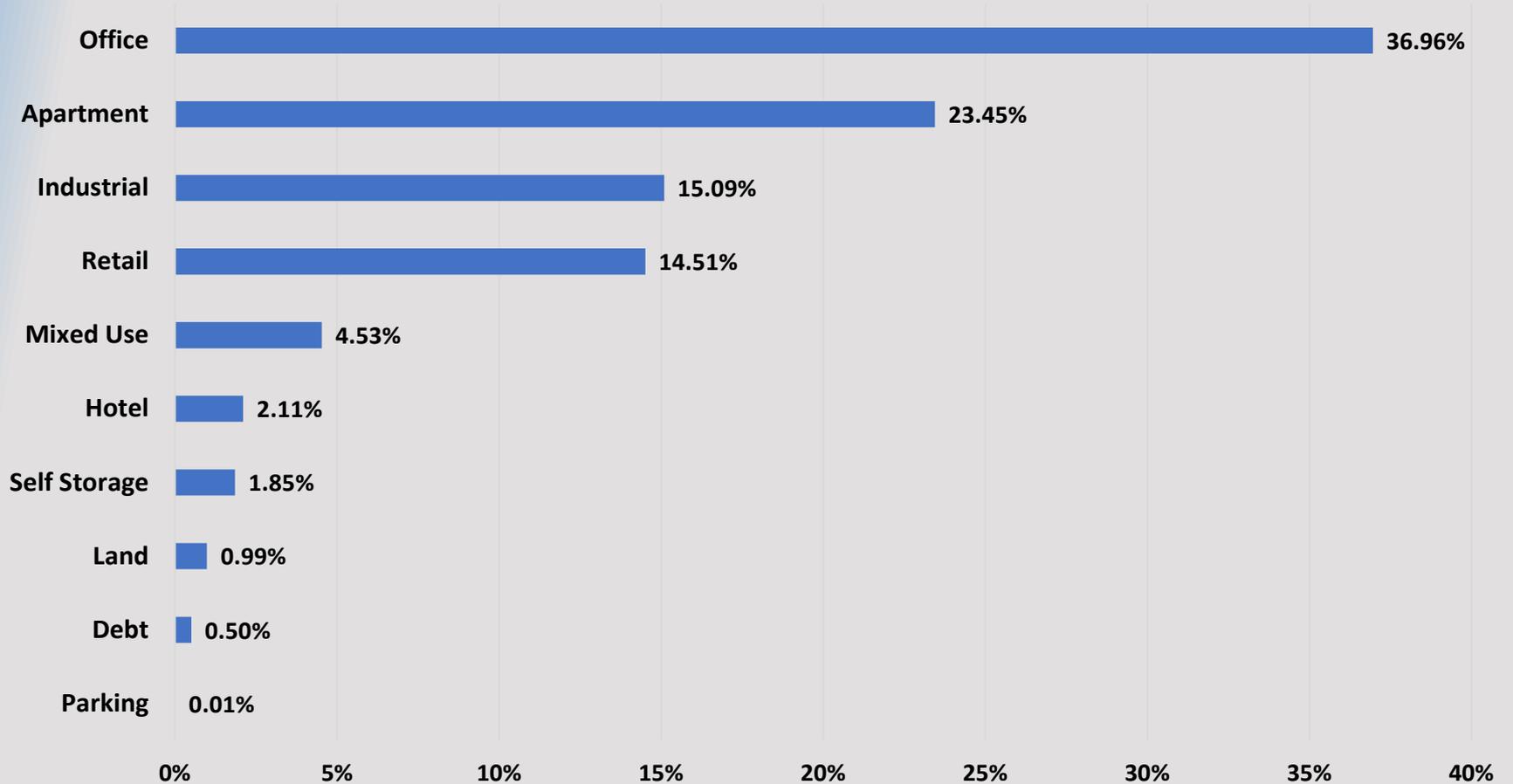
\* GP reported investments by country as of 3/31/2019

# Private Real Estate Funds by U.S. State



\* GP reported U.S. investments by state as of 3/31/2019

## Private Real Estate Funds by Property Type



\* GP reported property types as of 3/31/2019

# Top Real Estate Investments by Net Asset Value

Type	Investment Name	Net Asset Value
Core	JP Morgan Strategic Property Fund	\$107,208,747.45
Core	PRISA	\$85,227,882.36
Core	UBS-Trumbull Property Fund	\$83,437,540.60
Core	Heitman America Real Estate Trust	\$80,941,188.98
Public Debt	Fidelity Real Estate High Income Fund	\$51,699,785.90
Core	American Core Realty Fund	\$41,698,037.63
Public Equity	CenterSquare U.S. Real Estate Securities	\$40,103,557.60
Private Equity	CBRE Strategic Partners US Value Fund 8	\$22,588,462.93
Private Equity	Stoltz Real Estate Fund V, LP	\$21,719,896.35
Private Equity	DRA Growth and Income Fund VIII	\$19,973,685.01

\* Best available cash adjusted numbers as of 6/30/19

# Real Estate Market Environment, Strategy & Rationale

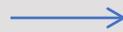
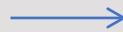
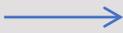
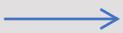
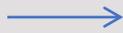
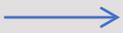
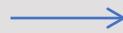
# Market Environment

- US economy is on a stable footing, with a robust labor market, healthy levels of consumer spending and business inventories, all positive for real estate operating fundamentals which are slowing but still growing
- Rising construction costs and disciplined financing have led to a moderation in new supply in some property sectors, creating the backdrop for a stabilization and potential improvement in fundamentals
- Final transaction volumes for 2018 came in at \$562B, the second highest since the crisis, expecting similar levels for 2019
- Broad-based participation by multiple sources lending to the US commercial real estate markets
- Cap rates for US commercial real estate assets remain stable, attributed to a wall of domestic and global capital, steady economic growth and continued low interest rates
- Real estate capital markets and fundamentals are continue to moderate, overall expectations for 2019 and 2020 are flat to up slightly, moderating growth in GDP and jobs growth for 2019 to 2021 should lead to slower but still positive real estate demand and absorption
- Fund flows to real estate, cap rates and income returns should remain stable in 2019
- 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 attract capital as the search for yield continues
- Real estate dry powder increased to \$344B through July 2019 up from \$306B year-end 2018
- Key takeaways – US economy on stable footing with stable to positive real estate fundamentals, volumes are elevated and stable, debt markets are open, prices are stable, continued moderation expected in coming years, fundraising is strong and dry powder is high

# Current Strategy and Rationale

## What

- Continue to grow allocation
- Focus on North America
- Preference for pure-play, vertically integrated real estate operators
- Continued focus on growing existing real estate debt exposure
- Reduce core real estate exposure
- Continued focus on existing high conviction GPs
- Tactically add to existing publicly traded real estate exposure
- Evaluate opportunistic secondary sales



## Why

- Source of equity returns, current income, contribute to reduced volatility across CAPP
- Well understood, deepest, most liquid market, known “rules of the game”
- More nimble and responsive to shifts in the market, closer to the asset, own their data, removes extra layer of fees
- Late cycle concerns, diversify away from equity exposure, greater capital structure protection, current income
- Realize gains, generate liquidity to fund other real estate strategies
- Good portfolio fit, known quantities, partnership orientation, more depth less breadth
- Diversification of current exposure beyond private real estate equity, similar return profile to core real estate, lower cost, more liquid
- Active portfolio management to concentrate portfolio on high conviction names, take advantage of favorable pricing dynamics

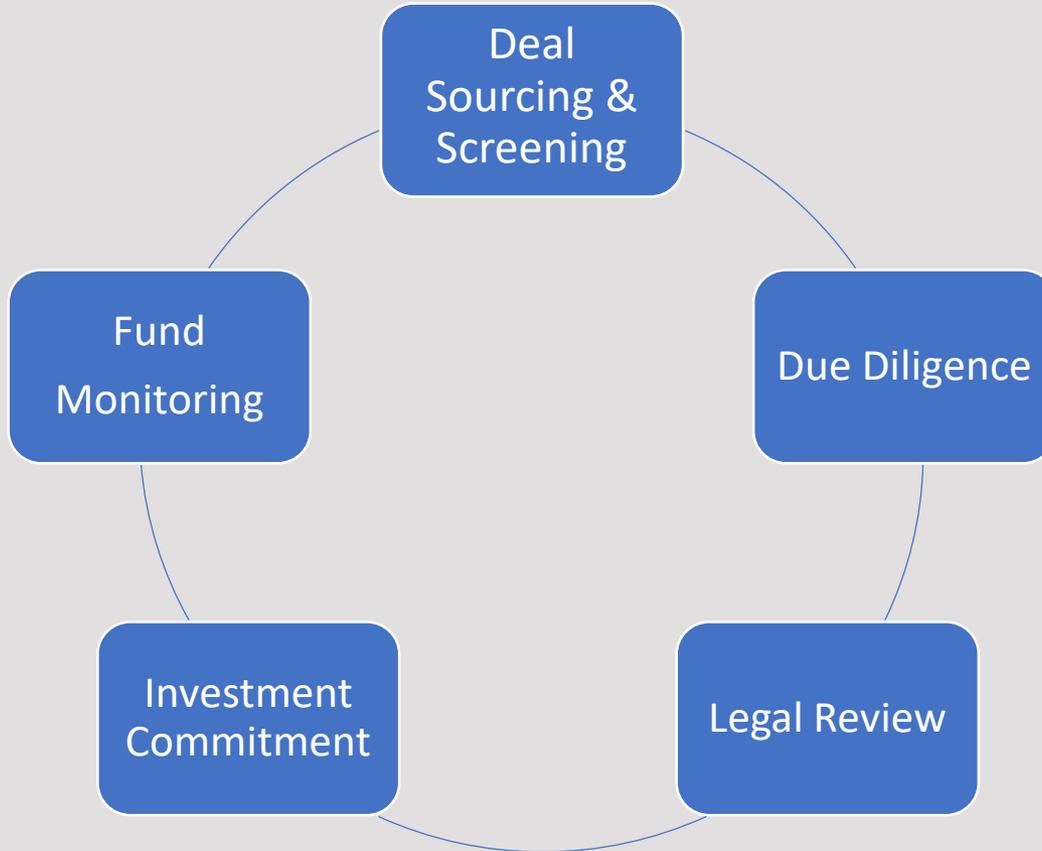
# Property Views on Google Earth

<b>Property Type</b>	<b>Manager/Asset</b>	<b>Address/MSA</b>	<b>Style &amp; Strategy</b>
<b>Multifamily</b>	<b>Bell Apartments/ Bell South Bay</b>	<b>11622 Aviation Blvd Los Angeles, CA</b>	<b>Non-Core, Operator</b>
<b>Office</b>	<b>Hammes Partners/ Westchester County Medical Office</b>	<b>34 S Bedford Road Newark, NJ</b>	<b>Non-Core, Operator</b>
<b>Retail</b>	<b>Heitman / Shops at Pembroke Gardens</b>	<b>527 SW 145<sup>th</sup> Terrace Fort Lauderdale, FL</b>	<b>Core, Allocator</b>
<b>Retail</b>	<b>PGIM / Eleven Times Square</b>	<b>640 Eighth Avenue New York, NY</b>	<b>Core, Allocator</b>

# Appendix

# MBOI Real Estate Investment Process

# Investment Process



# Deal Sourcing & Screening

- Network of Contacts
  - LPs
  - Plan Sponsors
  - General Partners
  - Placement Agents
  - Consultants
  - Service Providers
- Periodicals
- Preqin (external online database provider)

# Due Diligence

- **Initial Review**

- Determine portfolio fit and ascertain critical due diligence points
- MBOI Part A DDQ completion by GP
- Introductory meeting with GP in Helena
- Decision Point: CIO and NR/RE team decide to proceed to full diligence

- **Continuing Diligence**

- MBOI Part B DDQ completion by GP
- Analysis of firm, strategy, investment process, philosophy
- Review of historical record and performance
- Interviews and reference calls
- Onsite due diligence at GP offices

# Legal Review

- Staff conducts initial review and communicates any pre-identified and pre-negotiated terms with GP to external counsel
- External counsel reviews legal documents and presents comments to staff for review
  - Focuses on compliance with ILPA Principles/best practices
  - Collaborative/iterative process with staff

# Investment Commitment

- Final commitment decision –CIO and RE team decide final amount to commit to fund
- Legal counsel submits the completed and signed legal documents for a scheduled closing
- Legal counsel will later review any Most Favored Nations provisions MBOI is eligible to elect for approval
- Set up fund internally with MBOI Accounting and externally with third-party administrator, State Street

# Fund Monitoring

- Review Quarterly/Annual Reports & Financials
  - Formal review of Real Estate managers done bi-annually
  - Participate in quarterly calls with managers
- In-person fund update meetings, typically annually
- Annual General Meetings (AGM)
- LPAC Membership (if any) participation
- Visit Real Estate GPs and fund properties as travel plans allow

# Real Estate Asset Class Schedule of Investments

**Disclaimer:** Performance and market values presented below are based on best available cash adjusted numbers and do not necessarily match GP-reported data based on book of record

# Real Estate Asset Class – 6/30/2019

Investment Manager	Investment Name	Vintage Year	Commitment	Contributions	Distributions	Net Asset Value	TWR	Investment Multiple	LPAC Membership
<b>Real Estate Asset Class</b>		<i>Since inception</i>	\$1,775,182,651	\$1,599,365,915	\$1,264,385,985	\$886,429,201	4.05		
<b>Cash and Cash Equivalents</b>			-	-	-	\$21,952,436	-		
<b>Net Asset Value Adjustment</b>						\$312,756			
<b>Public Real Estate Equity</b>		<i>Since inception</i>	\$40,000,000	\$40,000,000	\$0	\$60,353,963	-		
Vanguard	Vanguard Real Estate ETF		-	-	-	\$20,250,405	7.93	-	-
CenterSquare Management	CenterSquare U.S. Real Estate Securities	2019	\$40,000,000	\$40,000,000	\$0	\$40,103,558	0.26	-	-
<b>Public Real Estate Debt</b>		<i>Since inception</i>	\$50,000,000	\$50,000,000	\$0	\$51,699,786			
Fidelity Investments	Fidelity Real Estate High Income Fund	2018	\$50,000,000	\$50,000,000	\$0	\$51,699,786	7.93	-	-

# Real Estate Asset Class – 6/30/2019

Investment Manager	Investment Name	Vintage				Net Asset		Investment	LPAC
		Year	Commitment	Contributions	Distributions	Value	ITD IRR	Multiple	Membership
<b>Private Real Estate Equity -</b>									
<b>Core Funds</b>									
	<i>Since inception</i>		\$ 530,000,000	\$529,870,915	\$337,405,293	\$398,513,397	6.21	1.39	
JP Morgan	JP Morgan Strategic Property Fund	2007	\$120,000,000	\$130,569,120	\$114,625,858	\$107,208,747	6.98	1.70	Yes
UBS	UBS-Trumbull Property Fund	2010	\$50,000,000	\$56,171,872	\$25,280,299	\$83,437,541	9.16	1.94	Yes
Prudential	PRISA	2017	\$80,000,000	\$81,506,375	\$7,792,602	\$85,227,882	7.05	1.14	-
American Realty Advisors	American Core Realty Fund, LLC	2017	\$40,000,000	\$40,519,306	\$3,586,732	\$41,698,038	7.14	1.12	Yes
Heitman	Heitman America Real Estate Trust, L.P.	2018	\$80,000,000	\$80,350,780	\$1,761,735	\$80,941,189	3.83	1.03	-
Sterling	Sterling United Properties II, LP	2019	\$30,000,000	\$0	\$0	\$0	-	-	Yes
<b>Private Real Estate Equity -</b>									
<b>Non-Core Funds</b>									
	<i>Since inception</i>		\$ 1,167,508,606	\$961,727,010	\$899,842,796	\$353,596,863	6.54	1.30	
Alex Brown Realty	ABR Chesapeake Fund III	2006	\$20,000,000	\$20,355,357	\$25,815,270	\$238,061	3.46	1.28	Yes
Apollo Financial Advisors	Apollo Real Estate Finance Corp.	2006	\$10,000,000	\$10,081,930	\$9,249,332	\$146,719	-1.20	0.93	-
Angelo, Gordon & Co.	AG Core Plus Realty Fund II	2007	\$20,000,000	\$16,700,729	\$22,302,800	\$552,052	7.91	1.37	-
Angelo, Gordon & Co.	AG Realty Fund VII L.P.	2007	\$20,000,000	\$16,156,451	\$25,258,570	\$524,654	12.37	1.60	-
Fund Fiduciary Partners	ARC (GP1) Ltd	2007	\$18,818,203	\$20,742,194	\$18,391,257	\$1,192,756	-1.12	0.94	-
CIM Group	CIM Fund III, L.P.	2007	\$25,000,000	\$29,030,199	\$35,960,729	\$13,068,264	9.95	1.69	-
Carlyle Group	Carlyle Europe Real Estate Partners III, L.P.	2007	\$29,848,931	\$28,141,436	\$22,731,240	\$1,422,453	-2.63	0.86	-
DRA Advisors	DRA Growth & Income Fund VI	2007	\$22,655,319	\$26,730,474	\$41,763,210	\$1,262,606	10.66	1.61	-
Almanac Realty Investors	Five Arrows Securities V, L.P.	2007	\$30,000,000	\$33,225,624	\$48,600,127	\$1,087,609	11.57	1.50	-
Hudson Realty Capital	Hudson Realty Capital Fund IV	2007	\$15,000,000	\$15,080,434	\$6,441,258	\$3,904,504	-4.22	0.69	-
Macquarie Global Property Advisors	MGP Asia Fund III, LP	2007	\$26,143,978	\$21,433,157	\$25,230,383	\$58,339	2.74	1.18	-
Morgan Stanley	MSREF VI International	2007	\$27,500,000	\$28,498,531	\$8,005,072	\$597,797	-14.00	0.30	-
Realty Associates	Realty Associates Fund VIII	2007	\$20,000,000	\$20,235,196	\$20,005,554	\$51,383	-0.10	0.99	-
O'Connor Capital Partners	O'Connor North American Partners II	2008	\$15,000,000	\$15,307,787	\$9,817,974	\$3,242,244	-2.58	0.85	-
Alex Brown Realty	ABR Chesapeake Fund IV	2010	\$30,000,000	\$30,744,681	\$42,680,071	\$6,245,200	13.88	1.59	Yes
GEM Realty Capital	GEM Realty Fund IV, L.P.	2010	\$15,000,000	\$11,800,341	\$21,325,218	\$471,954	19.92	1.85	-
Angelo, Gordon & Co.	AG Core Plus Realty Fund III	2011	\$35,000,000	\$27,817,180	\$44,247,463	\$6,584,634	19.75	1.83	-
Angelo, Gordon & Co.	AG Realty Fund VIII L.P.	2011	\$20,000,000	\$17,054,644	\$22,409,200	\$5,942,022	13.77	1.66	-
DRA Advisors	DRA Growth & Income Fund VII, LLC	2011	\$30,000,000	\$36,716,588	\$65,198,317	\$5,072,599	20.17	1.91	-
Landmark Partners	Landmark Real Estate Partners VI	2011	\$20,000,000	\$17,889,548	\$25,970,797	\$2,009,858	20.26	1.56	-
CBRE Global Investors	CBRE Strategic Partners US Value Fund 6	2012	\$20,000,000	\$21,010,318	\$28,408,054	\$36,763	12.03	1.35	Observer
Equus Capital Partners	BPG Investment Partnership IX, LP	2013	\$30,000,000	\$28,536,093	\$41,196,749	\$4,394,227	16.81	1.60	Yes
GEM Realty Capital	GEM Realty Fund V, L.P.	2013	\$20,000,000	\$17,847,002	\$5,741,001	\$18,496,819	10.91	1.36	-
Realty Associates	Realty Associates Fund X	2013	\$20,000,000	\$20,606,364	\$22,595,514	\$9,404,787	12.52	1.55	-

# Real Estate Asset Class – 6/30/2019

Investment Manager	Investment Name	Vintage				Net Asset		Investment	LPAC
		Year	Commitment	Contributions	Distributions	Value	ITD IRR	Multiple	Membership
CBRE Global Investors	CBRE Strategic Partners US Value Fund 7	2014	\$25,000,000	\$25,447,200	\$28,197,310	\$6,839,745	11.92	1.38	Observer
DRA Advisors	DRA Growth and Income Fund VIII	2014	\$25,000,000	\$25,218,926	\$14,157,848	\$19,973,685	11.58	1.35	-
Harbert Capital Management	Harbert US Real Estate Fund V, LP	2014	\$20,000,000	\$18,641,650	\$15,670,463	\$10,635,024	12.65	1.41	Yes
Stoltz Real Estate Partners	Stoltz Real Estate Fund V, LP	2014	\$20,000,000	\$20,378,835	\$4,391,235	\$21,719,896	8.81	1.28	Yes
Angelo, Gordon & Co.	AG Core Plus Realty Fund IV, L.P.	2015	\$20,000,000	\$17,150,121	\$2,315,333	\$17,321,662	7.22	1.15	-
Angelo, Gordon & Co.	AG Realty Fund IX	2015	\$20,000,000	\$17,747,639	\$3,435,125	\$18,920,595	11.30	1.26	-
Equus Capital Partners	Equus Investment Partnership X, LP	2015	\$20,000,000	\$19,260,182	\$5,047,202	\$18,728,775	9.56	1.23	Yes
PCCP, LLC	PCCP Equity VII, LP	2015	\$15,000,000	\$14,698,310	\$4,439,103	\$13,723,808	11.78	1.24	-
Stockbridge Capital Group	Stockbridge Value Fund II, LP	2015	\$35,000,000	\$32,549,037	\$26,944,219	\$19,956,663	15.02	1.44	Yes
Velocis	Velocis Fund II, LP	2016	\$20,000,000	\$17,834,256	\$3,405,944	\$16,905,511	7.91	1.14	Yes
Bell Partners	Bell Institutional Fund VI, LP	2017	\$20,000,000	\$15,740,063	\$329,213	\$15,617,450	1.34	1.01	Yes
CBRE Global Investors	CBRE Strategic Partners US Value Fund 8	2017	\$25,000,000	\$20,943,847	\$1,099,912	\$22,588,463	9.16	1.13	Observer
DRA Advisors	DRA Growth and Income Fund IX	2017	\$20,000,000	\$17,101,197	\$3,802,496	\$15,731,564	15.91	1.14	-
GEM Realty Capital	GEM Realty Fund VI, L.P.	2017	\$25,000,000	\$3,948,907	\$1,823,907	\$2,121,450	-0.14	1.00	-
Oak Street Real Estate Capital	Oak Street Real Estate Capital IV	2017	\$25,000,000	\$9,040,240	\$1,505,099	\$7,780,058	3.13	1.03	-
Stockbridge Capital Group	Stockbridge Value Fund III LP	2017	\$30,000,000	\$9,692,826	\$694,529	\$8,783,828	-2.38	0.98	Yes
Stoltz Real Estate Partners	Stoltz Real Estate Fund VI, LP	2017	\$30,000,000	\$13,685,365	\$5,281,782	\$11,148,191	21.05	1.20	-
BKM Capital Partners	BKM Industrial Value Fund II, L.P.	2018	\$30,000,000	\$14,541,566	\$942,944	\$14,666,114	5.38	1.07	Yes
Hammes Realty Advisors	Hammes Partners III, L.P.	2018	\$30,000,000	\$2,160,943	\$167,598	\$1,243,686	-69.35	0.65	-
Angelo, Gordon & Co.	AG Realty Value Fund X US, L.P.	2019	\$30,000,000	\$1,275,000	\$0	\$1,275,000	0.00	1.00	Observer
Centerbridge Partners	Centerbridge Partners RE Fund LP	2019	\$30,000,000	\$1,975,414	\$146,642	\$1,907,391	4.30	1.04	Yes

# 2019 CALENDAR

Board Dates Board Packet Mailing Holidays

01 New Year's Day  
21 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		

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		

18 Presidents Day

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				

19 Good Friday  
21 Easter Sunday

12 Mother's Day  
27 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						

16 Father's Day

04 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

02 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					

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		

14 Columbus Day  
31 Halloween

11 Veterans Day  
28 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

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				

25 Christmas Day

## BOI WORK & EDUCATION PLAN

### 2018

#### FEBRUARY

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

#### APRIL

Custodial Bank Relationship, Performance, Continuity  
Website  
Policy Statements Review  
Capital Market/Asset Allocation - Consultant  
Consultant Board Member Education

#### MAY

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

#### AUGUST

Cost Reporting including CEM, Inc. Analysis  
Budget Status Prior FY  
High Yield Asset Class Review  
Real Estate Asset Class Review  
Quarterly Reports  
Committee Meetings:  
    Audit: SOC Report

#### OCTOBER

Proxy Voting Public Equities Review  
Cash Management of State Monies  
Private Equity Asset Class Review  
Consultant Board Member Education

#### NOVEMBER

2019 Legislative Session  
Budget Proposed FY '20-'21  
Resolution 217 Authorization of Investment Vendors  
PERS and TRS Relationship  
Asset Allocation Range Approval  
Quarterly Reports  
Committee Meetings:  
    Audit: SOC Report  
    Audit: Annual Report and Financial Statements  
    HR: Exempt Staff Performance Review

### 2019

#### FEBRUARY

Ethics Policy  
Disaster Recovery and Emergency Preparedness  
Outreach Efforts for Board - Loan and Municipal Programs  
In-State Loan Program  
INTERCAP / Board Rated Credit, Bond Issuer, Credit Enhancer  
International Equities Asset Class Review  
STIP Review  
Treasurers Fund Review  
Quarterly Reports  
Committee Meetings:  
    Audit: Financial Audit

#### APRIL

Website  
Policy Statements Review  
Benchmarks used by Board  
Capital Market/Asset Allocation - Consultant  
Consultant Board Member Education

#### MAY

MT Buildings (Board as Landlord/Tenant Holdings)  
Budget Status FYTD  
Fixed Income Asset Classes Review  
State Fund as Principal Investment Client  
State Government Customer Relationships  
Separate Accounts Review  
Quarterly Reports  
Committee Meetings:  
    Audit: Accounting Review  
    HR: Staffing Level Review  
    HR: Exempt Staff Compensation Review

#### AUGUST

Cost Reporting  
Budget Status Prior FY  
Real Estate Asset Class Review  
Coal Severance Tax Trust Review Quarterly Reports  
Committee Meetings:  
    Audit: SOC Report

#### OCTOBER

Securities Lending Review  
Private Equity Asset Class Review  
Diversifying Strategies Asset Class Review  
Consultant Board Member Education

#### NOVEMBER

Resolution 217 Authorization of Investment Vendors  
PERS and TRS Relationship  
Asset Allocation Range Approval  
Quarterly Reports  
Committee Meetings:  
    Audit: Securities Litigation Status  
    Audit: Annual Report and Financial Statements  
    HR: Exempt Staff Performance Review

			<b>WORK &amp; EDUCATION PLAN</b>
Completed	Completed	In-Process	
2017	2018	2019	
X		X	Accounting Review
X	X	X	Annual Report and Financial Statements
X	X	X	Asset Allocation Range Approval (Board Must Review/Approve Annually as per Policy)
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	Board Member Education
X	X	X	Board's Budget
X	X	X	Capital Market/Asset Allocation - Consultant
	X		Cash Management of State Monies
X	X		Cost Reporting including CEM, Inc. Analysis
	X		Custodial Bank Relationship, Performance, Continuity
X	X	X	Disaster Recovery and Emergency Preparedness
X	X	X	Domestic Equities Asset Class Review
X	X	X	Exempt Staff Performance and Compensation Review (HR Policy Requires Annual Consideration)
X	X	X	Ethics Policy – (Board Policy Requires Annual Affirmations)
X	X	X	Fixed Income Asset Classes Review
X		X	In-State Loan Program
X		X	INTERCAP Program
X	X	X	Internal Controls
	X	X	International Equities Asset Class Review
X	X	X	Investment Consultant Independent Presentations (Board Requires at Least Two Annually)
X	X	X	Legislative Session and Interim Matters
X		X	MT Buildings (Board as Landlord/Tenant Holdings)
X	X	X	Outreach Efforts for Board - Loan and Municipal Programs
X	X	X	PERS and TRS Relationship
X	X	X	Policy Statements Review (Governance Policy Requires Annual Investment Policy Review)
	X	X	Private Equity Asset Class Review
	X		Proxy Voting Public Equities
	X	X	Real Estate Asset Class Review
X	X	X	Resolution 217 Authorization of Investment Vendors (Board Policy Requires Annual Update)
X		X	Securities Lending
X	X	X	Securities Litigation
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
	X	X	Diversified Strategies 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
SMA's .....	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

## **130/30 Market Strategy**

**Public Markets**

A form of Long-Shorting where the long exposure is 130% and the short exposure is 30%. See Partial Long/Short

## **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**

**Accounting**

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.

## **Actuarial Funding Status**

**Accounting**

A measurement made by actuaries to measure a pension system's financial soundness. Shows the actuarial assets available to fund liabilities.

## **Agency Bonds**

**Fixed Income**

Agency bonds are issued by official US Government bodies. Compare to GSE Bonds

## **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)**

**Fixed Income**

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.

## **Average Credit Quality**

**Fixed Income**

The average credit rating for each bond in the portfolio adjusted for its relative weight in the portfolio. See Credit Rating.

## **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**

**Private Investments**

A fund or portfolio where the investors are not aware of what the specific investments will be at the time of the initial commitment.

## **Bloomberg Barclay's US Aggregate Index**

**Fixed Income**

A broad bond index covering most U.S. traded bonds and some dollar denominated foreign bonds traded in the U.S.

**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/Mega buyout
  - Target companies have revenues >\$1B, EBITDA of >\$300M
  - Typically, private equity fund sizes of \$2B and up
- Middle market buyout
  - Target companies have revenues <\$1B, EBITDA of \$25M - \$300M
  - Typically, private equity fund sizes of \$750M to \$2B
- Lower middle market 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**

	<b>Moody's</b>	<b>S&amp;P</b>	<b>Fitch</b>
<b>Investment Grade</b>	Aaa	AAA	AAA
	Aa	AA	AA
	A	A	A
	Baa	BBB	BBB
<b>High-Yield</b>	Ba	BB	BB
	B	B	B
	Caa	CCC	CCC
<b>In Default</b>	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

**EM** – Emerging Markets

**ACWI ex US** – All Country World Index excluding US

**IMI** – Investible (all-cap) Market Index

**EAFE** – Europe, Australasia, and Far East

**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**

[Type here]

### **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**

[Type here]

### **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.

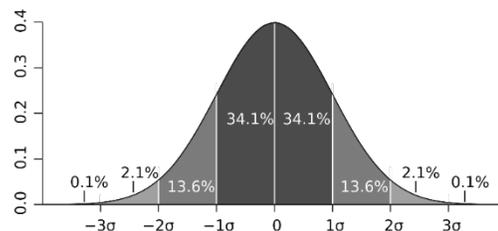
**Fixed Income**

### **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.



[Type here]

### **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.

[Type here]

### **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.

**Fixed Income**

### **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.

