REGULAR MEETING OF THE
MONTANA BOARD OF INVESTMENTS
DEPARTMENT OF COMMERCE
2401 Colonial Drive, 3rd Floor, Helena, Montana
November 15-16, 2016
AGENDA

COMMITTEE MEETINGS

A. **Audit Committee** **8:30 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
2. Approval of October 6, 2016 Committee Minutes
3. Colonial Building Camera Update
4. FY 2016 – Financial Audit – Status
5. Annual Report ***– Decision***
6. Financial Statement Review
7. Statutory Compliance Checklist
8. Annual Compliance with Committee Charter (Charter Checklist) ***– Decision***
9. Securities Litigation Review
10. Education Policy/Board Orientation Revision ***– Decision***
11. STIP Local Government Resolution and Participation Requirements-update

B. **Human Resource Committee** **9:30 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
2. Executive Director Comments ***– Decision***
3. Annual Review of Exempt Staff (Executive Session)

BREAK **10:30 AM**

C. **Loan Committee** **10:45 AM**
1. Public Comment – *Public Comment on issues with Committee Jurisdiction*
2. Approval of August 16, 2016 Committee Minutes
3. INTERCAP Loan Requests – ***Decision***
4. INTERCAP - Credit Enhancement – ***Decision***
5. INTERCAP Additional Bonds - Resolution No. 236 – ***Decision***

Tab 1 CALL TO ORDER – Mark Noennig, Chairman **11:45 AM**
A. Notice of Video Recording of Meeting
B. Roll Call
C. Public Comment – *Public Comment on issues with Board Jurisdiction*
D. Approval of the August 2016 Meeting Minutes
E. Administrative Business
1. Audit Committee Report ***– Decision***
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 – David Ewer **12:10 PM**
A. Member Requests from Prior Meeting
B. Quarterly Cost Report
C. MBOI Snapshot
D. FY 2018-2019 Biennium Budget
E. 2016 Securities Litigation Review
F. Education Policy/Board Orientation Revision ***– Decision***
G. RVK Contract 2017
H. Report on Equity Proxies
I. Resolution 217 – Authorization of Investment Managers
J. Resolution 218 – Delegation of Authority – Executive Director
K. Resolution 234 – Delegation of Authority – Chief Investment Officer
L. FY 2016 Annual Report and Financial Statements – Status
M. Governor's Letter – Public Participation
N. Draft 2017 Board Meeting Dates
O. Draft 2017 Work Plan

LUNCH SERVED **12:30 PM**

The Board of Investments makes reasonable accommodations for any known disability that may interfere with a person's ability to participate in public meetings. Persons needing an accommodation must notify the Board (call 444-0001 or write to P.O. Box 200126, Helena, Montana 59620) no later than three days prior to the meeting to allow adequate time to make needed arrangements.

Tab 3 RETIREMENT SYSTEMS' ANNUAL PRESENTATIONS **1:00 PM**

A. TRS – Shawn Graham, Executive Director
B. PER Systems – Dore Schwinden, Executive Director

Tab 4 ASSET ALLOCATION RANGES – Joe Cullen, CFA, CAIA, FRM – *Decision* **1:45 PM**

BREAK **2:15 PM**

Continued ASSET ALLOCATION RANGES **2:30 PM**

Tab 5 MONTANA LOAN PROGRAM **3:30 PM**

A. Commercial and Residential Portfolios Report

Tab 6 BOND PROGRAM – Louise Welsh **3:45 PM**

A. INTERCAP
   1. Activity Report
   2. Staff Approved Loans Report
   3. INTERCAP Additional Bonds – Resolution No. 236 - ***Decision***

ADJOURN **4:30 PM**

AGENDA DAY 2

RECONVENE AND CALL TO ORDER – Mark Noennig, Chairman **8:30 AM**

A. Notice of Video Recording of Meeting
B. Roll Call
C. Public Comment – *Public Comment on issues with Board Jurisdiction*

Tab 7 QUARTERLY PERFORMANCE REPORT – RVK, INC. MBOI INVESTMENT CONSULTANT **8:40 AM**

Tab 8 INVESTMENT ACTIVITIES/REPORTS – Joe Cullen, CFA, CAIA, FRM **9:30 AM**

A. State Operating Funds – **John Romasko, CFA**
   1. Short-Term Investment Pool (STIP)
   2. Treasurers Fund
B. Pension Funds
   1. Risk Management Reports – **Dan Zarling, CFA**
      i. Retirement System Asset Allocation Report
      ii. Retirement Plans' Performance
   2. Private Investment Reports – **Ethan Hurley, CAIA**
      i. Private Equity Pool (MPEP)
      ii. Real Estate Pool (MTRP)
   3. Fixed Income Portfolio Reports – **Jon Putnam, CFA, FRM, CAIA**
      i. Core Internal Bond Portfolio
   4. Public Market Investment Reports – **Rande Muffick, CFA**
      i. Domestic Equity (MDEP)
      ii. International Equity (MTIP)
      iii. Retirement Fund Bond Pool (RFBP)
C. Trust Funds – **Joe Cullen, CFA, CAIA, FRM**
D. Insurance Funds
   1. State Fund – **Rande Muffick, CFA**

BREAK **10:30 AM**

INVESTMENT ACTIVITIES REPORT continued **10:45 AM**

Tab 9 REAL ESTATE & TIMBER REVIEW – Ethan Hurley, CFA **11:45 AM**

RECAP OF STAFF TO DO LIST AND ADJOURNMENT – Mark Noennig, Chairman **12:30 PM**

Appendix

A. Annual Board Meeting Schedule
B. 24 Month Work Plan
C. Acronym Index
D. Terminology List
E. Public Market Manager Evaluation Policy
F. Educational Resources

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MONTANA BOARD OF INVESTMENTS
DEPARTMENT OF COMMERCE
2401 Colonial Drive, 3rd Floor
Helena, Montana
MINUTES OF THE MEETING – August 16-17, 2016

BOARD MEMBERS PRESENT:
Mark Noennig, Chairman
Karl Englund, Vice Chairman
Terry Cohea
Quinton Nyman
Jack Prothero
Marilyn Ryan
Jon Satre
Sheena Wilson

BOARD MEMBER ABSENT:
Kathy Bessette

LEGISLATIVE LIAISON PRESENT:
Representative Kelly McCarthy

LEGISLATIVE LIAISON ABSENT:
Senator Bob Keenan

STAFF PRESENT:
Jason Brent, CFA, Investment Analyst
Geri Burton, Deputy Director
Dana Chapman, Board Secretary
Frank Cornwell, CPA, Associate Financial Manager
Joseph M. Cullen, CFA, CAIA, FRM Chief Investment Officer
Roberta Diaz, Investment Accountant
David Ewer, Executive Director
Julie Feldman, CPA, Financial Manager
Julie Flynn, Bond Program Officer
Kirsten Haswell, Investment Analyst
Tim House, Investment Analyst
Douglas Hill, Director of In-State Loan Programs
Ethan Hurley, CAIA, Director of Private Investments
Ed Kelly, Investment Analyst
Teri Kolnik, Investment Analyst
Eron Krpan, CIPM, Investment Analyst
April Madden, Investment Accountant
Rande Muffick, CFA, Director of Public Market Investments
Mary Noack, Network Administrator
Kelsey Gauthier, CPA, Investment Accountant
Jon Putnam, CFA, FRM, CAIA, Investment Officer
John Romasko, CFA, Investment Officer
Steve Strong, Investment Analyst
Louise Welsh, Senior Bond Program Officer
Maria Wise, Administrative Assistant
Dan Zarling, CFA, Director of Risk Management

GUESTS:
Jim Voytko, RVK, Inc.
Mark Higgins, CFA, RVK Inc.
Mike Heale, CEM Benchmarking
Webb Brown, CAE, President/CEO, Montana Chamber Foundation
Bridger Mahlum, Government Relations Director, Montana Chamber Foundation

CALL TO ORDER

Board Chairman Mark Noennig called the regular meeting of the Board of Investments (Board) to order at 11:50 a.m. As noted above, a quorum of Board Members was present. Chairman Noennig advised video recording of the meeting was underway and called for public comment. There was none. Chairman Noennig called for comments or revisions to the May 24-25, 2016 Board Meeting Minutes.

Member Jon Satre made a motion to approve the May 24-25, 2016 Board Meeting Minutes as presented. Member Sheena Wilson seconded the motion. The motion carried.

Chairman Noennig called for comments or revisions to the April 5, 2016 Board Meeting Minutes.

> Member Sheena Wilson made a motion to approve the April 5, 2016 Board Meeting Minutes as presented. Member Terry Cohea seconded the motion. The motion carried.

Chairman Noennig called for comments or revisions to the June 29, 2016 Special Conference Call Board Meeting Minutes.

> Member Sheena Wilson made a motion to approve the June 29, 2016 Special Conference Call Board Meeting Minutes as presented. Member Terry Cohea seconded the motion. The motion carried.

ADMINISTRATIVE BUSINESS

Audit Committee Report

The Audit Committee met prior to the Board meeting. Audit Committee Chairman Jon Satre reported that building security cameras have been installed and cover the reception/entry of each floor and the majority of the outside grounds. Drafting of a camera protocol is underway.

The Board's internal controls auditor, Wipfli, reported on the FY16 Internal Controls Report. Wipfli staff was on site and met with Board staff in March, provided a draft report in May and issued the final report in July, with five recommendations. The Audit Committee voted to approve the FY16 Internal Controls Report, which needs full Board approval.

> Committee Chairman Satre made a motion to accept the FY16 Internal Controls Draft Report as presented. Member Sheena Wilson seconded the motion. The motion carried.

Committee Chairman Satre reported the Committee had an update from Financial Manager Julie Feldman on STIP participation of local governments for the new STIP Resolution. The process is ongoing and has taken considerable staff time. Any questions should be directed to Ms. Feldman. Additionally, accounting staff, along with INTERCAP and Commercial Loan Program staff, will be making presentations at the annual conferences for the Montana Association of Counties (MACo) and the Montana League of Cities and Towns.

Committee Chairman Satre provided an update on the Ethics Policy and noted all staff and Board have turned in their signed policies as revised at the prior Board meeting.

Legislative Auditors were on site in June and will be returning this week for three weeks; BOI's Draft Consolidated Financial Statements are due to the Department of Administration (DOA) by September 30. The Draft will include the new GASB 72 disclosures and write-off of the STIP SIVs. As per national standards, the Annual Report has been revised and the portfolio information will no longer be included.

Human Resource Committee Report

The Human Resource (HR) Committee met prior to the Board meeting. Committee Chairman Karl Englund stated the meeting involving a personnel matter; no action or decision is needed by the Board.

Executive Director David Ewer introduced and welcomed new employee Kirsten Haswell who started August 1 at BOI as part of the fixed income team.

Loan Committee Report

The Loan Committee met prior to the Board meeting. Loan Committee Chairman Jack Prothero reported the Committee approved three INTERCAP loans and two commercial infrastructure loans. The first INTERCAP loan is a $2 million interim loan request from the Town of Fairfield in anticipation of long-term financing for wastewater system improvements, the second is to increase the Craig County Water & Sewer District interim financing commitment of $1,300,000 that the Board approved November 2013 to $2,391,000 for the District's wastewater collection and treatment facility project. The project is subject to a

voter approved bond election scheduled for August 30. The third loan is a request from the City of Glasgow for $3 million for water treatment and distribution system improvements. The Committee approved the three INTERCAP loans as presented.

Chairman Prothero stated the Committee considered an infrastructure loan request from the Missoula County Airport Authority, which is building a hangar for Neptune Aviation. One hangar is currently under construction for a loan of $1,147,500 and a term of 20 years at a 5.19% fixed rate. Infrastructure loans are eligible for a lower rate depending on job creation, so the rate could be reduced to 2.69% if the required qualifying jobs are created. Construction has not yet begun on the second hangar; that loan request is for $2 million with the same loan terms, subject to completion of the appraisal. The Committee approved both loans, no full Board action is required.

Public Employees' Retirement System (PERS) and Teachers' Retirement System (TRS) Updates
Member Sheena Wilson reported the huge overhaul of the computer system went live in mid-July. Things have gone well so far and the portal for employers has been mostly successful, except for a few hiccups. The transfer of information has been a challenge for some; PERS has been assisting the local governments through the process with no major glitches. PERS is also gearing up for the next legislative session.

Member Terry Cohea asked if there has been any additional communication regarding the PERS retiree information request.

Member Wilson stated the requested data was supplied but did not include any identifiers. A minimal charge was collected for producing the information, but no further requests have been received.

Member Marilyn Ryan stated TRS also has not heard back requesting additional information. The TRS computer system upgrade has been ongoing for three years at a cost of $2.7 million, and is six months over schedule, but it has realized $90,000 in savings. Full implementation is in the works, most parts are online and there are only three modules left to go. At the end stage, some additional enhancements will be considered and a determination made on whether they are needed.

TRS is also gearing up for the 2017 legislative session and reviewing their strategic plan, which includes a review of the TRS building. There are two offices with two different groups that are overcrowded and a basement, which has no windows. Options under consideration include looking at different sites or remodeling the current building, which is an older building.

Legislative Liaisons Comments
Representative Kelly McCarthy provided some brief comments. Last week he attended the National Conference of State Legislators in Chicago. The general outlook included lots of doom and gloom; North Dakota has had three special sessions. Alaska is in the red by $5 billion. Montana is $57 million below projected revenues, but nothing requiring a special session. The Montana economy seems to be going well, but agriculture prices and natural resources may take a while to recover. Representative McCarthy added, unlike Montana, some states benefit from full time staff support for their legislators.

Senator Bob Keenan was absent.

EXECUTIVE DIRECTOR'S REPORT

Overall Comments
Executive Director Ewer presented his Executive Director Report. Staff is working on the STIP Reserve Fund Policy and expects to present it to the Board at the November meeting. The quarterly cost report and monthly snapshot are included in the Board packet. The budget update memo details the two general categories of expenses. Budget approval occurs every other year by the legislature for personal services and operations. Other budget items are through appropriations by statute. Expenses are charged to participants.

The tables included in the packet show the actual amounts spent in FY 2015 and FY 2016 and budget projections for FY 2017. Approval of the FY 2017 budget requires a motion; although the rate has already been authorized by the legislature. The current budget reflects a fair amount of money spent on research services. Any questions on research services can be directed to Dan Zarling or Joe Cullen.

Member Jon Satre observed that research costs have increased, and noted there are some new research services and others that have been cancelled.

Mr. Dan Zarling explained some of the new services, such as Green Street Advisors, provide tools for analysis and commentary resources, including a quarterly/monthly newsletter. When the team looked at the kind of intelligence needed, Green Street was often cited in real estate presentations given by managers. Staff receives a lot of free information, but this subscription will allow specific information to round out the intelligence on private equity and real estate markets.

Chairman Noennig inquired how staff knows whether the new tool is worth the cost, and if a trial subscription is available for review.

Mr. Zarling replied staff receives many solicitations and can view sample reports to see what information is provided before subscribing; Green Street is a reasonable cost.

Chairman Noennig asked if staff was on the lookout for new services, or if firms marketed to staff.

Mr. Zarling stated it is a bit of both. Staff was looking for real estate and private equity market information. Green Street has a database with the ability to create peer groups and conduct searches. Staff asked for a pension fund discounted price, so the price was negotiated a bit. Another new service is the S&P ratings which is a standard in the industry and provides fixed income users with an understanding of credit ratings and the rationales for ratings. It is a service BOI had in the past. There are other considerations as well; if a vendor's client service does not meet expectations, staff lets them know. Mr. Zarling added BOI has a new service representative for the S&P ratings, not the same one from prior to disengagement of the service.

Member Cohea asked what services are included under prospective data licenses for benchmark data.

Mr. Zarling stated it is a placeholder for some databases and investment services; staff needs to make room for it well in advance and although we may need it in the future, staff has not signed up yet.

Member Wilson asked for a breakdown of the $10,000 in magazine subscriptions.

Mr. Zarling replied staff receives various publications, including Pensions & Investments for industry news.

Member Satre asked why the subscriptions have increased to $10,000.

Deputy Director Burton noted the line item reporting has changed a bit. The membership line item was previously reported in a different line item, so it is not an additional cost, but is now contained within the subscriptions' line item.

Vice Chairman Englund asked for details on the 18% increase in personal services between the FY 2016 actual figures and the FY 2017 budget projections.

Ms. Burton explained there are four non-budgeted items included in personal services.

Vice Chairman Englund asked for clarification on those non-budgeted items.

FY 2016 personal services includes non-budgeted Compensated Absences, non-budgeted State Fund Dividend, non-budgeted Pension Contribution and non-budgeted Other Post-Employment Benefits. Ms. Burton stated staff does not receive those cost items until fiscal year end. For FY 2016 actual, non-

budgeted items are included, but for FY 2017 they are not, as these will not be known until the end of the fiscal year.

Chairman Noennig noted that on the whole, personal services show an increase of $200,000.

Ms. Burton stated that is correct. Classified staff will get a legislative raise, investment staff have been reorganized and exempt staff increases are included.

Chairman Noennig called for a motion to approve the FY 2017 budget and associated budget tables as presented.

> Vice Chairman Karl Englund made a motion to approve the FY 2017 budget, and the amounts contained in Tables I, IA and II as presented. Member Marilyn Ryan seconded the motion. The motion carried.

Executive Director Ewer noted that for the 2019 biennium, staff is recommending more off site due diligence and an increase in research services. Additionally, a change in software from the current Oracle system is necessary and is estimated at $200,000-$300,000. No dollar amount is set at this time; however, it is expected the 2019 biennium budget will increase several thousand dollars. Director Ewer added the request for an additional FTE was denied. BOI will support the governor's budget.

Representative Kelly McCarthy asked if the increases are all internal service funds and if clients pay for those increases.

Director Ewer stated that is correct.

Representative McCarthy asked if Director Ewer had considered other options to pursue funding the FTE, such as having an individual legislator take it forward.

Director Ewer stated no, it was not a consideration, adding this legislative session is expected to be a cut session.

Vice Chairman Englund asked if a motion was needed to have staff work with Commerce on the budget.

Director Ewer stated no Board motion is required, although the Board approves the budget each year. The driver of the budget is the Administration more than BOI. Staff works through Commerce to prepare and submit the budget.

BOND PROGRAM REPORTS

Activity Report

Ms. Louise Welsh reviewed the Activity Summary Report for the quarter ending June 30, 2016 and noted staff has been busy. There were 22 commitments this quarter and 15 new applications received, including three new borrowers this quarter. The annual loan detail report, provided each fiscal year end, is included. The report shows loan concentration by county, state agency and university.

Member Terry Cohea asked for information on the Cascade High School District borrowing to pay FY 2017 taxes, and whether it will be an issue in subsequent years.

Ms. Welsh replied no, as they will have a levy in place to pay both old and new taxes.

Ms. Welsh presented the staff approved loans. Borrowing from Colstrip High School has been in the news; they requested $1 million for a 10-year term, which they then reduced to $500,000 for a 5-year term. The loan commitment was in June, then in July, it was announced that Colstrip Units 1 and 2 would be shut down. However, maturity of the loan will coincide with the shutdown schedule.

CEM BENCHMARKING ANALYSIS

Mr. Mike Heale, CEM Benchmarking

Mr. Heale presented the CEM Benchmarking Results. The report provides an independent and objective analysis of activity and costs ending December 31, 2015. There are 131 U.S. funds in the database, representing $2.7 trillion in assets; however, we will focus on a universe of 50 U.S. public funds in the database. For the cost analysis, we will focus on a peer group of 18 public funds representing assets ranging from $4.1 billion to $17 billion; this neutralizes the economies of scale impact.

Member Cohea asked if BOI is at the top of that range.

Mr. Heale explained the figures are for pension funds only, not total fund, and due to privacy, the demographic sketch does not name the funds in the universe. The metrics focus on returns – asset mix and policy return based on strategic asset mix, the implementation impact, detailed costs and whether they are reasonable: what you paid for vs. what you received. For 5-year total net returns, BOI placed very high, in the 10th percentile realizing 8.4% net asset return vs. 7.2% for the peer median, and 8.5% vs. 7.9% policy return if you simply invested in benchmarks according to policy weight; the impact is 50 basis points.

For private equity, CEM uses a different benchmark since they are so diverse and create noise. The CEM benchmark is applied for everyone; all other asset classes use the BOI benchmarks.

Vice Chairman Englund asked how the CEM benchmark for private equity compares to BOI's.

Mr. Heale stated it is much more highly correlated; a lagged small cap public equity benchmark is used, which eliminates most of the noise.

Mr. Jim Voytko added the total public market plus 400 basis points would be a higher benchmark than the one CEM uses.

Vice Chairman Englund asked if the noise is because benchmarks for private equity vary widely, and how BOI's benchmark compares to others.

Mr. Heale stated he would strongly discourage using the premium 400 basis points, but rather to use a lag benchmark. Small cap public equity has the best correlation to private equity, although it still has noise, but if you lag the benchmark, you find they are comparable. Lagging optimizes it and it has an 80% plus correlation to private equity.

Mr. Heale reviewed the policy return piece, and noted asset mix is the most important factor. If invested in the BOI benchmark vs. the CEM private equity benchmark, BOI is still in the top quartile.

Mr. Heale reviewed market performance for the 5-year period. Again, asset mix is the biggest driver of returns. Over the last 5 years, private equity and equities have done very well; hedge funds did not do very well, which is good for BOI. Reviewing the average policy mix, BOI is in the top quartile. Having more U.S. stock, 36% compared to 24% for peers, BOI performed near the top. Other positive factors include BOI's allocation to private equity over the last 5 years at 12% vs. 8% for peers, along with no participation in hedge funds while the peer average was 4%.

Additionally, the contribution of active management shows implementation impact higher than peers and the U.S. public universe, using BOI benchmarks and the CEM private equity benchmark.

Looking at asset classes starting with implementation, the impact from active management shows 5-year results are positive for three of the four asset classes, and a bit below for real estate. The net return for asset classes is positive in all categories and three out of four outperformed their peer average and the U.S. public universe.

Member Cohea asked why BOI returns varied widely compared to peers for each year of the last five years, from much better performance in some years to much worse in others, such as in 2013.

Mr. Heale explained the issue is mainly related to private equity and BOI returns vs. the benchmark, although it evens out over a 5-year period.

Director Ewer noted the differences are amplified and asked if the volatility goes away if the small cap equity correlated benchmark is used.

Mr. Heale stated the benchmark CEM uses is still not perfect.

Mr. Voytko added that 2013 was the best performing year for public equity, and therefore the private equity lag was magnified, but in any given year, the difference will be accentuated and in 2013 BOI was pushed down.

Mr. Heale added the extremes normalize over the long term.

Mr. Heale then presented the cost aspect of the report. CEM captures all the costs; however, it does not reflect transaction costs collected from BOI or other funds, and it does not compare private equity performance fees at this time. The recent ILPA reporting form is a good step toward tracking those costs.

Mr. Voytko asked if the transaction costs for hiring and firing of managers is included in the cost structure.

Mr. Heale replied no, they are not.

Mr. Voytko added a plan that churns through managers could therefore look better.

Mr. Heale agreed they could.

Mr. Heale reviewed investment cost comparisons. Costs for 2015 are broken down by internal and external management, which equals 55 basis points; and costs for oversight, custodial and other costs, which equals 2.5 basis points for BOI for a total of 57.5 basis points.

Mr. Heale stated overall cost trends decreased from 2011 to 2015 from 66.6 basis points to 57.5 basis points due to the increased use of lower cost internal and passively managed assets, and private equity costs decreased from 12.6 to 10.6 basis points, which is an expensive asset class.

BOI's investment cost of 57.5 basis points is a bit below peers at 59.3 basis points for the peer median. There is a huge range in costs for peer groups, from under 40 to over 100, a big variation. To benchmark your costs, it is as if we gave your program to peers and asked them to manage on behalf of BOI; then the actual costs are compared to it.

The total cost of 57.5 basis points was below your benchmark cost of 64.1 basis points, resulting in a cost savings of 6.7 basis points.

Reviewing the breakdown of the lower cost implementation style choices, BOI realized $4.6 million in savings by using less external active management and fewer fund of funds paying less than peers. Implementation style has a large impact providing significant savings by investing in lower cost styles. BOI saved $1.6 million with internally managed assets and less expensive external active management.

Although BOI pays somewhat more in some areas vs. peers, total net cost savings for external asset management equals 0.9 basis points below peers. For example, BOI has more limited partner (LP) structures, but is paying less than peers pay for their LP structures. BOI assets managed internally are about the same as peers.

Reviewing oversight, consulting, and custody, BOI has a cost saving of 1.1 basis points vs. peers; consistently lower costs with the exception of custodial costs. BOI has a more complex structure than most plans with some additional challenges. The peer median cost for custodial services is 0.6 basis points; however, they average two plans vs. Montana's nine plans.

Mr. Voytko agreed the typical pension plan has one or two underlying plans and BOI relies on State Street Bank to provide additional services associated with the more complex structure.

In summary, BOI has made lower cost implementation style choices, including less fund of funds and less active management. BOI's relative cost position is low cost over a 5-year period. The BOI 5-year net total return was 8.4%, which is in the top decile for the public median universe, and the 5-year implementation impact was 50 basis points, ranking in the top quartile.

Mr. Heale noted U.S. fund costs have grown by 21 basis points over 10 years. The factors for rising costs include increased policy weights for real estate, private equity and hedge funds; real assets have become higher cost. Another factor is the rise in external active management from 71% to 73% over 10 years, which is more expensive. Asset mix is by far the most important driver of total return, a 90% plus return factor; costs consume 70% of gross value added. The net value added over a 25-year average is 19 basis points. There has been an empirical reward for active management.

Over 25 years benchmark returns for major asset classes and self-reported for private equity benchmarks, private equity and small cap equity have done very well, and Barclays long bonds have done better than equity assets.

Mr. Heale reviewed the historical net value added by major asset class for the past 25 years. U.S. large caps were modestly negative and have been challenging, but U.S. small caps, emerging stock, real estate and private equity have done better. The characteristics of funds with better net value added are fund size, larger is better than smaller, and asset mix helps. Funds with more internal management perform better than those with less and funds with less total cost do better. Corporate and public funds have both done equally as well.

Vice Chairman Englund stated the CEM report is a great benefit for the Board and it is good to see every year; however, he asked if it needs to be done every year or would every other suffice.

Mr. Heale responded fiduciary duty makes sense to complete it each year, yes.

Executive Director Ewer stated staff had the choice on whether the report should be continued, and noted he maintains that it is needed. The report has settled the argument that BOI is an outlier. The BOI cost structure was different 15-20 years ago – we now have slightly better performance with slightly less cost. Staff spends a lot of staff time to get the data right, which is necessary. Historically, the report is presented to the Board in August; it is a valuable exercise, and now we have 5 years of data rolled up. He added 10 years of CEM data would get us through a business cycle.

Montana In-State Loan Program

Mr. Doug Hill provided a recap of the In-State Loan Program. The commercial loan portfolio balance as of July 31, 2016 was $110,392,711 made up of 103 loans. There are nine loan reservations totaling $14 million and 18 commitments. The current portfolio yield is 3.72% with six loans past due over 90 days. Shoot the Moon is almost $6.9 million and BOI is in the process of collecting on the USDA guarantee.

The residential loan portfolio balance is $7.5 million; there is no activity in the program due to interest rates continuing much lower than what BOI can offer. There are three loans over 90 days past due; all are FHA guaranteed. The VA home loan balance is $31 million with nine current reservations totaling $1.8 million; there is one loan past due over 90 days totaling $200,977. The current interest rate to veterans is 1.866%, which is about 1.5% below current market rate.

Chairman Noennig asked what risk is involved with Shoot the Moon.

Mr. Hill responded there are actually three properties involved: two Chili's restaurants, one in Helena and one in Great Falls; those loans have USDA guarantees so there is no risk to BOI. The guarantee will pay the principal plus interest. The third loan is to On the Border in Great Falls and has no guarantee. BOI may see a loss depending on the property sale price.

Member Jack Prothero noted the judge has not yet released the property.

Mr. Hill explained the Chili's properties are included in the 10 or 12 other properties, which have a buyer, so they are essentially sold. Once the On the Border property is released from the bankruptcy, it can be sold. All but one of the guarantors has declared bankruptcy. The Montana State Securities Commission Office has filed felony criminal charges against one of the owners.

CONSULTANT REPORT

Foreign Currency Review - RVK, Inc. – Mr. Jim Voytko and Mr. Mark Higgins, CFA

Mr. Voytko presented a review of foreign currency. In the flow from left to right you receive contributions that move into your asset base in dollars. If you buy domestic equity or fixed income, you do so in the same currency. If you run a diversified portfolio and choose to buy in foreign markets, those are denominated in a different currency, as are the returns in their home countries. When the assets are brought back to pay benefits, they must be converted back into dollars, which involves an extra step that can affect the end price. Why invest in an asset that has the extra step of conversion? All countries have a home currency; the issue is far bigger for smaller countries; however, even in U.S. markets that are highly diversified, there is currency risk, which affects returns.

Mr. Mark Higgins explained because international markets have lagged behind for so long, investors are questioning if they are worth investing in. The mechanics of the foreign exchange varies by the countries and by exchange rate, most work with a floating rate.

Member Satre asked what determines that floating rate.

Mr. Voytko stated the floating market has no fixed prices. For example, to change dollars into Euros it changes from day by day; the rates float based on supply and demand.

Mr. Higgins added there are many different factors involved.

Chairman Noennig asked if the cost of making a trade itself matters.

Mr. Higgins stated yes, but you are not always trading in those currencies.

Mr. Voytko added it is a very controversial topic, such as with custodian banks that have landed in hot water. Dealing with huge amounts, tiny changes in exchange rates can make a big difference. Protocols are being developed for foreign currency. It could work to a custodial bank's advantage, because it is not completely transparent and some banks have actually been sued over it.

Mr. Higgins provided an example of what determines supply or demand for currency. If a country has higher interest rates, demand is increased which causes appreciation of that currency. Inflation of currency depreciates that currency. With Brexit, investors fled to the U.S. for safety. With so many different factors, any one factor is difficult to predict.

Mr. Higgins reviewed the top currencies related to BOI's exposure. The top 10 traded currencies include the U.S. Dollar, Canadian Dollar, South Korean and New Zealand; about 42% of all global trade is in U.S. dollars, even oil is a dollar-based market. For BOI, most foreign currency holdings are in the international equity portfolio. Almost 72% of BOI's international portfolio is in the top 10 traded currencies.

Member Terry Cohea added if you look at domestic equity, maybe 50% of business conducted by American companies is done with foreign currencies.

Mr. Higgins added some may hedge their foreign currency holdings, but may have some foreign in their domestic portfolios due to business done with foreign entities.

Member Satre asked if the Swiss are now pegged to float.

Mr. Voytko stated no, but they are landlocked inside the EU. However, they are also deemed as a safe haven, so the appreciation of the Swiss franc has caused trouble, as it is very expensive to do business in. They have tried to cap how much the Swiss franc can appreciate. Swiss National Bank has an enormous amount of holdings in Euros.

Mr. Higgins continued, when investing in international securities you have a return reflected in the local market, which is the first layer, then what the currency did over that specific time frame. If you have an appreciating dollar and the local currency increases, you do not see the gain, but if the dollar depreciated, you do see a gain. It is a double hit, international markets have not done well and U.S. dollars have appreciated.

Mr. Voytko noted for all the performance reports, all returns assume all foreign investments have been transferred into U.S. dollars; it does affect returns, should you have to sell to pay benefits.

Mr. Higgins added the reports show figures as if converted into U.S. dollars on the day of the report.

Member Cohea asked if the custodian bank marks the currency to market.

Mr. Voytko stated yes, State Street Bank marks to market.

Responding to a question from Vice Chairman Englund, Mr. Higgins noted marking to the currency market uses GAAP accounting standards. He added a number of factors affect currency and all are difficult to predict.

Mr. Voytko stated Japan is trying to depreciate their currency, but so far, it has not worked.

Chairman Noennig asked when you hear the dollar is weak or strong, is it better if it is strong?

Mr. Voytko replied there are advantages to strong and weak currencies. A strong currency over the long term is perceived as stable currency; however, exporting countries like weak currencies when they go to buy.

Mr. Higgins stated when reviewing performance numbers, along with currency issues, it is a double hit, so why invest in international. One, it is a large portion of the equity market and makes up a 47% of portion of the market. With the spike starting in 2014, a big source of international underperformance has been due to the strengthening dollar. Since 1967, the trend has been a depreciating dollar, creating a slight head wind.

Mr. Voytko added investors have faced heavy currency penalties.

Member Satre noted when interest rates are high and the dollar strengthens as it did in 2013 to 2015, is it the differential that matters?

Mr. Higgins replied for U.S. funds, and the relative interest rates, it was a flight to safety.

Mr. Voytko added the U.S. is the only one talking about raising interest rates, no other country is.

Mr. Higgins reviewed the rolling periods since 1978 for all monthly returns, viewing the maximum fluctuation over the period. For MSCI EAFE over three months you can have a large fluctuation on returns, but over time that diminishes. When you compare rolling 10-year periods, as you move over a longer time, the currency translation will affect returns less.

Mr. Higgins stated an important factor to consider is the diversification benefit of international equity. Comparing large cap U.S. and mid-cap U.S., you see how international large cap and mid-cap offer a diversification benefit. When faced with long stretches of underperformance, sometimes valuations become more attractive. Looking forward for international equity, expectations have gone up. From the horizon survey there is an expectation of a premium going forward. We are in the eighth year of the U.S. equity bull market, which could provide an international advantage.

Mr. Voytko added it may not happen in the next year necessarily, but it is expected over a longer period.

Chairman Noennig asked if BOI is on the low end compared to other public funds for international equity: 28% vs. the peer median at 33%, which has shown as an advantage.

Mr. Voytko clarified; he is not suggesting BOI should have a higher international allocation, although perhaps it should be considered going forward, as portfolio characteristics change.

Mr. Higgins stated despite the additional volatility of international equity, it is a substantial part of the market; it offers diversification and over the long term, it looks favorable. BOI has a meaningful allocation to international equity. Recent dollar appreciation has a created a headwind for international returns.

Vice Chairman Englund asked about the mechanics, for example when BOI sells an asset and receives pounds, State Street Bank then converts into U.S. dollars.

Director Ewer stated yes, State Street converts into dollars.

Mr. Voytko noted he doubts the contract allows State Street to do speculation on currency.

Director Ewer stated the dividend payments go to owners, BOI does not tell managers to use State Street, they can use whatever foreign exchange brokers they want. Most activity is outside of State Street, they only get involved for the payments and dividends.

Vice Chairman Englund asked if BOI's managers are allowed to speculate.

Mr. Muffick responded we do allow them to hedge currency, but limit it to defensive hedging only. Currency speculation is not allowed.

Mr. Voytko added it costs money to hedge, and if a manager does it poorly or they are incorrect, they will suffer.

Mr. Muffick added BOI managers choose not to play the currency markets as it is too risky.

Mr. Voytko stated there are a handful of traders that invest by betting on currency speculation, but the track record not very good.

Member Sheena Wilson asked if there are additional costs in the transaction process.

Director Ewer stated yes, bid and ask.

Mr. Higgins added those costs are reflected in returns.

Mr. Voytko stated the bid and ask are really close together on large amounts, but the retail currency business is lucrative.

MONTANA INTERNATIONAL EQUITY POOL (MTIP) REVIEW

Asset Class Review – Mr. Joe Cullen, CIO and Mr. Rande Muffick, CFA

Mr. Cullen noted the Montana International Equity Pool presentation will be very similar to the previous one for the Montana Domestic Equity Pool. The revised policy statement was approved earlier this year.

Mr. Cullen reviewed the reasons for investing in international equity. It is a significant asset class, the third largest, it offers liquidity, as it can be traded in short order, compared to private real estate or private equity, although performance can be volatile. Within the pension plan standpoint, it represents about 15% of the policy with a range of 14%-22%; domestic equity is almost 38%; BOI policy is 22-44%. Historically, the asset ratio of domestic vs. international equity has been 2 to 1 and is currently 2.4 to 1. The public equity allocation ratio is about 70%/30% for U.S. vs. non-U.S., and is underweighted relative to the benchmark.

Representative McCarthy asked if the underweight in the international pool vs. the domestic pool is due in part to performance.

Mr. Cullen stated yes, the increased performance by domestic equity has increased the ratio, although on an ongoing basis staff rebalances and cash for pension plan payments has come out of domestic equities. The current weighting is more deliberate than due to market performance. Brexit was clearly a meaningful event because it was a surprise, and any surprise affects markets, and Brexit will take a few years to figure out. No one knows yet how it will unfold. BOI is positioning the portfolio, but there has been no great impact as of yet and the immediate impact to markets was short lived.

Member Satre asked if, as the U.S. dollar is stronger, you are more inclined to buy international equities.

Mr. Cullen stated a strong dollar looks into the past, going forward the market has some consensus that the U.S. dollar will do better than foreign currencies.

Mr. Muffick stated MTIP is the third largest pool and is close to the private equity pool in size; therefore, it has a major impact on pension plans. The characteristics shaping the pool include trading hours, which are global in nature, so trading is always going on somewhere. For example, New Zealand markets open and investors start trading for the day as we are leaving for the day. Most market action takes place when we are not at work, although staff does monitor in the morning and most trade until mid-morning Montana time, so staff can monitor activity. BOI allows international managers to hold ADRs, which are dollar denominated shares, but limit them to 5% maximum; 95% are local shares, ordinaries. Each new country opening has to go through a process with State Street; for each country a manager wants to invest in, staff follows procedures and sometimes we have to hire a tax agent. A lot of work goes into international pools; it is very different and additional to domestic markets.

Currency movements affect returns on the pool. The benchmark used for MTIP is the MSCI ACWI ex US IMI. MSCI is a company, which used to be part of Morgan Stanley, it is an all country world index, ex U.S. Staff chose the benchmark to allow for emerging market exposure and emerging markets are a significant slice in the index; for example, China is significant. The EAFE is developed markets only; however, we also wanted exposure to small caps to a significant degree, as is the case in the domestic pool. Therefore, the benchmark is appropriate; the pool had 14% small caps as of June 30.

Director Ewer noted it is interesting to see how big the UK is; they are not twice the size of Germany or France, but they make up twice the size in the index.

Mr. Cullen stated it depends on the countries and where the companies are headquartered. London is a financial center and many companies base their headquarters there, although all company business is not necessarily conducted there. The index shows the market cap of the company separated into countries.

Mr. Muffick stated staff looks for diversification, and international small caps can provide a higher rate of return, so we overweight them. Although they are more volatile, small caps provide higher longer-term returns, while we choose to index large caps; the market is efficient. Staff believes international small cap

is somewhat less efficient than large cap domestic equities, therefore, we may choose more active management in large cap international. Emerging markets offer a growth opportunity, and therefore make up about 20-24% of the benchmark.

Member Prothero asked if managers pick just one or two countries within emerging markets.

Mr. Muffick replied some are top down, yes, although BOI's managers are more stock by stock, looking for attractive companies.

Executive Director Ewer asked if any dollars are invested in Russia.

Mr. Muffick stated we could, but do not allow managers to invest in Russian shares, and have not opened Russia or India. However, although we do not allow direct investments in Russia, managers are allowed to buy GDRs which are similar to ADRs.

Chairman Noennig asked if for each manager hired, each country has to be set up.

Mr. Muffick replied, yes, each requires a lot of paperwork.

Director Ewer added State Street has to subcontract with others since they do not have banks in each country. Some are more of a hassle so we do not invest, such as India.

Mr. Muffick added we may allow ETFs, exchange traded funds, in that country. When a new manager is hired if they do not have a market open, they request opening that market for them; although at times we tell them no, if it is not worth it.

Vice chairman Englund asked who opens a new market.

Mr. Muffick responded he makes the decision and accounting does the paperwork.

Ms. Feldman added accounting sends a letter of direction to State Street and they regularly provide BOI with a list of the open foreign markets.

Director Ewer noted there is an overweight in domestic vs. international, and asked why staff thinks emerging markets, which are more long-term assets, are favorable.

Mr. Muffick stated emerging markets give the best opportunity for growth; it is the developing world and is exposed to commodities. For instance, China is a large chunk of emerging markets; there are a lot of people there.

Mr. Cullen added that some countries have moved from emerging to developed; for example China is expected to make that transition to developed. A lot of countries, whether emerging, developing, or frontier, over time will transition. Some frontier will move to emerging, some emerging will move to developed.

Mr. Cullen noted one emerging market factor is commodities and we expect to have more upside return over time, but that comes with a fair amount of risk.

Mr. Muffick stated the pool structure is set with IMI and includes emerging markets, active index ranges and sector exposure, which are all monitored. For MTIP vs. MDEP we have a larger small cap allocation, but not for midcaps vs. domestic equity. There are no partial long/short portfolios as there are not a lot of choices at this time.

Mr. Voytko added executing shorts on international markets is more challenging.

Mr. Muffick reviewed the pool structure and the approved ranges. The approved range for small caps is 8-16% and active large cap is at 25%. Staff is inclined to carry more actively managed large caps in international markets, as they are not quite as efficient. Separate and comingled accounts are both used, although staff prefers separate accounts. For the index portfolios and traditional long only, the pool is heavily tilted towards fundamental managers.

MTIP active managers are split between traditional long only, quantitative and fundamental. Lazard, Baillie Gifford and Investco were hired a little over a year ago. DFA is the only active core portfolio. Diversification is key; staff aims for complimentary active managers that correlate to each other. There is a small cap overweight bias and cash levels are under 5% at the pool level, and managers have a 5% maximum limit on cash as well. Fees have been reduced through the years due to passive management within large caps which is more cost effective in a more efficient segment of the market. Fees rose a bit from three years ago, bumped up due to market appreciation and the small cap manager additions, as they have the largest fees in basis points.

Mr. Muffick stated due diligence and monitoring for MTIP is managed much the same as MDEP. Staff evaluates managers and keeps manager scorecards, which track manager changes or organizational changes. On site visits are conducted when possible, and will be increasing. Staff uses analytical tools and is developing a bench as a “go to” list, in case a manager change becomes necessary. RVK assists staff on due diligence.

Member Satre asked how a bench of possible managers is compiled.

Mr. Muffick stated it is a combination of factors; RVK has a database of managers and staff conducts conference calls. Generally, staff starts with two to three dozen, and then whittles that down to about 10. Of that 10, maybe six or seven are then reduced to three or four which are monitored over time.

Fact Set Demonstration – Steve Strong, Investment Analyst

Mr. Steve Strong presented a demonstration of FactSet to provide a snapshot of the due diligence conducted by staff. FactSet has many capabilities including research, market overviews, news stories and market activity for the day. There is a list of top stories, including headlines for international markets when they open. Staff is able to look at the geographic breakdown of revenues obtained from financial statements, and when specific geographic breakdowns are not available, FactSet research derives its own estimated breakdowns. Staff can view prior day manager holdings, performance and other factors including the ability to drill down to country and sector breakdowns, showing data on who is contributing to relative performance. While not in real time, the information is prior day and most managers have low turnover. For example, to see the attribution information on American Century, a BOI international small cap growth manager, we can break down manager performance through many different views, including sector, country and holdings. Prior to quarter end conference calls, staff analyzes the position of the portfolio and performance including sector breakdowns, which shows how each contributes or detracts from performance. Staff can drill down as far as the individual stock level and if there are any flags, we can ask the manager how they plan to address it.

Mr. Muffick added attribution is something staff relies on for the quarterly calls.

Mr. Strong stated managers have the discretion to invest in the countries they choose; staff can see which countries contributed or detracted from performance.

Member Cohea asked on the India ETFs why no specific data is shown.

Mr. Strong replied the ETFs are listed as headquartered in the U.S. BOI has one manager invested in Russia via ADRs and GDRs, which is the only way our managers are allowed to invest in Russia. Portfolio Attribution (PA) is based on the underlying holdings, whereas SPAR provides returns-based style analysis and allows staff to see returns vs. the benchmark, standard deviation, alpha, beta and tracking error. Staff also uses these tools when screening for new managers, although there may not be a good look at

holdings unless they are specifically requested from a prospective manager. Staff compares return patterns with current managers to see whether a new one would be a good fit.

Staff is able to drill down for specific manager attributes to see how they compare to their index, and determine whether they are making decisions different from the index, since investing in the index would be much less expensive.

Mr. Muffick added staff typically wants any new manager to have an active share, which measures the degree of difference from the benchmark, of at least 80%.

Mr. Strong stated staff looks at manager holdings that are not a component of the benchmark, or benchmark holdings that vary compared to the benchmark, either higher or lower.

Member Cohea asked if BOI's peers use this same technology.

Mr. Strong replied BOI staff uses it extensively, which is probably not standard. However, it is common for a manager to have access to the same technology.

Member Satre asked how Bloomberg functions contrast to Factset.

Mr. Strong stated the platform vendors are converging in their functionality. Bloomberg has a similar product to FactSet called Alpha, but it is not as robust or as well accepted. Staff uses Wilshire for fixed income analytics, although Factset is developing a fixed income platform, but it is not as far along. Staff uses Bloomberg for order management.

Mr. Voytko noted Bloomberg started in the fixed income market, whereas Factset started in Equity but is now gravitating to fixed income.

Mr. Zarling added FactSet does great job providing historical databases. BOI's cost is based on five terminals, but each program used has additional costs; Factset costs BOI $200,000 per year.

Mr. Voytko stated not many plan sponsors would subscribe to both Bloomberg and FactSet. BOI staff has a do it yourself approach and staff's monitoring process is as good or as deep as any RVK has seen. Staff prepares well, although pays a hefty price. If you pay for it, use it. RVK is usually cautious of recommending the use of these systems unless they will get used.

Mr. Muffick reviewed the investment guidelines for current managers. BOI places limits on ADR's and prohibits derivatives. There are also market cap limits, usually more geared towards the small cap managers and policy allows hedging limits to defensive hedging only.

Mr. Muffick reviewed future considerations. MTIP is a large pool with readily available liquidity and staff utilizes it for monthly cash flow needs, although recently not as much as the domestic pool. Staff will continue with the small cap overweight, and is dedicated to emerging market exposure and the ongoing selection process of managers. Staff uses an ISpiff futures product from State Street, although we are looking to replace it with ETFs. Staff recently added $50 million to two international large cap managers.

The meeting adjourned for the day at 4:56 p.m.

CALL TO ORDER

Board Chairman Mark Noennig called the regular meeting of the Board of Investments (Board) to order at 8:33 a.m. As noted above, a quorum of Board Members was present. Chairman Noennig advised video recording of the meeting was underway and called for public comment on matters within the Board's jurisdiction. There was none. Chairman Noennig introduced two guests from the Montana Chamber Foundation, Mr. Webb Brown and Mr. Bridge Mahlum.

CONSULTANT REPORT

RVK, Inc. – Mr. Jim Voytko and Mr. Mark Higgins, CFA

Mr. Higgins presented the consolidated review for the quarter ending June 30, 2016 and calendar year to date. Overall, the 2nd quarter and so far in the 3rd quarter, markets have been surprisingly positive. There was concern over China and an overly aggressive Fed; markets have been benign. Asset classes BOI invests in, with the exception of international equity, have been positive. There were a few positive and negative market drivers: the unexpected Brexit vote for the UK to leave the Euro zone; the next day the most popular search on google was "what is the EU?" A spasm of selling occurred, at the worst point, Europe markets were down 10%, but then markets quickly recovered. The second negative driver of markets has been the relative weakness of U.S. growth, which came in at roughly 1% and prompted the Fed to step off the aggressive monetary policy they had – interest rates have not risen as had been expected. There was a flight to quality in the U.S. due to Brexit, and a dovish outlook for the Fed. There was high yield market movement; one big factor of down pressure on U.S. rates. There are a lot of countries in the Eurozone and Japan, which have negative rates. One positive has been the supply and demand rebalancing to the energy market; oil is in the $50/barrel range.

Mr. Higgins noted there is continued real estate market strength, and fundaments look relatively good in the U.S., which has benefited the BOI portfolio. In the 2nd quarter the S&P 500 was up 2.5 %, MSCI EAFE was down about 1.5%, the Barclays Aggregate index was up 2.2%. Calendar year to date looks stronger at 8.5% for the S&P 500, the Russel 2000 is up 8%, MSCI EAFE is up 2% and emerging market is up 17.3%.

Mr. Higgins reviewed the pension portfolio report, which shows the breakdown of the different pension plans and total assets. The plan crossed the $10 billion mark at June 30. Looking at PERS as a proxy for all plans for net and gross, the quarter was slightly positive at 1.5% net of all fees, ranking at the median. Rankings vs. peers are exceptional for all time periods and for the 3 and 5 year BOI is ranked number one. The net return is at the actuarial return, a positive in keeping up with liabilities. The high U.S. equity allocation has been beneficial, along with strong fixed income returns over 10 years, which have been positive. The private equity lag and benchmark effect shows the portfolio lagging the benchmark, but total returns are good. The lack of hedge funds has also helped.

Mr. Voytko added the absence of a major allocation mistake for BOI has helped; one big loser can color the entire performance. When building an institutional portfolio, part of winning the game is not losing, making one big mistake. Other peer funds have made bets on undeveloped real estate, which hugely effected performance, no large impulsive moves has helped.

Member Satre observed BOI is very equity centric and after seven or eight years of a bull market, are we sitting on a potential mistake?

Mr. Voytko stated it is an issue we will want to discuss.

Mr. Higgins reviewed the risk and return dynamic. The five-year look back is similar to prior meetings. The portfolio is ideal, as it has been over the past five years. The generated return for the quarter is a bit higher with only slightly more risk. The portfolio Sharpe Ratio is at the 17th percentile; very good risk adjusted returns over five years, and it is even stronger over the 10-year period. BOI has generated higher annualized returns than the peer median, while taking less risk with a Sharpe Ratio in the top decile at 8th.

Member Cohea asked what the difference between the benchmark and the median is.

Mr. Higgins replied the benchmark performance is vs. BOI's performance, whereas the median is the comparison to the peer group.

Mr. Voytko added the two should not be that far apart, it is a test vs. peers in a risk adjusted world, and also how well the benchmark has done. Over the last 10 years, performance has been exceptional; we may see a regression away from median, and a decline from the top decile is a normal movement.

Member Englund asked when comparing the risk in the BOI portfolio, what have we done over the last five years to increase risk?

Mr. Higgins stated the risk for 10 years is actually higher than the five.

Mr. Voytko added absolute volatility has not increased.

Mr. Higgins stated it is more a function of markets than anything staff has done. There is some volatility over the 10-year period that is not reflected in the last five years.

Mr. Voytko stated plans with a lot of volatility can get penalized for it and it may not be worth the volatility risk to produce a little bit of return. The risk/reward tradeoff may not pay off.

Mr. Cullen noted when discussing risk/volatility it is better, given the markets we have been in, to think of the information as volatility. Risk does not have one definition; risk is multi-dimensional.

Mr. Voytko stated that is an excellent point. A plan in constant negative cash flow, which has to convert equities into cash, increases risk of having to sell securities within a volatile market, whereas a plan without that scenario does not have that concern.

Mr. Higgins stated there are different types of risk. Liquidity risk is one that BOI has managed well; in fact there are a lot of risks that BOI has managed well.

Mr. Voytko added over the next year, a comparison of downside risk and liquidity risk can be reviewed, to measure the different aspects of risk.

Director Ewer asked if the liquidity risk is shown.

Mr. Voytko replied when RVK conducts an asset allocation review for BOI, it captures different scenarios rather than just one metric.

Mr. Higgins summarized that overall performance continues to be positive. BOI is in the top decile or at the top, which means there is only one direction to go and to not be discouraged if BOI moves closer to the median over time.

Mr. Voytko noted all institutional investors are humans achieving career success by accurately assessing people. The tendency is to focus more on managers than asset allocation and more on managers than asset class structure. We are wired to assess people, the point is, the structure of composites matters a great deal. Active share is something you may want to pursue, it means managers and mandates go far away from the benchmark not close to passive indices, and returns can vary substantially up and down. It is important to create composite structures and mandates to select managers that are not alike, as you do not want all of your stocks and bonds to react in the same way. The recent restructuring of MDEP and MTIP has been positive. In the end, the structure of composites matters more than the managers you hire to manage the pieces.

The domestic equity contribution to meet benefits has been exceptional; a measure of efficiency over time, but it should not dissuade you from the ability to pay benefits.

MTIP has outperformed the benchmark over 3, 5 and 7 years but absolute returns are low. The RFBP has done well in both absolute and relative returns; a reflection of interest rates falling, and it has pushed up the value of the bond portfolio. A 4.5% bond is really valuable in a 1.5% world. The fixed income world should expect capital gains to reduce; fixed income has made a meaningful a contribution to portfolio return.

The real estate pool is a reflection of the domestic equity pool, underperforming the index, but absolute returns for 1, 3, 5 and 7 have been a very meaningful addition to asset allocation in regards to paying benefits. A portion of return comes in cash which helps maintain liquidity in the pool.

For private equity, when the equity market rises, private equity does not mark to market producing negative returns vs. the index, plus the 400 basis point premium above the benchmark. Looking at the benchmark, over 10 years, private equity has performed at a +200 basis point premium, providing a very meaningful contribution towards meeting the actuarial assumption.

Mr. Higgins stated there is no perfect private equity benchmark, the CEM benchmark is not a 4% addition. Managing private equity requires a lot of work and there are illiquidity issues; there is a reason to add the +400 basis point premium.

Mr. Voytko added RVK prefers the BOI benchmark for private equity, to the CEM method. The clarity of this benchmark gauges how much return you expect for taking on the added risks and illiquidity factors.

Chairman Noennig asked for some clarity on the benchmark CEM uses.

Mr. Higgins stated CEM uses the small cap index, while RVK uses a broader index and applies a lag.

Chairman Noennig observed BOI always makes a disclaimer for not reaching the benchmark.

Mr. Higgins noted RVK agrees that the 4% premium is a good target to shoot for.

Chairman Noennig noted if private equity were not tracked vs. our benchmark, which we do not meet, it would be outperforming.

Mr. Voytko stated yes, however returns would be the same. You do not want a benchmark that is either too easy or too hard, which makes it appear as if the program is a failure when it is not. Both benchmarks are arbitrary; you want to communicate what you expect from the allocation, you do not want to compare it to small cap.

Mr. Higgins added this has been an extended period of private equity lag and it goes back many years due to years of a strong bull market. In a different market, it would be the reverse.

Mr. Voytko stated when public markets paused, private equity caught up and the lag disappeared; then the premium returns from private equity showed up.

Member Satre stated he appreciated Chairman Noennig bringing up the subject. The Board talks about the private equity benchmark more than any other topic. The benchmark should not be too easy or too hard, you want reality. However, looking at the reports, when private equity is not doing well compared to the benchmark, the explanation is to not pay attention, since markets are strong it is not applicable.

Mr. Higgins stated private equity should be viewed over the long term as short term you will see wild fluctuations. Looking at the 10-year return, private equity has performed better than any other asset in the portfolio; it is +3%, or 300 basis points, stronger than other assets with a nice premium.

Mr. Voytko stated if no benchmark were set and you look at returns relative to other allocations, it looks tremendously successful. It is only when you look at the 4% premium that it looks less so.

Chairman Noennig asked how common the 4% premium benchmark is.

Mr. Voytko replied it used to be very common; however, 3% is more common now. BOI has set the additional premium to account for the additional risk.

Member Englund stated the Board has the same discussion each meeting because we think of a benchmark as being useful for analysis down the line. If we are meeting the benchmark by taking huge risks, is that a good thing.

Mr. Voytko stated you can exceed a benchmark by taking risks, but you can also fall very far short. You should see the additional return on private equity vs. public equity; however, the size of the differential you see depends on risk and illiquidity. You take on substantial illiquidity risk with private equity, but currently liquidity is not an issue, although it may become more of an issue in the coming years.

Mr. Higgins stated when you look at the 10-year return, private equity has a stronger absolute return, and provides diversification. It has trailed slightly but at +300 basis points is very strong and years of a bull market colors the picture.

Mr. Cullen stated it is a great topic and will be covered at the October Board meeting. It should be part of the asset allocation discussion. RVK, CEM and BOI staff have some commonality; the Board should understand what benchmarks are used and why. Staff will provide education and perhaps propose changes in the benchmarks.

Chairman Noennig stated with all of the discussions on benchmarks, does it apply that other benchmarks are worth reexamining as well. If 4% is realistic, we can explain why we have it, instead of always saying it should not have too much emphasis on it.

Director Ewer added if you look at bond returns, how are we able to achieve 85 basis points over five years? Is the Barclay's index representative of a retirement fund, loaded up on corporates? BOI always beats the benchmark, but there is additional risk involved. We have not pushed to look at the benchmark we always beat. STIP has never been below the benchmark, which is statistically improbable; there is a structural arbitrage that never goes away with the benchmark.

Mr. Cullen agreed it is true we have corporates and mortgages, which have higher risk than the benchmark.

Mr. Voytko agreed it is a topic deserving of its own discussion. Overall, RVK is not recommending any major portfolio reconstruction. The structure has served BOI well for about 10 years – although there are big unknowns out there. The question is what happens if there is a return to more normal capital market conditions. The British fixed income market is at 336-year lows, no one knows what will happen. We see no big portfolio changes for the immediate future. We monitor sensitivity of the total fund return compared to the stock market, equity beta in '06 and '07 was high, but now BOI has lowered moderately the sensitivity to equity markets. We are not sure why equity beta has declined a bit. If a revaluation of risk assets occurs, you have taken the edge off your exposure to it. Lower returns are likely due to central bank actions and odds are the next five years will have a tough time keeping up with the last five years.

Mr. Voytko reviewed other big picture issues. Global economic growth has slowed for both developed and growth markets; Europe is barely positive and growth numbers are not encouraging. Wealth creation reflected in security valuations does not have as strong a footing as it has had. What happens if global GDP is 50-100 basis points lower than past trends? We know the domestic equity market has substantially exceeded international markets, but things do not continue forever; at some point, even bad companies or countries get cheap enough to be a good value. Currently there is not much to cheer about in international markets.

INVESTMENT ACTIVITIES/REPORTS

Executive Director Ewer mentioned as a follow-up that staff is actively working on the STIP Investment Policy to clarify the function of the reserve fund.

State Operating Funds – STIP and Treasurer's Fund - John Romasko, CFA

Mr. Romasko reviewed STIP and stated there was not much to report. Rates slightly increased for the quarter, and the portfolio is well within policy including liquidity and asset guidelines. Staff added 3% to U.S. treasuries and moved all money market from prime funds to government funds. The percent of STIP made up by local governments is near historic highs.

Member Prothero asked if staff would consider making presentations to promote STIP.

Ms. Julie Feldman stated staff has been promoting STIP, although the focus has been more educational and related to the new STIP Resolution rather than a pitch to invest in STIP.

Mr. Cullen added the key is education. The money market industry revolves around 2A-7 funds, which STIP is not. Participants have been surprised when they thought they should have liquidity. Staff needs to stress the fund is not completely invested in very short treasuries; it is invested as well in longer term assets for better returns, which comes with reduced liquidity. The money market industry has separated money market funds between those that have 100% government investments, providing less return and more liquidity and those holding non-government assets for higher yield and less liquidity. It is a very appropriate liquidity vehicle for all participants in the fund. Participants need to understand fully the function of the STIP pool.

Member Englund asked if BOI has a mandate to offer and market STIP to local governments.

Director Ewer stated he would not characterize it as a mandate, although staff has a mandate to educate those who participate in it. We have fully enunciated the actual risks; STIP is not risk free, which is explained in the STIP Resolution. The interesting thing about STIP is that local governments get to have it both ways. The state of Montana does not show as a guarantee, unlike other municipal pools. Local governments get to draft off of state governments having no choice of whether to invest in STIP or not. There is $880 million of $1.9 billion in state monies that cannot go away. There was a huge STIP outflow when the SIV situation occurred. BOI's role is not to wave the flag and promote STIP, but it is a fine line.

Mr. Cullen added the reserve policy will be included as part of the education discussion. It makes sense to have a reserve; it effectively captures yield and saves it for more challenging times, or any bad days ahead. The mechanics of the reserve will be part of the discussion.

Director Ewer noted that with 28% in asset-backed paper, you could have a hiccup.

Mr. Cullen stated any asset could cause an unexpected event or surprise. Staff monitors and manages to reduce those issues, but the reserve over time will help to manage such events.

Mr. Romasko stated the STIP yield remains above the LIBOR index and performance numbers are total return numbers. STIP and LIBOR have been close over the 5-year time frame, the comparison is net of fees and the reserve.

Director Ewer added if the reserve were not being deducted, STIP would be way over the LIBOR.

Mr. Romasko agreed the reserve impact is 10 basis points and he added staff recently wrote off the remaining SIV's.

Mr. Romasko advised the Treasurer's Fund had no activity this quarter, the projected general fund balance continues to go down and by policy, only half of the projected balance can be invested.

Director Ewer explained there is a limit on the Treasurer's Fund in relation to the General fund. The Treasurer's Fund is the allocation you get as a state agency and you do not get to keep your own earnings. If you are allowed to keep your earnings, you get to have a STIP account, if not, you are in the Treasurer's Fund.

Mr. Romasko added there is a limit on securities, which is projected off of the General Fund, and only 50% can be invested. As the projection has decreased, by policy we can only invest in securities up to the projected FYE General Fund balance, the rest goes into STIP.

Mr. Cullen stated staff must manage liquidity risk, and avoid being forced to sell anything. If a security were not maturing, it could sell at a loss. To manage liquidity is where the 50% originates; half of the projected balance of the General Fund must remain in STIP.

Mr. Romasko stated the total general fund is $345.9 million, therefore $172.5 million is available for investment; however, staff has $130 million held in securities, below the limit, to ensure sufficient liquidity.

Member Cohea asked who provides the estimate of the General Fund.

Mr. Romasko stated the Department of Administration provides the fund balance monthly.

Ms. Feldman added it is a combination of using the monthly estimate and looking forward using historical data.

Pension Funds – Joe Cullen, CFA, CAIA, FRM

Mr. Cullen stated Mr. Eron Krpan has put together much of the pension information and the risk management team is key to the ongoing process. Mr. Krpan will speak on how cash flows have impacted the pension plans, something he, Mr. Dan Zarling and Mr. Tim House are focused on day to day. All do excellent work.

Mr. Krpan presented tables on the pension plans. Market value allocation percentages are consistent across the plans with the exception of Volunteer Fire Fighters, which receives a large cash input pushing it out of range for three days before staff is able to rebalance. Allocation changes were small in domestic equity and real estate for the quarter. Pension and pool cash exposure was about 5%; net plan contributions and distributions equaled a sum total of a $71 million cash out flow which was met with dividends, interest and a sale of $36 million of assets.

Member Cohea asked if there was a $97 million increase in assets in excess of asset sales.

Mr. Cullen replied yes, the dollar value added for the quarter increased by $168 million in valuation. Cash distributed included dividends and interest, which helped the fund; the cash outflow resulted in a net $97 million to the positive for the quarter.

Director Ewer asked what the total monthly benefit payouts were.

Mr. Krpan stated current monthly distributions total close to $60 million across all pension funds. Asset allocation changes include reductions in domestic equity and international equity and small increases in private equity and real estate. For performance, all assets did well except for MTIP. Over all, pension funds returned 1.58% for the quarter with domestic equity as the biggest contributor.

Director Ewer asked if most of the negative impact for international is due to the currency impact or from international markets and local currencies going down in value.

Mr. Cullen stated Mr. Muffick will discuss later in the agenda, but yes, it is a combination of both. The international equity pool was a drag to overall pension returns by approximately 11 basis points for the quarter.

Montana Private Equity Pool (MPEP) and Montana Real Estate Pool (MTRP)

Mr. Cullen stated Mr. Ethan Hurley and Mr. Jason Brent would present private equity. Mr. Brent will field any questions on the deals he covered this quarter. There were three commitments since the last Board Meeting; briefs are included in the packet. There was a secondary sale during quarter and it was another positive cash flow quarter, due largely to the $26 million received. There were no structural changes to the portfolio.

Member Satre asked about the results of the secondary sale.

Mr. Hurley stated the sale went well and was in excess of par. It was a non-strategic relationship and an opportunistic sale; staff researched the market pricing and it was a very attractive sale.

Member Prothero asked Mr. Hurley if he could disclose details of the sale and he replied no, as staff is bound by confidentiality.

Member Englund asked why seek a secondary sale.

Mr. Hurley stated they are names staff is not going forward with and may want to divest, and we do receive requests at times. Staff looks at the opportunity, which can relieve some of the administrative burden.

Mr. Englund noted the last time staff did a secondary sale was the first time, and asked whether the process was easier this time around.

Mr. Hurley responded it is always a fairly onerous process, with a lot of paperwork and back and forth. Staff did not engage an advisor this time and therefore saved approximately $100,000 in frictional costs. Staff went directly to a general partner and they offered competitive pricing. An advisor can expand the knowledge of market pricing and expand the buyer pool, possibly creating a bit of competitive pricing. Staff did not do that, upon speaking to all of our secondary general partners, some immediately precluded themselves due to pricing. Staff spoke to a number of advisory firms that offered up their pricing expectations, but at the end of the day, we arrived at a competitive price.

Member Satre asked where the sale proceeds will go and since the allocation to private equity overall is down, if staff expects to increase the allocation.

Mr. Hurley stated staff is not in the process of either increasing or decreasing. The cash goes back into the private equity pool rather than sitting in cash; however, it will be redistributed based on asset allocation needs.

Member Prothero asked Mr. Brent when looking at the private equity briefs, what should Board members focus on?

Mr. Brent responded for example, Kinderhook Capital is a re-up, and at a higher commitment amount than last time. They are a lower middle market manager which staff has wanted to increase exposure to. They are knowledgeable and have the ability to source their sectors. For Warwick Partners, their strategy allows a way to access the most economical areas at a low price.

Mr. Prothero asked if they have any specific risk factors.

Mr. Brent stated Warwick is not a bet on commodity prices, they have the ability to buy cheaply and they actively hedge the portfolio. Kinderhook has a deep domain expertise; they have the ability to attract opportunities that many other managers cannot.

Mr. Hurley presented the Montana Real Estate Pool activity for the quarter. Mr. Ed Kelly can answer any questions as he underwrote GEM Realty Fund. Staff committed to two funds in the quarter, the other one was Velocis Fund, and on July 6, we received funds from JP Morgan. The pool cash flow was positive and we received $15 million in April. There were no strategic shifts in made in the portfolio.

Member Satre asked if with GEM, in looking at the brief in summary, as they have approximately $1 billion in long/short hedge funds invested in publicly traded securities, are we then venturing into hedge funds, investing in real estate related debt instruments and other distressed assets?

Mr. Kelly explained GEM's platform is made up of different components; they do have hedge long/short trading of public securities; however, BOI is not, we are in private assets of funds for real estate. There are certain advantages of their hedge funds platform, it gives them advantages to use REIT's as sources and

can fund buying for the end of transactions. BOI is not in the hedge fund side, but the advantages are strategic and important on the private side.

Member Satre asked if the private side is insulated from the hedge fund side.

Mr. Kelly explained they are separate funds. BOI is exposed to risk only in our fund; the hedge side is a risk only to the limited partners in that fund. GEM is opportunistic, given the widest degree of latitude for leverage, and up to 75% of the portfolio can be in debt. Of multifamily, hotel, retail, senior housing and student housing, REITS have the broadest array of discretion. Staff must have a lot of conviction to invest in them and we have that in GEM. BOI has had two prior funds IV and V. Staff knows them and what they do, and has conviction in them. We like the opportunistic value; they can look at particular investments; they know how to manage, and how to manage debt. We see a wide latitude of options, and while they will not employ all possible options, we have confidence they will do so with success.

Member Cohea asked with a term of five years and then two one-year extensions, do the limited partners have the discretion to stay in or opt out?

Mr. Kelly stated the general partners would have to go through the limited partners and give them the option to extend or not.

Mr. Hurley added no, we could not exit the fund at that point, although we could exit using a secondary sale, but we would have no option to cash out.

Member Englund stated as GEM is opportunistic, do they therefore have a higher leverage?

Mr. Kelly replied yes, for opportunistic they usually set higher levels of leverage.

Mr. Hurley stated outside of 100% leverage or 100% development, the opportunistic lines between value added and opportunistic have been significantly blurred. Historically, GEM operates below their 70% level. Managers can stay leveraged up to 80%.

Executive Director Ewer stated buying debt is not the same as leveraging.

Member Englund asked about carried interest.

Mr. Hurley noted the carried interest is after BOI has received its share. All things being equal, BOI will get a higher rate of return as a full participant with Velocis vs. sharing 50/50 with GEM; once GEM catches up, BOI participates 80/20. Mr. Hurley added staff monitors geographic exposure and international diversification.

Montana Domestic Equity Pool (MDEP)

Mr. Rande Muffick presented the Montana Domestic Equity Pool (MDEP) for the quarter ending June 30, 2016 and stated it was a difficult quarter for active management. MDEP performance reflected the impact of JP Morgan; midcaps offset each other. Iridian had some disappointments; small cap outperformed, while Bernstein and others did not. The environment for active management has suffered and small caps and midcaps performed better than large caps for the quarter. With the elevated cash position, there was a cash drag on the quarter.

There were no significant manager allocation changes; however, staff is making moves within the domestic equity pool. With the elevated cash at 3.8% today, we are reducing the market risk a bit, and taking some cash out of JP Morgan, moving a portion to the index fund and some to other managers. JP Morgan is a high beta manager in the pool, and staff wants to lower the market risk in the pool where there is vulnerability. Staff is moving up the cap scale a bit from the smaller caps to large caps. There has been an overweight in mid and small caps and taking cash out of the S&P 500 index fund has pushed up small and mid-caps a bit. The cash from JP Morgan will go to other active portfolio managers and some will go

to Analytic; staff wanted to be sure of who bought them out first; so the cash will go from active manager to active manager.

Chairman Noennig asked if the active/passive ratio is being altered.

Mr. Muffick stated staff is not changing the active/passive allocation. Staff did terminate Nicolas, a mid-cap manager and the cash was moved to the index fund. Nicholas had been struggling and they are a higher beta manager as well.

Member Terry Cohea asked about the transaction costs for terminating Nicolas.

Mr. Muffick stated staff would report on the transition at the next meeting. Staff hired a transition manager and expected a cost of 11 basis points on the $62 million moved, but it was actually nine basis points. Carrying the elevated cash took some risk off the table. Equity markets are expensive, currently trading at 18 times earnings. The market has rallied and a lot has to do with central bank action; the market just completed the 5th quarter of negative earnings growth for the S&P 500. Still, the market believes easy money will come. The recent domestic rally is due to the outlook for expected energy earnings. The Brexit was a boon to the U.S. market, which was viewed as a safe haven, and it looks like the Fed will not take action before the end of the year.

Member Sheena Wilson asked regarding international securities if there is confidence that those running economics around the world know what they are doing.

Mr. Muffick replied we have seen easing for a long, long time by central bankers across the world and it is not working very well. The U.S. works better because it has the greatest entrepreneurial climate in the world. Whether a fiscal stimulus will help is a question; will things turn around or continue as is.

Montana International Pool (MTIP)

Mr. Muffick presented the quarterly report for the Montana International Pool (MTIP) and stated the pool was even with the benchmark for the quarter. Large cap value did well but was offset by large cap growth, and small caps. Templeton and American Century suffered, although they were somewhat offset by DFA. The dollar rallied with the Brexit influence; however, the change in the dollar did not have much impact on global returns. The dollar strength did not penalize international returns that much, although international returns were negative. The French market was down 10% ending June 30, Spain was down 28%, Italy was down 27.5% and in the last 12 months the Nikkei was down 19%. Investors have concerns which is why they are investing in the U.S.

Chairman Noennig asked if considering returns, there were plans to change the international pool.

Mr. Muffick stated no, diversification saves us. For positioning, staff is more comfortable with the international pool vs. the domestic pool, and we are not carrying as much cash in the international pool. Managers will likely do better in downside markets and BOI has more assets with those managers that have lower beta than those with higher beta. Staff added $25 Million to Lazard and Invesco in the large cap area and are seeking a bit more active management in large cap for international assets. Lazard has done well for us, and they have a more conservative portfolio, with a lower risk profile compared to Acadian; and Invesco has a lower risk profile than Baille Gifford. The two lower beta managers lower the overall risk to the pool, so we took some risk off the table within both MDEP and MTIP.

The MSCI ACWI ex. U.S. IMI benchmark has 14% small caps while BOI has 12.7%. Small caps typically provide a long-term advantage, although currently that is not the case. Although BOI has a smaller exposure to small caps than the benchmark, staff is not inclined to increase it at this time, although typically we will remain overweight in small and mid-caps.

Mr. Muffick stated there were no changes to the public equity external managers watch list.

Vice Chairman Englund asked why Nicholas, as a newly terminated manager, had not been added to the list.

Mr. Muffick stated it was more of a timing issue to take beta out of the pool; $62 million was moved to large cap.

Member Cohea asked if there were performance issues or a change in management.

Mr. Muffick replied although Nicholas had struggled, the overriding factor was to reduce beta in the pool.

Retirement Funds Bond Pool (RFBP) – Rande Muffick, CFA

The RFBP had an interesting quarter. Spreads tightened, which helped the credit portion of the pool as it out performed by about 30 basis points, coming mostly from high yield bonds. The Barclays High Yield Index returned 5.52% for quarter. The pool beat the benchmark by over 3%; the overweight to high yield really paid off, even though the high yield managers Post and Neuberger underperformed for the quarter. Still, it was a good quarter. Reams and the Core Internal Bond Portfolio also performed well. Commodities have rallied including energy; most high yield managers have no exposure to commodities and Post is a downside capture manager so it was a double whammy for them.

Mr. Cullen added interest rates went down in the quarter, which gives a favorable push to investment grade securities in a benchmark like the Barclays Aggregate and does not benefit high yield as much. Investing in high yield securities is a meaningful component due to the benefits of additional return.

Mr. Muffick stated staff strategy for the RFBP is to add on high yield, including a $15 million additional investment in the Post portfolio. Staff is working with RVK and is looking at five managers as potential additions; at least one will likely be a new addition for high yield. Staff is developing a bench of managers.

Mr. Cullen added a bench helps so that staff can avoid being reactive to unexpected events.

Mr. Muffick stated the RFBP had no real changes in duration or average credit quality.

Core Internal Bond Portfolio (CIBP)

Mr. Cullen provided an overview of internal fixed income, which has performed well. Staying consistently longer duration than the benchmark has helped the portfolio and structure has really helped performance. The fund is at 22% treasuries and 6% agencies, staying underweight the highest rated securities vs. the benchmark. This has worked well; however, it comes with a bit more risk. Overall, the portfolio has had good performance.

Trust Fund Investment Pool (TFIP)

Mr. Cullen stated the TFIP also performed well and all asset classes have done well; return was 2.5% for the quarter, and 6.8% for the fiscal year. Investment grade fixed income compiles the bulk of the fund.

Montana State Fund, Jon Putnam, CFA

Mr. Putnam reported State Fund has had decent returns and except for international equity is fairly in line with the benchmark. Real estate is still a strong performer and equity has helped performance. There were no equity or real estate purchases over the quarter. The bond portion of the fund performed well vs. the benchmark, although the Brexit set us back a bit. The fund stayed up in quality, as it has for a while. Activity for the quarter was in treasuries, agencies and asset backed securities. Staff sold out of the Lehman Brothers position for both State Fund and the TFIP, which had already been written down to 20 cents on the dollar. There was not a big impact and we had been receiving distributions from the trustees, although those were getting smaller.

Vice Chairman Englund asked who buys such an asset.

Mr. Putnam replied there are still a few large players and there is a market for them.

Mr. Putnam reported there were no real structural changes to State Fund. It is still slightly underweight vs. the index on duration, but with no large overall impact. There were no changes in sector weighting.

Mr. Cullen added looking at interest rates for two years vs. 30 years, more recently the curve is flatter with the very short end going up a bit. State Fund is shorter in duration, 3.78 vs. 3.99; as most of the shortness was in the short part of the curve, it did not hurt portfolio performance. Risk is monitored and managed by staff.

RECAP OF STAFF TO DO LIST AND ADJOURNMENT

Executive Director Ewer reviewed items on the "to do" list for the next Board meeting:

1. The write up explaining the status of Shoot the Moon was completed and Chairman Noennig has a copy.
2. STIP reserve policy revisions are ongoing and will be presented at the October Board Meeting.
3. Logistics for a joint October Board meeting with TRS/PERS did not work out.
4. The October Board meeting will include some discussion on Asset Allocation in preparation for the November CIO presentation to the Board.
5. Staff will do a deep dive in real estate at the October meeting but there will be no quarterly reviews.

Member Cohea asked when the deep dive of private equity would presented.

Director Ewer stated private equity is scheduled for the November Board Meeting, along with proxies. It is ideal to do the deep dive on private equity before we have the private equity benchmark deep dive. The private equity benchmark today is the public market plus the 400 basis point spread due to illiquidity, exposures, and other risks associated with private equity.

Having no further business before the Board, the meeting adjourned at Noon.

Next Meeting

The next regular meeting of the Board will be October 6, 2016 in Helena, Montana. *Complete copies of all reports presented to the Board are on file with the Board of Investments.*

BOARD OF INVESTMENTS

APPROVE: _____
Mark E. Noennig, Chairman

ATTEST: _____
David Ewer, Executive Director

DATE: _____

BOI:drc 10/14/2016

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

To: Members of the Board

From: David Ewer, Executive Director

Date: November 15, 2016

Subject: Executive Director Reports

1. Member or Other Requests from October Prior Meeting
   None noted.

2. Quarterly Cost Report – included in this Tab

3. BOI Snapshot – included in this Tab

4. FY 2018-2019 Biennium Budget – included in this Tab

5. Securities Litigation Update – see separate memo on this matter in this Tab

6. RVK Contract
   The RVK contract expires November 30, 2017. Under state procurement law, the Board may extend it for two additional years. Staff recommends bringing the new pricing terms for an extension in for an additional two years. However, if the Board decides to start the RFP process, we need to start in early 2017 to begin this process.

7. Stock Proxy Review – see separate memo on this matter in this Tab

8. Resolution 217 – Authorization of Investment Vendors
   Board Governance requires staff to annually update the Board with a list of approved investment managers and broker accounts and any changes made since the last review; the update is included in this Tab.

9. Resolution 218 – Delegation of Authority
   Resolution 218 authorizes the Deputy Director to perform all functions and duties of the Executive Director if the situation, such as incapacitation requires; no action needed.

10. Resolution 234 – Continuity Resolution of Chief Investment Officer
    Resolution 234 authorizes the Executive Director to perform all functions and duties of the Chief Investment Officer if the situation, such as incapacitation requires; no action needed.

11. Annual Report and Financial Statements Status
    State law requires this report to be finalized by each December 31st and submitted to the Governor, the legislature and the public. The Audit Committee reviews a checklist of items that must be covered in the report to assure compliance.

12. Governor's Letter – Public Participation
    A reminder as to the importance of complying with public participation and open-government requirements. The Board's agenda explicitly calls for public participation and substantive decision actions by the Board are noted in all agendas.

13. 2017 Board Meeting Dates
    The proposed 2016 Board Meeting Calendar, aligning as close as possible to previous dates, is included. While six meetings are contemplated, agenda items for October's meeting are open.

14. 2017 Work Plan
    This is the plan staff intends to follow subject to directions from the Board, and for every meeting, final board items are assigned, upon consultation with the Chair, as required by the Governance Policy.

Management Fees (Unaudited)
for the Quarters ended September 30, 2016 and 2015

Board Fees

Pool	Q1 9/30/2016	Q1 9/30/2015	Change[1]
Retirement Funds Bond Pool (RFBP)	$ 184,173	$ 193,098	$ (8,925)
Trust Funds Investment Pool (TFIP)	136,098	137,577	(1,479)
Montana Domestic Equity Pool (MDEP)	213,090	189,546	23,544
Montana International Equity Pool (MTIP)	162,447	170,055	(7,608)
Montana Private Equity Pool (MPEP)	284,958	274,809	10,149
Montana Real Estate Pool (MTRP)	178,710	171,858	6,852
Short Term Investment Pool (STIP)	166,842	162,237	4,605
All Other Funds (AOF) Investments Managed	195,486	222,615	(27,129)
Total	**$ 1,521,804**	**$ 1,521,795**	**$ 9**

[1] Board Fees: The change in Board Fees is attributed to the changes in the fiscal year 2017 cost allocation as compared to the fiscal year 2016 cost allocation.

Custodial Bank Fees

Pool	Q1 9/30/2016	Q1 9/30/2015	Change[2]
Retirement Funds Bond Pool (RFBP)	$ 49,566	$ 47,082	$ 2,484
Trust Funds Investment Pool (TFIP)	30,177	36,141	(5,964)
Montana Domestic Equity Pool (MDEP)	169,185	168,912	273
Montana International Equity Pool (MTIP)	66,054	61,614	4,440
Montana Private Equity Pool (MPEP)	13,737	13,188	549
Montana Real Estate Pool (MTRP)	10,968	10,635	333
Short Term Investment Pool (STIP)	61,605	61,905	(300)
All Other Funds (AOF) Investments Managed	32,460	34,275	(1,815)
Total	**$ 433,752**	**$ 433,752**	**$ -**

[2] Custodian Bank Fees: The change in Custodial Bank Fees is attributed to the changes in the fiscla year 2017 cost allocation as compared to the fiscal year 2016 cost allocation. The changes are associated with each pool's holdings value and transaction volume.

Management Fees (Unaudited)
for the Quarters ended September 30, 2016 and 2015

External Manager Fees

Pool	Q1 9/30/2016	Q1 9/30/2015	Change[3]
Retirement Funds Bond Pool (RFBP)	$ 367,878	$ 349,816	$ 18,062
Trust Funds Investment Pool (TFIP)	471,988	457,895	14,093
Montana Domestic Equity Pool (MDEP)	2,136,710	2,398,693	(261,983)
Montana International Equity Pool (MTIP)	946,572	942,766	3,806
Montana Private Equity Pool (MPEP)	3,387,080	3,446,800	(59,720)
Montana Real Estate Pool (MTRP)	1,239,015	1,101,050	137,965
Short Term Investment Pool (STIP)	-	-	-
All Other Funds (AOF) Investments Managed	172,800	164,522	8,278
Total	**$ 8,722,043**	**$ 8,861,542**	**$ (139,499)**

[3] RFBP: No significant changes.
TFIP: No significant changes.
MDEP: Fees are lower due to an decrease in the market values.
MTIP: No significant changes.
MPEP: No significant changes.
MTRP: Fees are higher due to unrecorded fees for the 2015 quarter which were recorded fees for the 2016 quarter. Because reported fees are subject to a lag, they are inconsistent quarter to quarter. Therefore, quarterly fee comparisons are less meaningful.
AOF: No significant changes.

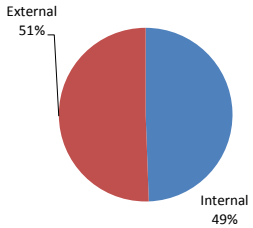
Total Fees

Pool	Q1 9/30/2016	Q1 9/30/2015	Change
Retirement Funds Bond Pool (RFBP)	$ 601,617	$ 589,996	$ 11,621
Trust Funds Investment Pool (TFIP)	638,263	631,613	6,650
Montana Domestic Equity Pool (MDEP)	2,518,985	2,757,151	(238,166)
Montana International Equity Pool (MTIP)	1,175,073	1,174,435	638
Montana Private Equity Pool (MPEP)	3,685,775	3,734,797	(49,022)
Montana Real Estate Pool (MTRP)	1,428,693	1,283,543	145,150
Short Term Investment Pool (STIP)	228,447	224,142	4,305
All Other Funds (AOF) Investments Managed	400,746	421,412	(20,666)
Total	**$ 10,677,599**	**$ 10,817,089**	**$ (139,490)**

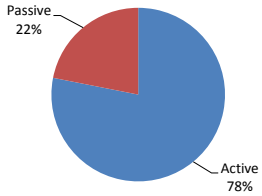
MBOI Snapshot

As of 9/30/2016

MBOI Internal/External

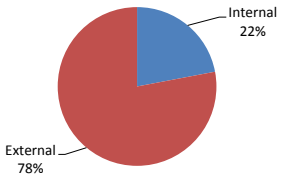


MBOI Active/Passive

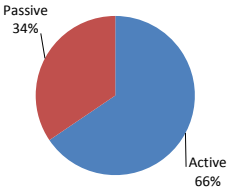


Internal	External	Active	Passive
$8,348,533,568	$8,542,058,755	$13,190,803,632	$3,699,788,691
49.43%	50.57%	78.10%	21.90%
Grand Total		**$**	**16,890,592,323**

Pension Internal/External



Pension Active/Passive

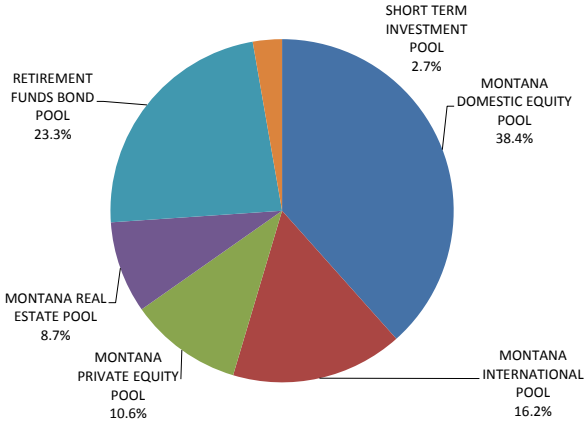


Total Pensions

Internal	External	Active	Passive
$2,261,016,679	$ 8,007,964,302	$ 6,729,492,711	$ 3,539,488,270
22.02%	77.98%	65.53%	34.47%
Grand Total			**$10,268,980,981**

Pension by Asset Type

Pension Pool NAV	Market Value	%	Policy Range
MONTANA DOMESTIC EQUITY POOL	$3,943,589,310	38.40%	28 - 44%
MONTANA INTERNATIONAL POOL	$1,664,013,385	16.20%	14 - 22%
MONTANA PRIVATE EQUITY POOL	$1,093,636,172	10.65%	9 - 15%
MONTANA REAL ESTATE POOL	$889,913,230	8.67%	6 - 10%
RETIREMENT FUNDS BOND POOL	$2,396,196,005	23.33%	22 - 30%
SHORT TERM INVESTMENT POOL	$281,632,878	2.74%	1 - 5%
Total	**$10,268,980,981**	**100.00%**	



Investment Pools

	Market Value	%
MONTANA DOMESTIC EQUITY POOL	$3,943,589,310	26.02%
SHORT TERM INVESTMENT POOL	$2,829,304,498	18.67%
RETIREMENT FUNDS BOND POOL	$2,396,196,005	15.81%
TRUST FUNDS INVESTMENT POOL	$2,339,613,928	15.44%
MONTANA INTERNATIONAL POOL	$1,664,013,385	10.98%
MONTANA PRIVATE EQUITY POOL	$1,093,636,172	7.22%
MONTANA REAL ESTATE POOL	$889,913,230	5.87%
Asset Total	**$15,156,266,528**	**100.00%**

Coal Tax Trust

	Market Value	%
ECONOMIC DEVELOPMENT TRUST	**97,030,480**	**9.14%**
SHORT TERM INVESTMENT POOL	2,070,839	0.20%
TRUST FUNDS INVESTMENT POOL	94,959,641	8.95%
PERMANENT COAL TRUST	**569,354,557**	**53.65%**
IN-STATE LOANS	127,334,475	12.00%
VHLM Mortgages	31,569,820	2.97%
SHORT TERM INVESTMENT POOL	19,132,833	1.80%
TRUST FUNDS INVESTMENT POOI	391,317,429	36.87%
REGIONAL WATER FUND	**101,621,785**	**9.58%**
SHORT TERM INVESTMENT POOL	2,069,970	0.20%
TRUST FUNDS INVESTMENT POOL	99,551,816	9.38%
TREASURE STATE ENDOWMENT	**293,287,115**	**27.63%**
IN-STATE LOANS	313,964	0.03%
SHORT TERM INVESTMENT POOL	4,390,928	0.41%
TRUST FUNDS INVESTMENT POOL	288,582,223	27.19%
Grand Total	**1,061,293,938**	**100.00%**

Pension by Plan

Fund Participant	Market Value	%
PUBLIC EMPLOYEES' RETIREMENT	$5,122,035,900	49.88%
TEACHERS' RETIREMENT	$3,722,327,030	36.25%
FIREFIGHTERS' RETIREMENT	$357,443,978	3.48%
POLICE RETIREMENT	$348,848,852	3.40%
SHERRIF'S RETIREMENT	$305,533,736	2.98%
GAME WARDEN'S RETIREMENT	$158,832,164	1.55%
HIGHWAY PATROL RETIREMENT	$130,526,115	1.27%
JUDGES' RETIREMENT	$89,542,509	0.87%
VOL. FIREMANS' RETIREMENT	$33,890,699	0.33%
Total	**$10,268,980,981**	**100.00%**

Top 10 Non-Pension Accounts

	Market Value	%
STATE FUND INSURANCE	$1,498,215,146	29.96%
PUBLIC SCHOOL TRUST	$706,025,966	14.12%
TREASURERS FUND	$695,075,526	13.90%
STATE AGENCY OTHER	$581,876,217	11.64%
PERMANENT COAL TRUST	$567,774,833	11.35%
TREASURE STATE ENDOWMENT	$293,287,115	5.86%
TOBACCO TRUST	$216,797,970	4.34%
MONTANA STATE UNIVERSITY	$192,837,466	3.86%
UCFRB RESTORATION	$134,198,968	2.68%
RESOURCE INDEMNITY TRUST	$114,742,737	2.29%
Total	**$5,000,831,945**	**100.00%**

STIP

Account	# Accounts	% Total	Total Market Value
Total State	311	71.06%	2,010,528,780
Total Local	157	28.94%	818,775,718
Total STIP	**468**	**100.00%**	**2,829,304,498**

Average Current Month STIP Yield: **0.6734%**

Intercap Statistics

Loans Outstanding	$83,592,872
Bonds Outstanding	$97,340,000
# of Borrowers	190
2016 Loan Rate	1.55%

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
Helena, MT 59601
(406) 444-0001

To: Members of the Board

From: David Ewer, Executive Director

Date: November 15, 2016

Subject: Fiscal Years 2018 and 2019 Budget

Board staff worked with the Department of Commerce budget staff to finalize its 2016-2017 biennium budget, which sets the maximum rate allowed to be charged, for submission to the Governor's Budget Office.

Table 1, attached, shows actual financial data for the Board's ***internal service fund*** (the investment program) for FY 2014 through FY 2016 and presents expense estimates for FY 2017, FY 2018 and FY 2019. The estimated maximum rate to be recommended for the Executive budget for the next legislature for both FY 2018 and FY 2019 to cover operational expenses and a sixty-day working capital allowance is $6,561,455. This is an increase of approximately $530,000 from the legislatively authorized FY 2017 maximum rate of $6,031,846. The majority of the increase can be attributed to increases in investment research services and out-of-state travel for additional asset class and manager due diligence and Oracle software replacement for the In-State loan program. A smaller portion of the FY 2018 and FY 2019 maximum rate increase can be attributed to personal services due to the legislatively authorized state classified employee pay increases in FY 2016 and FY 2017, respectively, exempt staff pay increases in FY 2016 and FY 2017 and the reorganization of the Board's investment unit.

Table 2, attached, shows actual financial data for the Board's ***enterprise fund*** (the bond program) for FY 2014 through FY 2016 and shows budget estimates for FY 2017, FY 2018 and FY 2019. The large increase in operating expenses is due to Oracle software replacement for the INTERCAP loan program. No legislative approval is needed for the bond program's enterprise fund (federal law limits INTERCAP maximum loan rates).

Table 1

2019 Biennium Report on Internal Service and Enterprise Funds - WITHOUT OPEB
6/30/2016

Fund	Fund Name	Agency #	Agency Name	Program Name
06527	Investment Division	65010	Dept. of Commerce	Board of Investments

	Actual FY14	Actual FY15	Actual FY16	Budgeted FY17	Budgeted FY18	Budgeted FY19
Operating Revenues						
Fees and Charges						
Administrative Fees	5,164,248	5,289,816	6,087,180	6,031,846	6,561,455	6,561,455
Other Operating Revenues	12	45	200	-	-	-
Total Operating Revenues	5,164,260	5,289,861	6,087,380	6,031,846	6,561,455	6,561,455
Expenses						
Personal Services	2,871,926	3,241,569	3,133,223	3,456,992	3,557,985	3,553,770
Other Operating Expense	2,225,196	2,107,834	2,340,180	2,424,058	3,183,657	3,007,846
Total Operating Expense	5,097,121	5,349,402	5,473,403	5,881,050	6,741,642	6,561,616
Operating Income (Loss)	67,139	(59,542)	613,977	150,796	(180,187)	(161)
Nonoperating Revenues						
Other Revenue A	-	-	-	-	-	-
Other Revenue B	-	-	-	-	-	-
Nonoperating Expenses						
Other Expense A	-	-	-	-	-	-
Other Expense B	-	-	-	-	-	-
Total Nonoperating Revenues (Expenses)	-	-	-	-	-	-
Income (Loss) Before Contributions and Transfers	67,139	(59,542)	613,977	150,796	(180,187)	(161)
Capital Contributions						
Transfers In	-	-	-	-	-	-
Transfers Out	-	-	-	-	-	-
Change in Net Position	67,139	(59,542)	613,977	150,796	(180,187)	(161)
Beginning Net Position - July 1	204,978	272,117	212,575	826,552	977,348	797,161
Prior Period Adjustments	-	-	-	-	-	-
Change in Net Position	67,139	(59,542)	613,977	150,796	(180,187)	(161)
Ending Net Position - June 30	272,117	212,575	826,552	977,348	797,161	797,000
Net Position (Fund Balance) Analysis						
Restricted Net Postion (Enterprise Funds Only)	-	-	-	-	-	-
Unrestricted Net Position	272,117	212,575	826,552	977,348	797,161	797,000

Table 2

2019 Biennium Report on Internal Service and Enterprise Funds - WITHOUT OPEB
6/30/2016

Fund	Fund Name	Agency #	Agency Name	Program Name
06014	Industrial Revenue Bond I-95	65010	Dept. of Commerce	Board of Investments

	Actual FY14	Actual FY15	Actual FY16	Budgeted FY17	Budgeted FY18	Budgeted FY19
Operating Revenues						
Fees and Charges						
Investment Earnings	809,682	945,386	1,193,688	1,866,530	2,591,121	3,516,873
Securities Lending Income	-	-	-	-	-	-
Other Operating Revenues	-	-	5	-	35,680	35,680
Total Operating Revenues	809,682	945,386	1,193,693	1,866,530	2,626,801	3,552,553
Expenses						
Personal Services	371,864	345,625	390,635	386,563	377,973	376,091
Other Operating Expense	149,095	141,949	158,429	174,200	354,227	215,091
Debt Service Expense (Statutory)	2,032,896	490,477	637,032	1,594,800	1,547,463	2,309,513
Total Operating Expense	2,553,855	978,051	1,186,096	2,155,563	2,279,663	2,900,695
Operating Income (Loss)	(1,744,173)	(32,665)	7,597	(289,033)	347,138	651,858
Nonoperating Revenues						
Other Revenue A	-	-	-	-	-	-
Other Revenue B	-	-	-	-	-	-
Nonoperating Expenses						
Other Expense A	-	-	-	-	-	-
Other Expense B	-	-	-	-	-	-
Total Nonoperating Revenues (Expenses)	-	-	-	-	-	-
Income (Loss) Before Contributions and Transfers	(1,744,173)	(32,665)	7,597	(289,033)	347,138	651,858
Capital Contributions						
Transfers In	18,833	29,607	33,981	19,775	35,000	38,000
Transfers Out	-	-	-	-	-	-
Change in Net Position	(1,725,340)	(3,058)	41,578	(269,258)	382,138	689,858
Beginning Net Position - July 1	7,223,483	5,498,142	5,495,084	5,536,662	5,267,404	5,649,542
Prior Period Adjustments	-	-	-	-	-	-
Change in Net Position	(1,725,340)	(3,058)	41,578	(269,258)	382,138	689,858
Ending Net Position - June 30	5,498,142	5,495,084	5,536,662	5,267,404	5,649,542	6,339,400
Net Position (Fund Balance) Analysis						
Restricted Net Postion (Enterprise Funds Only)	-	-	-	-	-	-
Unrestricted Net Position	5,498,142	5,495,084	5,536,662	5,267,404	5,649,542	6,339,400

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

To: Members of the Board

From: David Ewer, Executive Director

Date: November 15, 2016

Subject: Securities Litigation Review

The Board has policies specific to securities litigation (Appendix F of the Governance Manual). In general, the executive director is responsible for overseeing the ***process*** involving securities litigation matters, which generally fall into two possible subsets: class actions ***or*** other actions where the Board takes a lead. The Board directs how its staff, attorneys and other agents are to operate depending on class action or other action such as in a lead plaintiff status.

Board policy states, in part: "The Board will delegate to qualified service providers the responsibility to take steps to identify, analyze, pursue and collect upon securities law claims. The duties of each service provider shall be clearly articulated as a matter of contract and the Board shall adopt prudent, documented procedures to monitor the implementation of its policies."

In meeting this requirement, the Board's contract with State Street Bank requires: "Contractor will track all necessary Board transaction data that will permit the Board to participate in class action litigation and will file as appropriate on behalf of the Board to participate in class action litigation. Contractor will also be required to feed such data to the Board's litigation monitoring providers."

State Street Bank files on the Board's behalf the necessary documentation to join a class action lawsuit. It provides litigation information updated daily through its web portal. A sample of a partial litigation status report is in Exhibit A (the full report is many pages) along with an explanation of the stages of a class action, class action statuses and a glossary of terms provided by State Street.

For larger claims and as a cross check on securities litigation matters, the Board has two securities class action monitoring firms (as Board policy describes these law firms) to identify and evaluate potential claims that may merit commencing separate litigation or filing motions as lead or co-lead plaintiff, or opting out of a class action settlement. The Board has selected two such "Monitoring Firms," Barrack, Rodos & Bacine and Bernstein, Litowitz, Berger & Grossmann LLP.

The Board requires that "The Executive Director, the Chief Investment Officer, the Board's General Legal Counsel, and the Board's Investment Consultant shall receive reports from the Monitoring Legal Firm, regarding the status of all securities class action litigation matters in which the Board is or could be a member. The Executive Director shall receive such reports at least quarterly and upon each filing of proofs of claim."

Both law firms provide reports to the Executive Director monthly and will recommend higher involvement than just joining in a blanket class action in certain cases.

Notable Pending Actions

There are no notable actions pending.

Amounts Recently Received

Settlement amounts from securities litigation are sporadic and in some years, nominal.

	FY 2016	FY 2015	FY 2014	FY 2013	FY 2012	FY 2011
Montana Domestic Equity	$205,781	$282,206	$303,119	$146,222	$149,429	$617,009
Montana International Equity		$4,719	$7,408	$56,937	$64	$233,840
Trust Fund Bond Pool		$4,466	$12,986		$8,564	$118,449
State Fund					$9,665	$149,643
Total	**$205,781**	**$291,391**	**$323,513**	**$203,159**	**$167,722**	**$1,118,941**

Corporate Governance

STATE STREET.

CLASS ACTION STATUS

Docket #	Event Name	Class Period Start Date	Class Period End Date	Event Status	Expiration Date	Claims Administrator
6:03-MD-1512	ELECTRONIC DATA SYS CORP	02/07/2001	09/18/2002	PROOF OF CLAIM	04/19/2006	EPIQ
01-cv-1451-REB-CBS	QWEST COMMUNICATIONS INTERNATI	05/24/1999	07/28/2002	PROOF OF CLAIM	05/02/2006	GILARDI AND CO LLC
00-1990 (SRC)	BRISTOL MYERS SQUIBB CO	10/19/1999	03/20/2002	PROOF OF CLAIM	06/30/2006	GARDEN CITY GROUP INC
02 Civ. 6801(GEL)	AT&T CORP (SALOMON ANALYST)	11/29/1999	06/14/2002	PROOF OF CLAIM	09/12/2006	BERDON CLAIMS ADMINISTRATI
2001-CV-1855(RMB)	NORTEL NETWORKS CORP (I)	10/24/2000	02/15/2001	PROOF OF CLAIM	11/20/2006	GARDEN CITY GROUP INC
C-00-4263 VRW	QUINTUS CORP	11/15/1999	11/15/2000	PROOF OF CLAIM	11/22/2006	BERDON CLAIMS ADMINISTRATI
MDL-1584	Federal Home Loan Mortgage Cor	07/15/1999	11/20/2003	PROOF OF CLAIM	12/07/2006	GARDEN CITY GROUP INC
2:05-CV-05868-AB	PEGASUS COMMUNICATIONS CORP	11/08/2000	06/02/2004	PROOF OF CLAIM	12/13/2006	STRATEGIC CLAIMS SERVICES
C-01-20418-JW(PVT)	CISCO SYSTEMS INC	11/10/1999	02/06/2001	PROOF OF CLAIM	12/21/2006	GILARDI AND CO LLC
02 C 07527	SEARS ROEBUCK + CO	10/24/2001	10/17/2002	PROOF OF CLAIM	01/05/2007	GARDEN CITY GROUP INC
02-CV-72-SPF (FHM)	Williams Companies Inc	07/24/2000	07/22/2002	PROOF OF CLAIM	02/16/2007	GARDEN CITY GROUP INC
C-02-2270-JW(PVT)	VERISIGN INC	01/25/2001	04/25/2002	PROOF OF CLAIM	04/03/2007	GILARDI AND CO LLC
02-CV-271	PNC FINL SVCS GROUP INC	07/19/2001	07/18/2002	PROOF OF CLAIM	05/11/2007	RSM MCGLADREY
02-CV-3692 (JES)	EDISON SCHS INC	11/10/1999	05/14/2002	PROOF OF CLAIM	07/20/2007	GARDEN CITY GROUP INC
21 MC 92 (SAS)	REDIFF COM INDIA LTD ADR	08/11/1998	12/06/2000	PROOF OF CLAIM	09/07/2007	BERDON CLAIMS ADMINISTRATI
3:02-CV-2243-K	TXU CORP	04/26/2001	10/11/2002	PROOF OF CLAIM	09/15/2007	GILARDI AND CO LLC
C2-04-00575(ALM)	CARDINAL HEALTH INC	10/24/2000	07/26/2004	PROOF OF CLAIM	12/13/2007	GILARDI AND CO LLC
02-1335-PB	Tyco International, Ltd.	12/13/1999	06/07/2002	PROOF OF CLAIM	12/28/2007	GARDEN CITY GROUP INC
03-CV-4080 (JFK)	Tyco International Ltd. (Merri	01/22/2002	06/06/2002	PROOF OF CLAIM	12/31/2007	VALLEY FORGE ADMINISTRATIVI
05-MD-1725	Delphi Corp	03/07/2000	03/03/2005	PROOF OF CLAIM	01/15/2008	GARDEN CITY GROUP INC
5:02-CV-3-DF	RENT-A-CENTER, INC.	04/25/2001	10/08/2001	PROOF OF CLAIM	03/07/2008	EPIQ
H-02-2717	El Paso Corp.	02/22/2000	02/17/2004	PROOF OF CLAIM	05/22/2008	A B DATA LTD
SHARE TRADING INFO FORM	ARISTOCRAT LEISURE	02/19/2002	05/26/2003	PROOF OF CLAIM	06/24/2008	MAURICE BLACKBURN
03 C 04142	Sears Roebuck Acceptance Corp.	10/24/2001	10/17/2002	PROOF OF CLAIM	07/08/2008	COMPLETE CLAIMS SOLUTIONS
4:07-CV-801	HCC Insurance Holdings, Inc	05/03/2005	11/17/2006	PROOF OF CLAIM	07/31/2008	STRATEGIC CLAIMS SERVICES
06 CIV. 1000 (LAP)	AIG SUNAMERICA GLOBAL FING VI	02/08/2001	03/31/2005	PROOF OF CLAIM	08/12/2008	EPIQ
1:05-CV-6279 (AKH)	International Business Machine	04/05/2005	04/14/2005	PROOF OF CLAIM	08/26/2008	A B DATA LTD
04-CV-4697-JRT-FLN	The St. Paul Travelers Compani	01/27/2000	11/16/2004	PROOF OF CLAIM	08/27/2008	GARDEN CITY GROUP INC
06-CV-10933 (MLW)	AMERICAN TOWER CORP	04/01/2002	08/18/2006	PROOF OF CLAIM	09/09/2008	STRATEGIC CLAIMS SERVICES
2:04-CV-05505-JS-WDW	OSI Pharmaceuticals, Inc	04/26/2004	11/22/2004	PROOF OF CLAIM	09/09/2008	A B DATA LTD
PRELIM FOR HUNTSMAN CORP	HUNTSMAN ICI HOLDINGS LLC	05/26/2007	06/18/2008	LEAD PLAINTIFF	09/15/2008	GRT&K LLP

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ATTORNEYS AT LAW

Leslie Bornstein Molder
lmolder@barrack.com

August 4, 2016

Via Email

Ms. Maria Norton
State Street Corporation
980 9th Street
Sacramento, CA 95814

Re: Securities Class Action Settlements:
Claim Filing Deadlines (09/01/2016 – 09/30/2016)

Dear Ms. Norton:

I am writing to you on behalf of our mutual client, Montana Board of Investments (the "Fund"), regarding upcoming claim filing deadlines in certain settled securities class actions.

As you know, the Fund has asked us to monitor its claim filings in order to ensure that it is filing claims in all settlements in which it is entitled to participate. To that end, we have enclosed a spreadsheet that identifies all securities class action settlements with upcoming claim filing deadlines. Also enclosed is a glossary of terms used in the spreadsheet. The spreadsheet includes, but is not limited to, those settlements for which we believe the Fund is entitled to file a claim, based upon the transaction information available to us. As the Fund's custodian, the information you have available to you may lead you to a different conclusion. Please let us know if the Fund has made a claim in each of the listed settlements and, if so, the dates that you submitted each claim to the claims administrator. You may reach me at lmolder@barrack.com.

If you do not have a claim form for a particular case, please contact Patti Hamer at phamer@barrack.com and she will forward a copy to you. If you have any questions about any of the settlements, please feel free to contact me.

Sincerely,

Leslie Bornstein Molder

LBM:pah
Enclosure

cc: Mr. David Ewer *(Via Email)*
Mr. Tim House *(Via Email)*
PF_MBOI@StateStreet.com

Montana Board of Investments

Claim Deadlines from 09/01/2016 through 09/30/2016

Company/Case Name (Ticker)	Cusip	Class Period Start	Class Period End	Claim File Deadline Date	Claims Admin	Custodian	Trade Status	Claim Status
Aerohive Networks, Inc. (HIVE)	7786106	3/27/2014	9/23/2014	9/27/2016	Gilardi & Co. LLC	State Street Corporation	NACT	N/A
Barrick Gold Corp. (ABX)	67901108	5/7/2009	11/1/2013	9/29/2016	Garden City Group, Inc.	State Street Corporation	ACT	TBF
BP SEC Fair Fund (BP)	VARIOUS	4/26/2010	5/26/2010	9/13/2016	RCB Fund Services LLC	State Street Corporation	ACT	TBF
Chelsea Therapeutics International Ltd. (CHTP)	163428105	9/20/2010	5/21/2012	9/4/2016	Rust Consulting, Inc.	State Street Corporation	NACT	N/A
Elan Corporation, plc (ELN)	284131208	7/21/2008	7/29/2008	9/12/2016	Heffler Claims Group	State Street Corporation	NACT	CN
Medpartners Securities Litigation (MDM; MDX)	VARIOUS	10/30/1996	1/7/1998	9/30/2016	Gilardi & Co. LLC	State Street Corporation	D/N/A	TBF
Merck & Co., Inc. (MRK)	589331107	5/21/1999	9/29/2004	9/12/2016	Epiq Systems, Inc.	State Street Corporation	SACT	TBF
Navistar International Corporation (NAV)	6.39E+112	3/10/2010	8/1/2012	9/16/2016	Epiq Systems, Inc.	State Street Corporation	ACTPFT	TBF
NII Holdings, Inc. & NII Capital Corp. (NIHD)	VARIOUS	2/25/2010	2/27/2014	9/28/2016	A. B. Data Ltd.	State Street Corporation	ACTPFT	TBF
North Dakota Developments, LLC (N/A)	N/A	5/1/2012	6/30/2015	9/15/2016	Dahl Administration, LLC	State Street Corporation	NACT	N/A
Occam Networks, Inc. (OCNW)	VARIOUS	2/28/2011	2/28/2011	9/26/2016	RG/2 Claim Administration	State Street Corporation	NACT	N/A
Provectus Biopharmaceuticals, Inc. (PVCT)	74373P108	12/17/2013	5/22/2014	9/2/2016	KCC Class Action Services	State Street Corporation	NACT	N/A
Republic of Argentina 9.25% Bond ()	XS0113833510	12/19/2006	9/1/2016	9/1/2016	Gilardi & Co. LLC	State Street Corporation	NACT	N/A
Republic of Argentina Global Notes ()	VARIOUS	1/16/2004	9/1/2016	9/1/2016	Gilardi & Co. LLC	State Street Corporation	NACT	N/A
Roka Bioscience, Inc. (ROKA)	775431109	7/17/2014	3/26/2015	9/19/2016	Strategic Claims Services	State Street Corporation	NACT	N/A
Walter Investment Management Corp. (WAC)	93317W102	5/9/2012	2/26/2015	9/1/2016	Strategic Claims Services	State Street Corporation	NACT	N/A
Wyeth LLC (WYE)	983024100	1/14/2008	7/18/2008	9/12/2016	Heffler Claims Group	State Street Corporation	ACTPFT	CN

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Glossary

Terms Used In BEAMS®

ACT *— Transaction Activity in Class Period*

This term means that the information BR&B has electronically retrieved from your fund's custodian shows that, during the period covered by the class action, your fund had transactions in the securities that are the subject of the lawsuit.

ACTIVE *— Case Active*

This term means that the case is pending; it has neither been dismissed nor settled, and is not on appeal.

ACTMBS *— Trade Activity with Mortgage-backed securities*

This term means that the information BR&B has electronically retrieved from your fund's custodian shows that, during the period covered by the class action, your fund had transactions in one or more of the derivative securities that are the subject of the lawsuit. For derivative securities that continued to make principal and interest payments through the end of the class period, BR&B has not calculated your fund's losses.

ACTPFT *— Transaction Activity in Class Period with a Profit*

This term means that the information BR&B has electronically retrieved from your fund's custodian shows that, during the period covered by the class action, your fund's transactions in the securities that are the subject of the class action resulted in a profit.

APPEAL *— Appealed*

This term means that the case is on appeal.

ARS *— Auction Rate Securities*

This case involves auction rate securities ("ARS") underwritten or sold by a sponsoring investment firm, but does not identify the particular securities to which it applies. When the ARS market froze in February 2008, holders who wished to sell their ARS were unable to do so. But most ARS continued to perform. And many ARS were eventually repurchased by the sponsoring investment firm. We do not have sufficient information to identify the particular securities covered by the action or to calculate investment losses, if any.

BONDS — *Only Bonds Purchased in Class Period*

This term means that the information BR&B has electronically retrieved from your fund's custodian shows that, during the period covered by the class action, your fund had transactions only in bonds issued by the company that is the subject of the lawsuit.

CDP — *Claim Filing Deadline has Passed*

This term means that the deadline set by the court for filing proofs of claim in a settlement has passed.

CF — *Claim has been Filed*

This term means that BR&B has received information that the settlement/claims administrator has received a proof of claim on behalf of your fund.

CFNR — *Claim has been Filed/Ineligible for Recovery*

This term means that BR&B has received information that, while a proof of claim has been filed on your fund's behalf, your fund is not eligible to receive a distribution under the allocation formula contained in the settlement.

CHINPROG — *Chart in Progress*

This term means that BR&B is in the process of calculating your fund's losses on its transactions in the securities that are the subject of the lawsuit.

CHINPROGEX — *Extended Class Chart in Progress*

This term means that BR&B is in the process of calculating your fund's losses on its transactions in the securities during the expanded class period announced for the lawsuit.

CLOSED — *Closed*

This term means that the case has settled and the settlement fund has been distributed to claimants.

CN —*Custodian and/or Client Notified of Upcoming Claim Deadline*

This term means that BR&B has notified your fund and/or its custodian of the upcoming deadline for filing proofs of claim.

CUSTCF — *Custodian has Filed Claim*

This term means that BR&B has received information from your custodian that a proof of claim was filed on behalf of your fund.

DINC *— Data Incomplete*

This term means that the information BR&B has electronically retrieved from your fund's custodian does not include data for the entire period covered by the class action.

DINCA *— Data Incomplete/Data Shows Transaction Activity in Class Period*

This term means that the information BR&B has electronically retrieved from your fund's custodian does not include data for the entire period covered by the class action because BR&B's access to your fund's transaction data for that period is limited by the terms of BR&B's contract with your fund. To the extent BR&B has access to transaction data within that period, the information BR&B has retrieved shows that, during the period covered by the lawsuit, your fund had transactions in the securities that are the subject of the case.

DINCN *— Data Incomplete/Data Shows No Transaction Activity in Class Period*

This term means that the information BR&B has electronically retrieved from your fund's custodian does not include data for the entire period covered by the class action because BR&B's access to your fund's transaction data for that period is limited by the terms of BR&B's contract with your fund. To the extent BR&B has access to transaction data within that period, the information BR&B has retrieved shows that, during the period covered by the lawsuit, your fund had no transactions in the securities that are the subject of the case.

DINCP *— Data Incomplete/Data Shows a Profit on Transactions in Class Period*

This term means that the information BR&B has electronically retrieved from your fund's custodian does not include data for the entire period covered by the class action because BR&B's access to your fund's transaction data for that period is limited by the terms of BR&B's contract with your fund. To the extent BR&B has access to transaction data within that period, the information BR&B has retrieved shows that, during the period covered by the lawsuit, your fund appears to have had a profit on transactions in the securities that are the subject of the lawsuit.

DINCS *— Data Incomplete/Data Shows only Sales Transactions in Class Period*

This term means that the information BR&B has electronically retrieved from your fund's custodian does not include data for the entire period covered by the class action because BR&B's access to your fund's transaction data for that period is limited by the terms of BR&B's contract with your fund. To the extent BR&B has access to transaction data within that period, the information BR&B has retrieved shows only sales of the securities that are the subject of the lawsuit during that period.

DIS *— Case Dismissed*

This term means that the case was dismissed.

DIST *— Funds Distributed*

This term means that BR&B has received information that the net settlement proceeds were distributed to class members who had filed valid proofs of claim.

D/N/A *— Data Not Available*

This term means that BR&B cannot electronically retrieve information about your fund's transactions in the securities that are the subject of the class action from your fund's custodian for the period covered by the lawsuit because BR&B's access to your fund's historical transaction data is limited by the terms of BR&B's contract with your fund.

FDA *— Recommend File Derivative Action*

This term means that after a review of the allegations in the securities class action against a company, as well as a review of your fund's transactions and holdings of the securities of that company, BR&B has recommended that your fund pursue a derivative action against the company's management and directors seeking corporate governance reforms for the benefit of the company.

FIA *— Recommend File Individual Action*

This term means that after a review of the allegations in the securities class action complaint filed against a company, as well as a review of your fund's transactions and holdings of the securities of that company, BR&B has recommended that your fund pursue a non-class action against the company, its management, and/or others.

HOLD *— Hold Stock During Class Period*

This term means that the information BR&B has electronically retrieved from your fund's custodian shows that, during the period covered by the class action, your fund held stock in the securities that are the subject of the lawsuit.

M *— Monitor*

This term means that BR&B is monitoring the progress of the securities class action lawsuit.

N *— None*

This term means that, because the transaction information available to BR&B from your fund's custodian indicates that your fund has no transactions in the securities that are the subject of this securities class action, your fund need take no action in this lawsuit. This term will also appear if the case has settled and the transaction information available to BR&B from your fund's custodian indicates that your fund is not entitled to compensation under the settlement.

NACT *— No Transaction Activity during Class Period*

This term means that the information BR&B has electronically retrieved from your fund's custodian does not show any transactions in the securities that are the subject of the class action for the period covered by the lawsuit.

NC *— No Claim*

This term means that the information BR&B has electronically retrieved from your fund's custodian shows that, during the period covered by the class action, your fund's transactions in the securities that are the subject of the class action resulted in no claim under the settlement allocation formula approved by the court in the action.

NCF *— None/Claim Filed*

This term means that, because a claim has been filed on behalf of your fund with the administrator handling the settlement of the class action lawsuit, your fund need take no further action in this case.

NCOF *— No Claim on File*

This term means that the custodian has informed BR&B that, based on the custodian's review of your fund's transactions in the securities that are the subject of the class action, the custodian has determined that your fund does not have a claim under the allocation formula approved by the court in the action and, as a result, has not filed a claim on your fund's behalf.

This term means that the period covered by the class action lawsuit has been expanded. BR&B is in the process of electronically retrieving information from your fund's custodian about transactions, if any, in the securities that are the subject of the class action during the expanded period covered by the lawsuit.

NDIS *— None/Case Dismissed*

This term means that, because the case has been dismissed, your fund need take no further action in this case.

NDIST *— None/Distributed*

This term means that, because the settlement fund has been distributed to claimants, your fund need take no further action in this case.

N/E *— Not Eligible*

This term means that, due to restrictions placed on who can participate in a particular lawsuit being pursued in a non-U.S. court, your fund does not appear to meet the requirements for participation in that suit. Note that BR&B is not licensed to practice law outside the United States and therefore does not provide legal advice or recommendations regarding non-U.S. actions.

NEW *— Recently Filed Case*

This term means that the case was recently filed, and that the lead plaintiff motion due date has not passed.

NPRCHS *— No Purchases in Class Period*

This term means that the information BR&B has electronically retrieved from your fund's custodian does not show any purchases of securities that are the subject of the class action during the period covered by the lawsuit.

NRR *— None/Recovery Received*

This term means that, because your fund has received a distribution of its pro rata share of the settlement fund, it need take no further action in this settled case.

PARSET *— Partial Settlement*

This term means that some but not all of the defendants have agreed to settle the case against them. The case is continuing against one or more other defendants.

PARSTA *— Partial Settlement/Case on Appeal*

This term means that some but not all of the defendants have agreed to settle the case against them and that one or more non-settling defendants have appealed the court's approval of the partial settlement.

PC *— Possible Claim*

This term means that the information BR&B has retrieved from your fund's custodian indicates that your fund may be entitled to a recovery in a settled case. BR&B will notify your fund's custodian of upcoming claim filing deadlines in all cases in which your fund has a possible claim. This term will not change until we are notified that the settlement fund has been distributed, when it will change to NDIST (None/Distributed) or NRR (None/Recovery Received).

RL *— Recommended Lead*

This term means that, based on BR&B's analysis of the cases as well as the transaction information BR&B has retrieved from your fund's custodian, BR&B has recommended that your fund seek appointment as lead plaintiff in the lawsuit.

RLA *— Recommended Lead/Appointed*

This term means that, based on BR&B's analysis of the cases as well as the transaction information BR&B retrieved from your fund's custodian, BR&B recommended that your fund seek appointment as lead plaintiff in the lawsuit. At your fund's direction, BR&B filed a motion to appoint your fund as lead plaintiff and the court has granted that motion.

RLCD *— Recommend Lead/Client Declined*

This term means that, based on BR&B's analysis of the cases as well as the transaction information BR&B retrieved from your fund's custodian, BR&B recommended that your fund seek appointment as lead plaintiff in the lawsuit, but your fund declined to seek that appointment.

RLM *— Recommended Lead/Moved*

This term means that, based on BR&B's analysis of the cases as well as the transaction information BR&B retrieved from your fund's custodian, BR&B recommended that your fund seek appointment as lead plaintiff in the lawsuit. At your fund's direction, BR&B filed a motion to appoint your fund as lead plaintiff and that motion is pending.

RLMN *— Recommend Lead Moved/Not Appointed*

This term means that, based on BR&B's analysis of the cases as well as the transaction information BR&B retrieved from your fund's custodian, BR&B recommended that your fund seek appointment as lead plaintiff in the lawsuit. At your fund's direction, BR&B filed a motion to appoint your fund as lead plaintiff, but the court denied that motion because one or more other lead plaintiff applicants had a larger financial interest in the case.

RR *— Recovery Received*

This term means that BR&B has received information that your fund received a distribution in the settlement.

SACT *— Only Sales Transaction Activity in Class Period*

This term means that the information BR&B has electronically retrieved from your fund's custodian shows that, during the period covered by the class action, your fund only sold the securities that are the subject of the lawsuit.

SETTLE *— Settlement*

This term means that the parties have agreed to settle the case. There are many steps to the settlement process. For more details about the settlement of the case in question, please call Leslie Molder at 215/963–0600.

SRCHPEND *— Search Pending*

This term means that BR&B is in the process of electronically retrieving information from your custodian about transactions, if any, in the securities that are the subject of the class action during the period covered by the lawsuit.

SRCHPENDEX *— Expanded Class Period/Search Pending*

This term means that the period covered by the class action lawsuit has been expanded. BR&B is in the process of electronically retrieving information from your fund's custodian about transactions, if any, in the securities that are the subject of the class action during the expanded period covered by the lawsuit. If there is a loss amount in the "estimated loss" column when the action recommended is listed as SRCHPENDEX, the loss amount listed is for the original class period. Once the search has been completed, if the loss amount for the extended class period is different from the loss amount in the original class period, the action recommended will change to CHINPROGEX and no loss amount will be listed until the extended class period loss calculation has been verified.

STAYED *— Action is Stayed*

This term means that the court, either on its own initiative or at the request of one or more of the parties to the case, has put a hold on the case.

STCHINPROG *— Settlement Chart in Progress*

This term means that, in connection with the settlement of the case, BR&B is in the process of calculating your fund's "eligible" losses on its transactions in the securities that are the subject of the lawsuit. "Eligible" losses are the losses calculated based on the plan of allocation approved by the court when it approved the settlement of the lawsuit. If the term appears for a case where the lead motion due date has passed, it means that the class period alleged in the current operative complaint differs from the original class period, and BR&B is calculating your fund's losses for the new class period.

TBF *— Claim Filed*

This term means that BR&B believes that your custodian should file a proof of claim on behalf of your fund by the deadline set by the court. In accordance with BR&B's procedures, unless instructed otherwise by your fund, BR&B has notified (or will notify) your fund's custodian of the upcoming deadline three weeks in advance of the deadline.

UR *— Under Review*

This term means that BR&B is currently reviewing the lawsuit as well as you fund's financial interest in the lawsuit.

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

David Ewer

To: Members of the Board

From: David Ewer, Executive Director

Date: November 15, 2016

Subject: Updating Education Policy regarding Board Member Orientation

The Board's orientation language in the Education Policy should be revised to reflect additional material and Board practices.

The current language, underlining proposed deleted words:

BOARD MEMBER ORIENTATION PROGRAM

A. An orientation program will be formalized and maintained for the benefit of new Board Members.

B. The aim of the orientation program shall be to provide relevant information/education so that new Board Members are in a position to contribute fully to Board and Committee deliberations and effectively carry out their fiduciary duties as soon as possible after joining the Board.

C. The orientation program may include:

i. In-person introduction to MTBOI management and staff
ii. A tour of the staff office
iii. An orientation handbook, which may be presented to Board Members via an orientation <u>seminar</u>

The handbook and/or accompanying seminar should cover the following:

a. Most recent Governance Policy and Investment Policy Statements
b. Roles and responsibilities of Board Members, Committees and staff
c. An overview of State laws relevant to fund management
d. <u>Material from legal counsel on fiduciary responsibility</u>
e. <u>Copies of Board and general operating policies and procedures</u>
f. Most recent Comprehensive Annual Financial Report
g. <u>Most recent Actuarial Valuation Report and Asset Liability Study</u>
h. Most recent Investment performance report
i. <u>Most recent MTBOI budget</u>
j. Up-to-date organization chart
k. Names and telephone numbers of other MTBOI Board Members and Staff

The following changes to Section C, part iii are recommended with new words underlined:

Orientation materials, which may be presented to Board Members via an orientation session, which may include:

a. Current Governance Policy
b. Roles, responsibilities and ethics of Board Members and staff
c. Board committees
d. An overview of State laws relevant to fund management
e. Most recent Annual Report
f. Most recent Investment performance report
g. Budget authorization and cost monitoring
h. Current organization chart
i. Names of Board Members and Staff
j. Work plan, calendar, acronym and terminology lists

Staff rationale for changes

1. Reference to a 'handbook' is deleted because there is currently no such reference source. Members should decide if such a 'handbook' is preferable, which would involve combining many reference sources; staff believes this may be unwieldly.
2. Session better reflects the history of Board member orientation; it is somewhat less formal than seminar.
3. Deleting 'investment policy statements' language; the concept is fully embedded in the Governance Policy; investment policies are available online.
4. Deleting material from legal counsel on fiduciary responsibility, as this subject is covered extensively in both the Board's Governance Policy and orientation guide.
5. Deleting most recent actuarial valuation report and asset liability study, as the Board has not conducted this study for many years due to the nature of such a study being more germane to the separate public pension boards.
6. The area of budget has been expanded to a fuller explanation of overall expenses and cost control.
7. "Most recent" has been changed to 'current' in all cases.
8. The Board's systematic work plan, calendar, acronym and terminology lists should be provided.

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

To: Members of the Board

From: David Ewer, Executive Director

Date: November 15, 2016

Subject: Staff Review of Proxy Voting

Overview

This memorandum reviews stock voting proxies as part of the Board's 24-month systematic work/education plan by reviewing and updating how the Board's public equity proxies are voted.

Role of Stock Proxies

Some key decisions involving public corporations typically require a vote of the stockholders in a process set out in each corporation's by-laws. Membership of the board of directors, senior management pay, external auditors, and capital structure changes generally require an affirmative majority vote of the owners, the stockholders, of the company. The vote is carried out by a 'proxy' mechanism not requiring actual attendance at the corporation's annual meeting.

Common Proxy Issues

Corporate Governance
Elections of Directors
Appointment of Auditors
Changes in Legal and Capital Structure
Corporate Restructurings, Mergers and Acquisitions
Proposals Affecting Shareholder Rights
Anti-Takeover Measures
Executive Compensation

Board's Proxy Policies

The Board addresses proxy voting in identical language in both its domestic and international equity investment policies.

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

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

Board's Delegation to Investment Managers Proxy

The BOI has delegated proxy responsibility to its investment managers who may choose to vote proxies completely independently, or may use the service of a proxy advice firm. The Board's external managers are required to provide us with their proxy voting policies. Staff obtains a compilation of proxy votes through the services of Broadridge.

All current BOI investment managers have submitted their proxy voting guidelines to the BOI. The more common traits are:

- They generally acknowledge that especial care and prudence when voting proxies is required with the fiduciary standards required by ERISA plans
- Many acknowledge using outside vendors, but generally do not bind themselves absolutely to the outside recommendation
- Most guidelines explicitly list what types of proxy issues will be voted *against*, for example
    - Excessive compensation
    - Poison pills and other harmful limitations to full value
    - Deleterious changes to the capital structure
    - Lack of board member independence, auditors, or poor governance choices

Investment Managers Often Use External Consultants on Proxy Voting

Many external managers use outside consultants to vote, or at least advise managers, in proxy voting. There are only two primary proxy consultants, Institutional Shareholder Services (ISS) and Glass Lewis. Managers can make blanket adjustments to the voting guidelines template provided by the outside voting service. Changes can be made at any time to the template. For instance, if ISS has a default of voting **for** all poison pill proposals, the manager can change the default vote for their clients to **against** all poison pill proposals. The managers reserve the right to over-ride the consultant and almost all have language that allows the fund manager to have input in the voting process as long as the request is documented in writing.

Proxy Advisory Services

Two firms dominate the proxy consultant space. Institutional Shareholder Services (ISS), founded in 1985, is a subsidiary of MSCI Inc., well-known for its benchmark services. ISS states that it tracks over 39,000 meetings in 115 countries. Glass, Lewis & Co., founded in 2003, also provides proxy advisory service and states that it tracks more than 20,000 meetings in 100 countries

Using Specific BOI Investment Managers as Examples

Below are themes routinely arising over proxy issues and specific examples how a firm addresses them.

ERISA

It is standard practice for the investment manager to acknowledge the importance of fiduciary care as required by ERISA (the federal Employee Retirement Income Security Act). For example, the language below is taken directly from one of the Board's managers, Acadian Asset Management:

"When voting proxies on behalf of our clients, Acadian assumes a fiduciary responsibility to vote in our clients' best interests. In addition, with respect to benefit plans under the Employee Retirement Income Securities Act (ERISA), Acadian acknowledges its responsibility as a fiduciary to vote proxies prudently and solely in the best interest of plan participants and beneficiaries. So that it may fulfill these fiduciary responsibilities to clients, Acadian has adopted and implemented these written policies and procedures reasonably designed to ensure that it votes proxies in the best interest of clients."

Client Direction or Withholding a Vote

"There may be occasions when Acadian determines that not voting a proxy may be in the best interests of clients; for example, when the cost of voting the proxy exceeds the expected benefit to the client. There may also be times when clients have instructed Acadian not to vote proxies or direct Acadian to vote proxies in a certain manner. Acadian will maintain written instructions from clients with respect to directing proxy votes.

Investment Managers Generally reserve the Right to Vote outside of Consultant's Recommendations

Acadian also reserves the right to override ISS vote recommendations under certain circumstances. Acadian will only do so if they believe that changing the vote is in the best interest of clients. All overrides will be approved by an Executive Officer of Acadian and will be documented with the reasons for voting against the ISS recommendation.

Investment Managers establish Proxy Oversight Committee

It is common for the investment manager to form an internal proxy oversight committee in addition to outside consultants. From Analytic Investors:

"Analytic Investors acknowledges that it has a duty of care to its clients that requires it to monitor corporate events and vote client proxies. Analytic Investors has established a Proxy Oversight Committee (the "Committee"), to oversee the proxy voting process. The Committee consists of at least one of the firm's Chief Investment Officer, the Compliance Officer, and the Proxy Coordinator. The Committee seeks to develop, recommend, and monitor policies governing proxy voting. The adopted guidelines for proxy voting have been

developed to be consistent, wherever possible, with enhancing long-term shareholder value and leading corporate governance practices. Analytic Investors has a policy not to be unduly influenced by representatives of management or any public interest or other outside groups when voting proxies. To this end, Analytic Investors has contracted with an independent proxy voting service (the "Proxy Service")."

Outside Proxy Consultants to avoid Conflicts of Interest

It is also common for investment managers to protect themselves from conflicts of interest. Again, from Acadian: *Relying on ISS to vote proxies ensures that Acadian votes in the best interest of its clients and insulates Acadian's voting decisions from any potential conflicts of interest. There may also be times when clients have instructed Acadian not to vote proxies or direct Acadian to vote proxies in a certain manner. Acadian will maintain written instructions from clients with respect to directing proxy votes. Acadian also reserves the right to override ISS vote recommendations under certain circumstances.*

BOI's Investment Managers and their Proxy Service Provider

The list below identifies who uses which proxy service company and any other qualifier.

Acadian – ISS
Alliance Bernstein Dom. Small cap – Internal Investment managers vote proxies (will use outside consultants as advisors and for conflict of interest)
American Century – Internal Investment managers vote proxies (will use independent board in case of conflict of interest)
Analytic – ISS
Artisan – ISS
Baillie Gifford – Internal Investment managers vote proxies (will use outside consultants as advisors and for conflict of interest)
Bernstein Large Cap Intl – Internal Investment managers vote proxies (will use outside consultants as advisors and for conflict of interest)
Hansberger*** – ISS
Intech – ISS
Invesco – Internal Investment managers vote proxies (will use outside consultants as advisors and for conflict of interest)
Iridian – Internal Investment managers vote proxies (will use outside consultants as advisors for conflict of interest)
JP Morgan – Internal Investment managers vote proxies (will use outside consultants for conflict of interest)
Lazard – Internal Investment managers vote proxies (will use outside consultants as advisors for conflict of interest)
Martin Currie*** – ISS
Nicholas*** – ISS
T Rowe Price – ISS maintains and implements a custom voting policy for the Price Funds and other client accounts.
Templeton – Internal Investment managers vote proxies (will use outside consultants as advisors and for conflict of interest)
TimesSquare – ISS
Vaughan Nelson – ISS
Voya – ISS
Wells Capital (formerly Metropolitan West Capital Management)*** – Internal Investment managers vote proxies (will use outside consultants for conflict of interest)

Proxy voting summary for Calendar Year 2015

The table below lists proxy votes recorded for meeting dates from January 1, 2015 to December 31, 2015.* There were a total of 2,151 proxies and almost 100 million shares voted. The data below is obtained through Broadridge's Proxy Edge product. We have access to this service at no charge based on our relationship with State Street. We are able to view all of our managers' votes parsed by company or manager for custom time periods. The majority of shares are voted in the second quarter.

Account Name	Ballot Shares	Voted Shares	Shares on Loan	Shares not voted
Acadian	24,667,484	24,228,142	834,325	439,342
Alliance Bernstein Dom. Small cap	374,317	374,317	97,078	-
American Century	5,872,363	5,864,491	2,464,291	7,872
Analytic	2,873,811	2,873,811	133,195	-
Artisan	2,035,087	2,028,232	452,539	6,855
Baillie Gifford	1,337,346	1,337,346	529,782	-
Bernstein Large Cap Intl	5,370,311	5,301,592	662,122	68,719
Hansberger	9,131,468	9,131,468	236,535	-
Intech	1,595,922	1,595,922	142,291	-
Invesco	2,266,228	2,242,773	143,815	23,455
Iridian	697,558	697,558	240,262	-
JP Morgan	7,356,836	7,356,836	354,036	-
Lazard	3,406,470	3,406,470	-	-
Martin Currie	5,656,820	5,359,815	21,000	297,005
Nicholas	685,933	685,933	69,455	-
T Rowe Price	4,744,551	4,744,551	411,322	-
Templeton	16,032,609	16,021,394	1,977,147	11,215
TimesSquare	1,753,622	1,753,622	268,278	-
Vaughan Nelson	1,660,712	1,660,712	207,266	-
Voya	229,134	229,134	185,279	-
Wells Capital	257,826	257,826	196,252	-
Grand Total	102,210,408	97,151,945	9,626,270	415,121

Proxies occasionally cannot be voted or are purposely not voted. If a stock is loaned** via securities lending, which the Board allows, the voting rights go to the borrower, who becomes the technical owner. Some countries forbid an equity owner from ***both trading*** a company's stock ***and exercising proxy rights*** during a proxy time period. It is not unusual for a manager to waive proxy voting so as not to limit possible trading. Countries having a 'no trade period' are: Argentina, Belgium, Egypt, Lebanon, Luxembourg, Mauritius, Morocco, Norway, Slovak Republic, Switzerland and Turkey.

*The report does not include comingled managers.
**Shares on loan must be recalled in order for the manager to direct a vote. Managers weigh the impact of removing the shares from loan with the desire to vote the shares.
***Managers have been terminated but voted proxies on behalf of Montana Board of Investments in 2015

Conclusion

Staff believes that delegating proxy voting to its outside investment managers, the *status quo*, is justified and reasonable. Individual managers have a vested economic interest in managing proxy votes that best benefit their view of investment return prospects. Retaining proxy control internally would require delegating proxy voting to a proxy service company such as ISS, at a new additional expense to the Board. Having in-house BOI staff solely voting proxies is unrealistic due to the extensive amount of due-diligence required.

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

To: Board Members

From: David Ewer, Executive Director

Date: November 15, 2016

Subject: Resolution 217 Update

At the November 2007 Board meeting, the Board unanimously approved Resolution No. 217.

Resolution No. 217 *"designates its Executive Director as agent of the Board to deal with investment firms in connection with Board accounts with such firms; and that the investment firms are hereby authorized to deal with the Executive Director or the Executive Director's designated staff as agents of the Board; to accept all orders for purchases and sales and all instructions given by any of them on behalf of the Board as and for the action of the Board without further inquiry as to their authority; to receive any funds, securities or property for the account of the Board; to sell, assign, transfer or deliver either in bearer form, in street certificates or in such names as said persons or any of them shall direct, any funds, securities or other property held for the account of the Board, to said persons or any of them or as they or any of them shall in writing, or verbally with subsequent confirmation in writing, order; and to send or communicate all confirmation, notices, demands and other communications to them or any of them and to the Attention of the Board of Investments, P.O. Box 200126, Helena, MT 59620-0126."*

When Resolution 217 was passed, Appendix "A" was created to show all vendors authorized to conduct financial transactions with the Board and all staff authorized to conduct financial transactions with the vendors.

The Board authorized its Executive Director to close any of the accounts listed in the original Appendix "A", to open new accounts, to designate additional staff members to act on behalf of the Board for the purpose of dealing with investment firms regarding any account, and to remove the authority of any of the named staff members or other staff members designated by him/her to act on behalf of the Board for purposes of dealing with investment firms regarding any account.

The Executive Director shall annually, on or around the regularly scheduled November Board Meeting, provide a report to the Board showing the staff members and the accounts/funds added to or deleted from Appendix A.

Clifford A. Sheets and Nathan Sax were removed from Appendix A designated/authorized MBOI staff lists and Joseph M. Cullen and Steve Strong were added during this period.

For the period of November 2015 to November 2016, the following changes were made to Resolution No. 217, Appendix A:

Broker/Dealer (Fixed Income/STIP) added:

- JPMorgan Chase
- US Bank (Buy-Side Relationship)

Broker/Dealer (Fixed Income/STIP) no longer used by staff and removed from Appendix A:

- *None*

External Fixed Income Managers added:

- *None*

External Fixed Income Managers no longer used by staff and removed from Appendix A:

- *None*

Money Market Managers added:

- *None*

Money Market Managers no longer used by staff and removed from Appendix A:

- *None*

Public Equity Brokers added:

- *None*

Public Equity Brokers no longer used by staff and removed from Appendix A:

- *None*

Public Equity Managers added:

- *None*

Public Equity Managers no longer used by staff and removed from Appendix A:

- Nicholas
- Metropolitan West Capital Management, LLC (Wells Capital)

Private Equity Managers/Funds added:

- Axiom Asia IV, L.P.
- McCarthy Capital Fund VI, L.P.
- Dover Street IX L.P. (HarbourVest Partners)
- DFW Capital Partners V, L.P.
- OCP Asia Ltd
- Kinderhook Industries, LLC, Fund V
- Tenex Capital Partners II, LP

Private Equity Managers/Funds no longer used by staff and removed from Appendix A:

- Summit Partners Growth Equity VIII-A, LP
- TA XI, LP

Private Real Estate Managers/Funds added:

- Velocis Management, LLC
- CBRE, Fund 8
- GEM Realty Fund VI, LP

Private Real Estate Managers/Funds no longer used by staff and removed from Appendix A:

- *None*

RESOLUTION NO 217 APPROVED – NOVEMBER 6, 2007
OF THE
MONTANA BOARD OF INVESTMENTS

WHEREAS, the Montana Board of Investments (Board) maintains several accounts with investment firms for the purchase and sale of stocks, bonds, covered options, purchase options (stock open indicies, interest rate options, foreign currency options), repurchase agreements, reverse repurchase agreements, and other securities and property, which accounts are described on Appendix "A" attached hereto and incorporated herein; and

WHEREAS, the Board desires to provide a procedure for the future designation or removal of Board staff for purposes of acting on behalf of the Board to deal with investment firms in connection with such accounts; and

WHEREAS, the Board desires to provide flexibility for future changes in accounts, investment firms and in Board staff with authority to act on behalf of the Board relative to such accounts; and

WHEREAS, the Board adopted Resolution No. 199 on October 31, 2002 for the foregoing purposes.

NOW, THEREFORE:

RESOLVED, that the Board intends that this resolution supersedes in every respect and replaces in its entirety Resolution No. 199

RESOLVED, that the Board of Investments hereby designates its Executive Director as agent of the Board to deal with investments firms in connection with Board accounts with such firms; and that the investment firms are hereby authorized to deal with the Executive Director or the Executive Director's designated staff as agents of the Board; to accept all orders for purchases and sales and all instructions given by any of them on behalf of the Board as and for the action of the Board without further inquiry as to their authority; to receive any funds, securities or property for the account of the Board; to sell, assign, transfer or deliver either in bearer form, in street certificates or in such names as said persons or any of them shall direct, any funds, securities or other property held for the account of the Board, to said persons or any of them or as they or any of them shall in writing, or verbally with subsequent confirmation in writing, order; and to send or communicate all confirmation, notices, demands and other communications to them or any of them and to the Attention of the Board of Investments, P.O. Box 200126, Helena, MT 59620-0126.

FURTHER RESOLVED, that the establishment and maintenance of all of the accounts, hereinafter described in Appendix "A," and the actions of the Executive Director or the Executive Director's designated staff members shown in Appendix "A," acting on behalf of the Board dealing with investment firms related to said accounts since January 21, 1993, are hereby approved and ratified.

FURTHER RESOLVED, that the Board hereby authorizes its Executive Director

RESOLUTION NO 217 APPROVED – NOVEMBER 6, 2007
OF THE
MONTANA BOARD OF INVESTMENTS

to close any of the accounts listed in Appendix "A", to open new accounts, to designate additional staff members to act on behalf of the Board for the purpose of dealing with investment firms regarding any account, and to remove the authority of any of the named staff members or other staff members designated by him/her to act on behalf of the Board for purposes of dealing with investment firms regarding any account.

FURTHER RESOLVED, that an investment firm may act in reliance upon the foregoing resolution and subsequent designations by the Executive Director of staff members who may act on behalf of the Board until receipt of written notice that the authority of the designated staff member to act on behalf of the Board has been terminated.

FURTHER RESOLVED, that the Executive Director shall annually, on or around the regularly scheduled October Board meeting, provide a report to the Board showing the staff members and the accounts added to or deleted from Appendix A, which information shall include the date on which the addition or deletion occurred.

Dated and approved this 6th day of November 2007.

ATTEST

By: _____
Chairman

RESOLUTION 218

WHEREAS, the Montana Board of Investments (Board) has delegated certain critical authority and duties to its Executive Director that must be exercised and performed in the absence of the Executive Director; and

WHEREAS, the Executive Director may be incapacitated or temporarily absent from the office under circumstances that render the Executive Director unavailable to exercise such authority and perform such duties,

NOW, THEREFORE:

RESOLVED, that the Executive Director or the Deputy Director shall notify the Board Chairperson immediately at any time the Executive Director, due to incapacity or a temporary absence from the office, is unable to perform his/her duties; and

FURTHER RESOLVED, that "incapacity" means the occurrence of a mental or physical disability rendering the Executive Director incapable of exercising his/her authority and carrying out his/her duties; and

FURTHER RESOLVED, that during an incapacity of the Executive Director, the Deputy Director is hereby designated Acting Executive Director; and

FURTHER RESOLVED, that the Executive Director may, after notifying the Board Chairperson, delegate his/her executive authority to the Deputy Director to serve as Acting Executive Director during periods of official travel or authorized leave away from the Board's office, if in the judgment of the Executive Director, such delegation would be in the best interest of the Board; and

FURTHER RESOLVED, that during any period that the Deputy Director is not available to assume the role of Acting Executive Director pursuant to the provisions of this Resolution, the Chief Investment Officer shall serve as Acting Executive Director; and

FURTHER RESOLVED, that the Acting Executive Director shall operate only within the authority and parameters established in the Board's Governance Policy.

Dated and approved this 6th day of November 2007.

ATTEST

By: _____
Chairman

Resolution 234
Continuity Resolution for Chief Investment Officer Position

WHEREAS, the Montana Board of Investments (Board) has delegated certain critical authority and duties to its Chief Investment Officer that must be exercised and performed in the absence of the Chief Investment Officer; and

WHEREAS, the Chief Investment Officer may be incapacitated or temporarily absent from the office under circumstances that render the Chief Investment Officer unavailable to exercise such authority and perform such duties,

NOW, THEREFORE:

RESOLVED, that the Executive Director and the Deputy Director shall notify the Board Chairperson immediately at any time the Chief Investment Officer, due to incapacity, unexpected absence or other circumstance, is unable to perform his/her duties; and

FURTHER RESOLVED, that during the period of incapacity, absence, or inability to perform the duties by the Chief Investment Officer, the Executive Director or if necessary as provided under the Board's Resolution 218, the Deputy Director, is hereby designated the Acting Chief Investment Officer and fully empowered to perform all the duties of this position except as further described herein below for ***Investment Manager Contracts***; and

FURTHER RESOLVED, that while serving as the Acting Chief Investment Officer, the Executive Director may designate, after consultation with the Board Chairman, a deputy chief investment officer from among the Board's exempt investment staff whose role and authority would be defined at the time; and

FURTHER RESOLVED, that during the time that the Executive Director serves also as the Acting Chief Investment Officer, in order that appropriate checks and balances are preserved for matters ***specifically*** and ***only pertaining*** to ***Investment Manager Contracts***, as further prescribed by the Board's Governance Policy, that the oversight responsibilities regarding ***Investment Management Contracts*** held by the Chief Investment Officer shall be overseen by whomever the Board's portfolio manager is responsible for the relevant asset class involving the particular ***Investment Management Contract*** issue; and

FURTHER RESOLVED, that so long as the Chief Investment Officer is incapacitated, absent or otherwise unable to perform his/her duties, and during the period that there is an Acting Chief Investment Officer, the Executive Director must specifically update the Board, at its regularly scheduled meetings, regarding all relevant matters pertaining to the need for the continued implementation of this Resolution's delegations; and

FURTHER RESOLVED, that the Acting Chief Investment Officer shall operate only within the authority and parameters established in the Board's Governance Policy, and as otherwise provided by Board policy and statute.

Dated and approved this 25th day of February 2014.

ATTEST

By: Mark E. Noennig
Chairman

OFFICE OF THE GOVERNOR
STATE OF MONTANA

BRIAN SCHWEITZER
GOVERNOR

JOHN BOHLINGER
LT. GOVERNOR

TO: Executive Branch Officers
Department Directors
Chairs and other Presiding Officers of All Executive Branch Boards, Bureaus, Commissions, Departments, Authorities, and Agencies

FROM: Governor Brian Schweitzer

DATE: October 16, 2012

RE: Public participation in agency decisions pursuant to § 2-3-103, MCA

Montana's public participation laws require me, as Governor, "to ensure that each board, bureau, commission, department, authority, agency, or officer of the executive branch of the state" adopts rules, setting forth policies and procedures to facilitate public participation in agency programs and decisions. Sec. 2-3-103(2), MCA. I have written you in past years to remind you of these important statutory obligations, and I take this opportunity to remind you of them again.

Montanans have a constitutional right to participate in the activities of their government. The "Right of Participation" is found at Article II, section 8 of the Montana Constitution, which provides:

> The public has the right to expect governmental agencies to afford such reasonable opportunity for citizen participation in the operation of the agencies prior to the final decision as may be provided by law.

This constitutional right is implemented by Montana statutes (Title 2, chapter 3, part 1, MCA) requiring every agency to develop procedures to permit and encourage public participation in agency decisions "that are of significant interest to the public." The statutes require agencies to provide adequate notice to the public and assist public participation. Meeting agendas must include an item allowing public comment on any public matter not on the agenda but within the agency's jurisdiction. Additionally, the agency may not act on any matter that was not included on the agenda and for which public comment on the matter was not allowed. Public comments must be incorporated into the official minutes of the meeting. The district courts may set aside agency decisions not in conformity with the public participation laws where a person's rights have been prejudiced. Model rules to implement these laws are found at ARM §§ 1.3.101 and 1.3.102.

As you know, this Administration takes very seriously the public's right to participate in the decisions of government, and I applaud your efforts to ensure this public right. If you or your agency needs assistance in crafting appropriate guidelines and rules to conform to Montana's public participation laws, feel free to contact my legal counsel, Ann Brodsky, for assistance (444-3558).

STATE CAPITOL • P.O. BOX 200801 • HELENA, MONTANA 59620-0801
TELEPHONE: 406-444-3111 • FAX: 406-444-5529 • WEBSITE: WWW.MT.GOV

2017 CALENDAR

Board Dates Board Packet Mailing Federal Holidays

01 New Year's Day
16 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				

20 Presidents Day

24 Good Friday

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						

16 Easter Sunday

14 Mother's Day
29 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	

18 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		

04 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				

9 Columbus Day
31 Halloween

11 Veterans Day
23 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

Systematic Work and Education Plan 2017

Feb. 14-15 **Quarterly Meeting**
Quarterly reports, subcommittee meetings, 2017 Legislature matters
Annual Report and Financial Statements (Audit committee)
Financial Audit (Audit committee)
Ethics
In-State Loan programs
Board's Montana real estate holdings as landlord
INTERCAP program
Outreach efforts – loan and municipal programs

April 5 **Non-Quarterly Meeting**
2017 Legislature matters
All policy review, scrub and revise
Capital market/asset allocation overview
Benchmarks used by Board
Board's website
RVK presentation (TBD)

May 23-24 **Quarterly Meeting**
Quarterly reports and subcommittee meetings, 2017 Legislature matters
Accounting review (Audit committee)
Exempt pay compensation review (Human Recourse committee)
Staffing level review (Human Recourse committee)
Fixed Income review
State Government customer relationships
State Fund as Principal Investment client

August 22-23 **Quarterly Meeting**
Quarterly reports and subcommittee meetings
CEM Benchmarking
MBOI Budget and legislative-related action-decision
Real asset review
Internal Controls (Audit committee)
Fiscal Year performance through June 30th
RVK presentation (TBD)

October 3 **Non-Quarterly Meeting -TBD**

Nov. 14-15 **Quarterly Meeting**
Quarterly reports and subcommittee meetings
Annual Report and Financial Statements Submission for FY 2017 (Audit committee)
Affirm or Reset Asset Allocation Ranges
Resolution 217
Resolution 218
PERS/TRS annual update
Securities litigation status (Audit)
Securities Lending
Exempt staff annual performance review (Human Recourse committee)
Domestic Equities Review

Completed	Completed	In-Process	Proposed	
2014	**2015**	**2016**	**2017**	
X	X		X	Accounting Review
X	X	X	X	Annual report and financial statements
X	X	X	X	Asset Allocation Range Approval (Board must review/approve annually as per policy)
	X	X	X	Capital Market/Asset Allocation
X	X	X	X	Audit (Financial)
	X		X	Benchmarks used by Board
	X	X		Board as a rated investment credit, a bond issuer and a credit enhancer
X	X	X	X	Board member education
X	X	X	X	Board's budget
	X		X	Board as landlord/tenant holdings
	X		X	Board's website
X		X		Cash Management of state monies
X	X	X	X	Cost reporting including CEM, Inc. analysis
X		X		Custodial bank relationship, performance, continuity
	X		X	Customer relationships (State government)
X		X		Disaster Recovery and other emergency preparedness
X	X	X	X	Exempt staff performance and raises (HR policy requires annual consideration)
X	X	X	X	Ethics policy – (Board policy requires annual affirmations)
	X		X	Fixed Income
	X		X	In-state Loan program
X			X	INTERCAP program
X	X	X	X	Internal controls
		X	X	Investment Counsultant independent presentations (Board requries at least two annually)
X	X	X	X	Policy Statements Review (Governance policy requires annual investment policy review)
X	X	X	X	Legislative session and interim matters
X			X	Outreach efforts for Board - loan and municipal programs
X	X	X	X	PERS and TRS relationship
X		X		Private Equity Review
X		X		Proxy voting public equities
X		X	X	Public Domestic Equities Review
X		X		Public International Equities Review
X		X		Real Estate and timberland
X	X	X	X	Resolution 217 update of current Investment Firms (Board policy requires annual update)
X	X	X	X	Resolution 218 role of deputy director to serve as acting executive if necessary
	X		X	Securities Lending
X	X	X	X	Securities Litigation
X	X	X	X	Staffing levels (required biannually in board policy)
	X		X	State Fund as major client

MONTANA

BOARD OF INVESTMENTS

2016 Annual Report

MONTANA
BOARD OF INVESTMENTS

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The Board is committed to proven long-term investment strategies and creative solutions to financial issues facing government entities and new and expanding businesses in the state.

The cover photo is the location of the Montana Board of Investments' offices at 2401 Colonial Drive, Helena, Montana. The building was designed and constructed under the leadership of the Board's previous Executive Director, Carroll South, and is administered as an investment of Montana's nine pension funds. The building was completed in 1999 and houses Board staff and other Montana state agencies.

MONTANA
BOARD OF INVESTMENTS

MESSAGE FROM THE CHAIRMAN OF THE BOARD

It is my pleasure to present our 2016 annual report to the Legislature, the Governor and the public.

It is the highest honor and privilege for the Board of Investments to oversee the only program specifically required in the Montana Constitution, the *Unified Investment Program*. Since its inception in 1972, the Board invests essentially all of the State's money, its operating funds, trust funds, and its pension funds. Today the Board manages over $16 billion for all state agencies and many local governments.

This is a great responsibility. We must discharge our duties with care, skill, prudence, and diligence. We must be mindful of both maximizing returns and minimizing losses. We must discharge our duties solely in the interest of and for the benefit of the funds forming the Unified Investment Program. This is the law.

We also oversee some of the most important economic development and local government funding programs in the state using the financial strength of Montana's Coal Severance Trust Fund. These programs have helped create hundreds of jobs and have saved local governments millions of dollars in interest expense.

We are a nine member board, chosen by the Governor, confirmed by the Montana Senate, and qualified as required by law. We operate under a strong governance system. We act only through our official capacity in meetings that are open and publicly accessible. We delegate by policy only those duties to our staff that are appropriate, as the Board bears the ultimate responsibility to the public.

Our investment horizon is for the very long term for the pension systems, intermediate term for our trust fund clientele, and short term for the state's daily cash needs. While every year's investment performance is important, I urge we all remember that investing often requires a long term view. We need to be patient, diligent, and thoughtful.

"Our investment horizon is for the very long term for the pension systems, intermediate term for our trust fund clientele, and short term for the state's daily cash needs."

As we further describe in this report, achieving a diversified mix of investment assets is what drives over 90% of total returns.

The Board is mindful about costs, especially managing pension dollars. We conduct an independent study yearly on our pension investments and compare our results and costs to our peers. Over the last five years, we have earned more than our peers and have slightly lower costs. This study may be found online at http://investmentmt.com/CEMBenchmarking

Nearly half of the investments are internally managed by our own investment staff, and for these investments our costs are very low and performance is solid. We have a highly trained and professional staff. Many hold advanced degrees, and many hold financial and accounting professional designations.

Our website has a great deal of information about the Board's activities, its investment holdings and performance. I invite you to contact me or our Executive Director if you have any questions.

Mark E. Noennig

Mark Noennig, Chairman

BOARD MEMBERS

Mark Noennig
BILLINGS
Board Chairman
Representing Business
Term Ending:
01/01/2017

Karl Englund
MISSOULA
Board Vice Chair
Attorney
Term Ending:
01/01/2019

- Human Resources (HR) Committee, Chair

Marilyn Ryan
MISSOULA
Representing TRS
Term Ending:
01/01/2017

- HR Committee
- Loan Committee

Teresa Olcott Cohea
HELENA
Representing Financial Community
Term Ending:
01/01/2019

- Audit Committee
- Loan Committee

Sheena Wilson
HELENA
Representing PERS
Term Ending:
01/01/2017

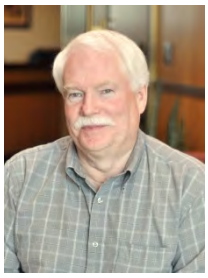
- Audit Committee

Kathy Bessette
HAVRE
Representing Agriculture
Term Ending:
01/01/2017

- Loan Committee

Quinton Nyman
HELENA
Representing Labor
Term Ending:
01/01/2019

- HR Committee



Jack Prothero
GREAT FALLS
Representing Business
Term Ending:
01/01/2017

- HR Committee
- Loan Committee, Chair

Jon Satre
HELENA
Representing Business
Term Ending:
01/01/2019

- HR Committee
- Audit Committee, Chair

LEGISLATIVE LIAISONS

Representative Kelly McCarthy
BILLINGS
House of Representatives Liaison
Term Ending:
12/31/2016

Senator Bob Keenan
BIG FORK
Senate Liaison
Term Ending:
12/31/2016

MONTANA
BOARD OF INVESTMENTS

Senior Management

- ***David Ewer***
  Executive Director
- ***Geri Burton***
  Deputy Director
- **Doug Hill**
  Director of In-State Loan Programs
- ***Joseph M. Cullen, CFA, CAIA, FRM***
  Chief Investment Officer
- ***Julie Feldman, CPA***
  Financial Manager
- ***Dana Chapman***
  Office Manager – Board Secretary

Staff

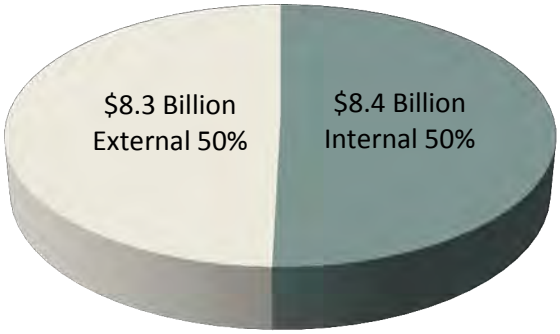
- ***Polly Boutin***
  Associate Financial Manager
- ***Jason Brent, CFA***
  Investment Analyst
- ***Frank Cornwell, CPA***
  Associate Financial Manager
- ***Roberta Diaz***
  Investment Accountant
- ***Kelsey Gauthier, CPA***
  Investment Accountant
- ***Julie Flynn***
  Municipal Finance Programs
  Bond Program Officer
- **Kirsten Haswell**
  Investment Analyst
- ***Tim House***
  Investment Analyst
- ***Ethan Hurley, CAIA***
  Director of Private Investments
- ***Edward Kelly***
  Investment Analyst
- ***Teri Kolnik, CFA***
  Investment Analyst
- ***Eron Krpan, CIPM***
  Investment Analyst
- ***Tammy Lindgren***
  Investment Accountant
- ***April Madden***
  Investment Accountant
- ***Savannah Morgan***
  Administrative Assistant
- ***Rande Muffick, CFA***
  Director of Public Market Investments
- ***Mary Noack***
  Network Administrator
- ***Jon Putnam, CFA, FRM, CAIA***
  Director of Fixed Income
- ***John Romasko, CFA***
  Investment Officer
- ***Steve Strong***
  Investment Analyst
- ***Louise Welsh***
  Municipal Finance Programs
  Senior Bond Program Officer
- ***Maria Wise***
  Administrative Assistant
- ***Daniel Zarling, CFA***
  Director of Risk Management

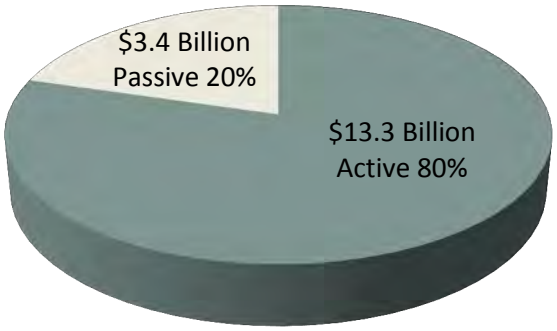
Montana's State Constitution requires that the state's financial assets be managed through the **UNIFIED INVESTMENTS PROGRAM**. The Board of Investments was established by the Montana Legislature to carry out that mandate. The Board manages the state's investments within those constitutional and statutory guidelines.

As of June 30, 2016, the Board of Investments managed over $16 billion in state operating funds, trust funds, pension funds, insurance reserves and certain local government funds. Within these five broad categories, a combination of investment pools and specific accounts are utilized to meet the financial goals and expectations of the agencies and entities which entrust these funds to the Board.

As shown in the chart on the left below, just over half of the Board's investments are managed internally by the Board's own investment staff. These assets managed internally are often lower risk assets that can be better managed "in-house" to limit costs. The remaining assets are managed externally by professional investment managers in a variety of asset classes. Utilizing the professional and often specialized expertise of these external managers, the Board seeks to maximize the return available from a variety of market options. External managers are carefully selected and monitored by the Board's staff for both performance and cost.

As shown in the chart on the right, over three-quarters of the investments are managed actively; less than one-quarter are managed passively. Passive investments are those managed at less cost by simply mirroring existing global and domestic equity markets. Active management utilizes the professional expertise of both internal and external asset managers to seek a stronger return.





Total Fund
Net Asset Value* (In Millions) With Time Weighted Annualized Returns
As of June 30, 2016

Fund	NAV	1-Year Return %	10-Year Return %
Pension Funds	**$ 10,005.5**		
Firefighters	336.9	2.08	5.87
Game Wardens	154.2	2.07	5.87
Highway Patrol	128.4	2.07	5.89
Judges	87.3	2.08	5.89
Police	329.1	2.09	5.85
Public Employees	5,017.9	2.07	5.89
Sheriffs	298.2	2.08	5.87
Teachers	3,619.8	2.08	5.89
Volunteer Firefighters	33.6	1.91	5.88
Trust Funds	**$ 2,614.0**		
Abandoned Mine Trust	6.3	1.22	2.98
Big Sky Economic Devel	95.2	6.71	6.05
Butte Area One Rest	24.4	4.21	-
Butte-Silver Bow Redevelopment	14.0	-	-
Clark Fork River Rest	33.2	4.34	-
Clark Fork Site Resp	83.2	6.02	-
Coal Severance Tax Perm	569.7	5.66	5.55
Cultural Trust	14.5	6.68	6.06
East Helena Comp. Fund	5.9	3.28	-
Endowment For Children	1.3	6.25	-
FWP Mitigation	11.6	1.31	2.85
Harold Hamm Endowment	0.0	-	-
Montana Pole Superfund	29.6	5.42	5.14
Noxious Weeds	11.2	6.80	5.64
Older Montanans Trust Fund	1.2	6.52	-
Park Acquisition	26.4	6.65	6.03
Potter Trust Fund	0.2	-	-
Public School Trust	702.5	6.79	6.08
Real Property Trust	7.1	6.42	5.79
Regional Water Fund	99.8	6.71	6.06
Resource Indemnity Trust	115.0	6.80	6.08
Smelter Hill Uplands Rest	10.5	2.54	-
Streamside Tailings	26.4	5.98	5.61
Tobacco Trust	214.5	6.77	6.10
Treasure State Endowment	289.8	6.73	6.08
UCFRB Reserve	18.7	6.43	5.86
UCFRB Restoration	137.0	5.97	5.75
Upper Blackfoot Response	19.9	2.44	-
Wildlife Habitat	13.2	6.39	5.80
Zortman/Landusky Trust	17.2	1.11	5.63
Zortman/Landusky Water	14.7	0.98	6.25
Insurance Reserves	**$ 1,593.7**		
Employee Group Benefits	52.6	1.66	2.85
MUS Group Insurance	28.9	1.69	-
MUS Workers Compensation	19.4	-	-
PERS Defined Cont Disability	3.1	-	-
State Fund Insurance	1,489.8	4.81	5.53
Subsequent Injury Fund	0.0	-	-
State Operating Funds	**$ 1,636.4**		
FWP License	19.8	1.13	2.27
Montana State University	129.2	1.02	1.91
Montana Tech UofMontana	11.4	0.62	1.56
State Agency	438.7	-	-
Treasurers Fund	963.0	0.47	1.40
University Of Montana	74.3	3.09	2.87
Local Government Funds	**$ 888.9**		
Local Government Funds	888.9	-	-
Total	$ 16,738.5		

Totals may not foot due to rounding differences.
*Net Asset Value (NAV) includes net receivable and payable accruals.
**State Agency is an umbrella account for 270 sub-accounts including 4 insurance funds holding $30.8M in STIP. The Insurance funds are broken out on page 19.

Total Fund by Participant Type & Major Asset Type
Net Asset Value* (In Millions)
As of June 30, 2016

	Cash Equivalents	Public Stocks	Fixed Income	Loans	Other (1)	Total
Pension Funds	$ 280.5	$ 5,320.9	$ 2,363.1	$ -	$ 2,041.0	$ 10,005.5
Trust Funds	93.7	-	2,366.6	153.7	$ -	2,614.0
Insurance Reserves	71.1	155.5	1,276.8	-	$ 90.3	1,593.7
State Operating Funds**	1,400.6	-	235.7	-	$ -	1,636.4
Local Government Funds	888.9	-	-	-	$ -	888.9
Total	$ 2,734.8	$ 5,476.4	$ 6,242.2	$ 153.7	$ 2,131.3	$ 16,738.5

Totals may not foot due to rounding differences.
(1) Private Equity and Real Estate
*Net Asset Value (NAV) includes net receivable and payable accruals.

Investment Pools

The Board primarily uses seven internal investment pools in managing money. Over $14 billion (89%) is managed through these pools. Each pool has its own type of investment focus such as domestic stocks, foreign stocks, fixed income (e.g., bonds), real estate, private equity, and cash/cash equivalents. Almost all of the Board's clients use one or several of these investment pools as a way to invest. Separate securities outside of these seven investment pools are also purchased when circumstances merit. Currently, separate investments account for $1.9 billion, with the State Fund owning the largest dollar value of such securities, approximately $1.5 billion.

The following are the Board's current investment pools and principal users:

Name of Pool	Abbreviation	Eligible Participants
• Trust Funds Investment Pool	TFIP	Various state trust funds
• Retirement Funds Bond Pool	RFBP	Retirement systems funds only
• Montana Domestic Equity Pool	MDEP	Retirement systems funds only
• Montana International Equity Pool	MTIP	Retirement systems funds only
• Montana Private Equity Pool	MPEP	Retirement systems funds only
• Montana Real Estate Pool	MTRP	Retirement systems funds only
• Short Term Investment Pool	STIP	Eligible local & state agencies

Total Fund Annual Change by Pool
Net Asset Value* (In Millions)
As of June 30

Investment Pool	NAV	Total %	2015	Total %	Change $	Change %
Short Term Investment Pool	$ 2,810.5	16.79	$ 2,510.8	15.24	$ 299.7	11.94
Montana Domestic Equity Pool	3,776.0	22.56	3,992.0	24.23	(216.0)	(5.41)
Montana International Pool	1,544.9	9.23	1,669.0	10.13	(124.1)	(7.44)
Retirement Funds Bond Pool	2,363.1	14.12	2,245.3	13.63	117.8	5.25
Trust Funds Investment Pool	2,351.4	14.05	2,256.2	13.69	95.2	4.22
Montana Private Equity Pool	1,116.4	6.67	1,075.4	6.53	41.0	3.81
Montana Real Estate Pool	924.6	5.52	887.6	5.39	37.0	4.17
All Other Funds	1,945.8	11.62	1,904.6	11.56	41.2	2.16
STIP Included in Investment Pools	(94.2)	(0.56)	(63.3)	(0.38)	(30.9)	48.89
Total	$ 16,738.5	100.00	$ 16,477.7	100.00	$ 380.6	1.58

Totals may not sum due to rounding differences.
*Net Asset Value (NAV) includes net receivable and payable accruals.

The State's largest general operating account is the Treasurer's Fund and is the largest participant in the Short Term Investment Pool (STIP). Statutes limit where most state agency funds may be invested. Agencies may have the legal authority to invest separately from the State's general cash account (the Treasurer's Fund) and can then invest in STIP. An agency may have funds other than ordinary operating monies that can prudently have a longer term investment outlook and have a need for better returns. The Trust Funds Investment Pool or separate individual securities are available to meet that need. The Montana Constitution limits the investment in equities to the state's retirement systems and to a more limited extent, the state's workers compensation insurance agency, the State Fund.

The Board of Investments manages the **PENSION FUNDS** of nine separate retirement plans that provide retirement benefits for public employees of state and local government entities. The two largest of these funds are the Public Employees Retirement System (PERS) and the Teachers Retirement Systems (TRS). The Board has created several investment pools to meet the expectations and requirements of those systems. The Short Term Investment Pool, the Montana Domestic Equity Pool, the Retirement Funds Bond Pool, the Montana International Equity Pool, the Montana Private Equity Pool and the Montana Real Estate Pool ensure the pension funds are invested prudently and with the diversification necessary to mitigate risk. Investments in these pools are governed by separate investment policy statements and asset allocation policy established by the Board.

Pension funds are by their nature, long-term funds and require a long term view when making investment decisions. Professional investment standards ***include*** establishing asset allocation ranges and staying within them even if it requires selling down assets that are performing well and buying into other asset classes. Patience and professional discipline are hallmarks of the Board's investment process.

Factors considered in managing pension investments include long-term growth (expected rates of return), liquidity needs (how readily convertible to cash), risk (volatility) and correlation to other asset classes and cost. The Board addresses these factors through a strong governance model that requires the Board to engage annually in a review and confirmation of asset allocation.

Managing Pension Investments requires a skillful balance of:

- Maximizing long term growth
- Analyzing plan liquidity needs
- Limiting risks
- Controlling costs

During the review of asset allocation, the Board examines historic market performance, trends and long-term economic forecasts. Careful study of more specific considerations related to individual asset classes, including cost, risks, potential return and the correlation between asset classes is conducted. With the help of the Board's professional staff, asset allocation ranges are established annually and reviewed regularly.

The Board's goal is to maximize investment returns, keep risk within prudent levels and maintain sufficient liquidity to meet current benefit payments to retirees.

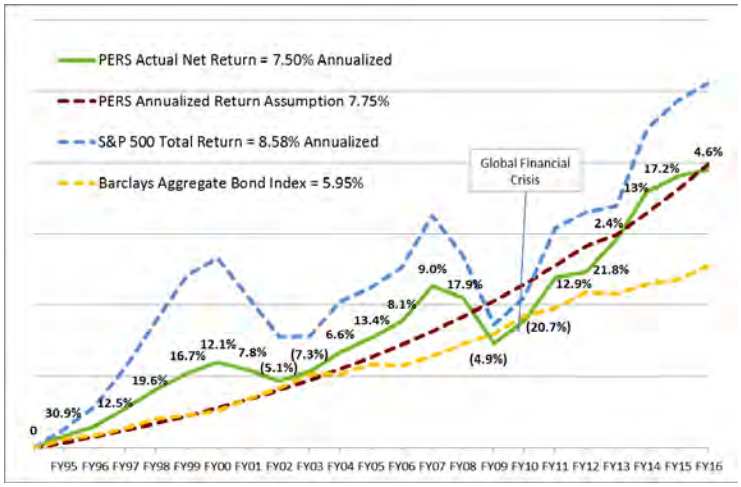
The Board's asset allocation mix is critical to the return on pension fund investments. The following table shows the approved ranges established by Board policy including the actual relative weight as of June 30, 2016.

Pension Fund Asset Allocations & Board Approved Ranges As of 6/30/16

Investment Type	%	Approved Range
Asset Class - Domestic Equity	**37.7%**	**28% - 44%**
Large	80.6%	72% - 91%
Passive	57.0%	48% - 91%
Active	23.6%	0% - 24%
Mid	12.8%	6% - 17%
Small	6.6%	3% - 11%
Asset Class - International Equity	**15.4%**	**14% - 22%**
Large	86.4%	79% - 92%
Passive	60.3%	47% - 92%
Active	26.1%	0% - 32%
Small	11.6%	8% - 16%
Emerging - Dedicated	2.0%	0% - 5%
Asset Class - Private Equity	**11.2%**	**9% - 15%**
Venture Capital	22.2%	10% - 25%
Debt Related	9.3%	0% - 25%
Buyouts and all other private equity-related strategies	68.6%	50% - 90%
Asset Class - Fixed Income	**23.6%**	**22% - 30%**
Domestic High Yield	8.5%	0% - 15%
International	0.0%	0% - 10%
Core (U.S. Investment Grade)	91.5%	80% - 100%
Asset Class - Real Estate	**9.2%**	**6% - 10%**
Core/Timberland	42.7%	35% - 65%
Non-Core	57.4%	35% - 65%
Asset Class - Cash Equivalents	**2.8%**	**1% - 5%**

*Existing Policy allows total equity range of 58% - 72% and Timber may not exceed 2% of total pension assets.

The chart below shows investment returns for the Public Employees' Retirement System (PERS) since fiscal year 1995. These returns reflect the effects of the total asset allocation of the various investment pool performances, net of fees. The returns for the other eight retirement systems are consistent with that of PERS. As shown by the S&P 500 and Barclay's aggregate (fixed income) in the chart, economic conditions heavily influence returns.



When considering the combination of assets to invest, the Board works to optimize three broad investment traits: expected return, risk, and the correlation of returns across asset classes.

Pension Funds 10-Year Comparison
Net Asset Value* (In Millions)
As of June 30, 2016

Fund	NAV	% of Total	10-Year	% of Total	Change $	Change %
Firefighters Retirement	$ 336.9	3.37	$ 161.5	2.32	$ 175.4	108.63
Game Wardens Retirement	154.2	1.54	59.4	0.85	94.8	159.60
Highway Patrol Retirement	128.4	1.28	88.6	1.27	39.8	44.90
Judges Retirement	87.3	0.87	52.6	0.76	34.7	66.06
Police Retirement	329.1	3.29	169.4	2.44	159.7	94.24
Public Employees Retirement	5,017.9	50.15	3,510.5	50.50	1,507.5	42.94
Sheriffs Retirement	298.2	2.98	165.1	2.38	133.1	80.62
Teachers Retirement	3,619.8	36.18	2,721.2	39.14	898.6	33.02
Vol. Firefighters Retirement	33.6	0.34	23.4	0.34	10.1	43.32
Grand Total	$ 10,005.5	100.00	$ 6,951.7	100.00	$ 3,053.8	43.93
Investment Type						
Montana Domestic Equity Pool	$ 3,776.0	37.74	$ 3,150.7	45.32	$ 625.3	19.85
Montana International Pool	1,544.9	15.44	1,243.5	17.89	301.5	24.24
Montana Private Equity Pool	1,116.4	11.16	400.4	5.76	716.0	178.83
Montana Real Estate Pool	924.6	9.24	46.7	0.67	877.9	1,878.63
Retirement Funds Bond Pool	2,363.1	23.62	1,928.5	27.74	434.6	22.53
Short Term Investment Pool	280.5	2.80	182.0	2.62	98.5	54.11
Grand Total	$ 10,005.5	100.00	$ 6,951.7	100.00	$ 3,053.8	43.93

Totals may not sum due to rounding differences.
***Net Asset Value (NAV) includes net receivable and payable accruals.**

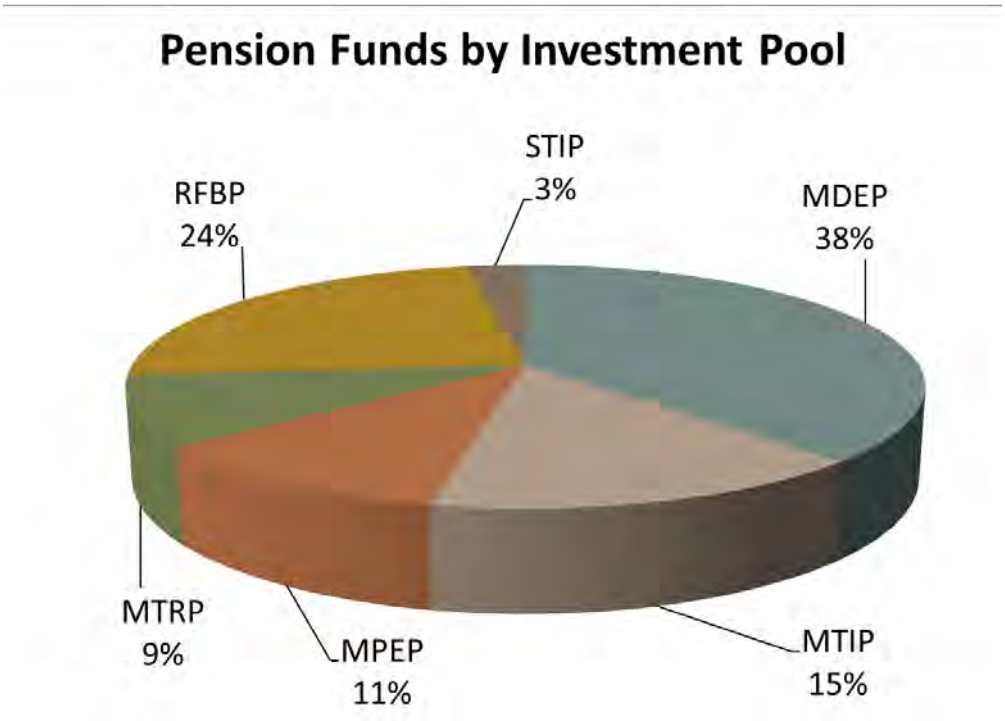
The Board reviews absolute return performance, performance to internally established benchmarks, and performance to its peers. The Board utilizes independent comparisons of its performance and costs to that of other large public pension systems. An example of a report comparing costs and performance may be found on the Board's website at: http://investmentmt.com/CEMBenchmarking.

The Board of Investments managed all pension fund investments through six investment pools. Each investment pool is governed by a separate investment policy and concentrations into any one pool are limited by the Board's asset allocation policy. Selective return performance of the retirement systems is shown here:

Pension Fund By Investment Pool
Net Asset Value* (In Millions) With Time Weighted Annualized Net Returns
As of June 30, 2016

Investment Pool	NAV	1-Year Return %	2-Year Return %	10-Year Return %	22-Year** Return %
Montana Domestic Equity Pool (MDEP)	$ 3,776.0	1.66	4.46	7.10	
Montana International Pool (MTIP)	1,544.9	(8.90)	(6.58)	1.31	
Montana Real Estate Pool (MTRP)	1,116.4	12.11	12.61	2.70	
Montana Private Equity Pool (MPEP)	924.6	5.77	7.09	9.40	
Retirement Funds Bond Pool (RFBP)	2,363.1	5.97	4.12	5.90	
Short Term Investment Pool (STIP)	280.5	0.41	0.26	1.32	
All Pension Funds	$ 10,005.5	2.08	3.32	5.89	7.50

Totals may not sum due to rounding differences.
***Net Asset Value (NAV) includes net receivable and payable accruals.**
****Since inception of the current custodial bank records.**

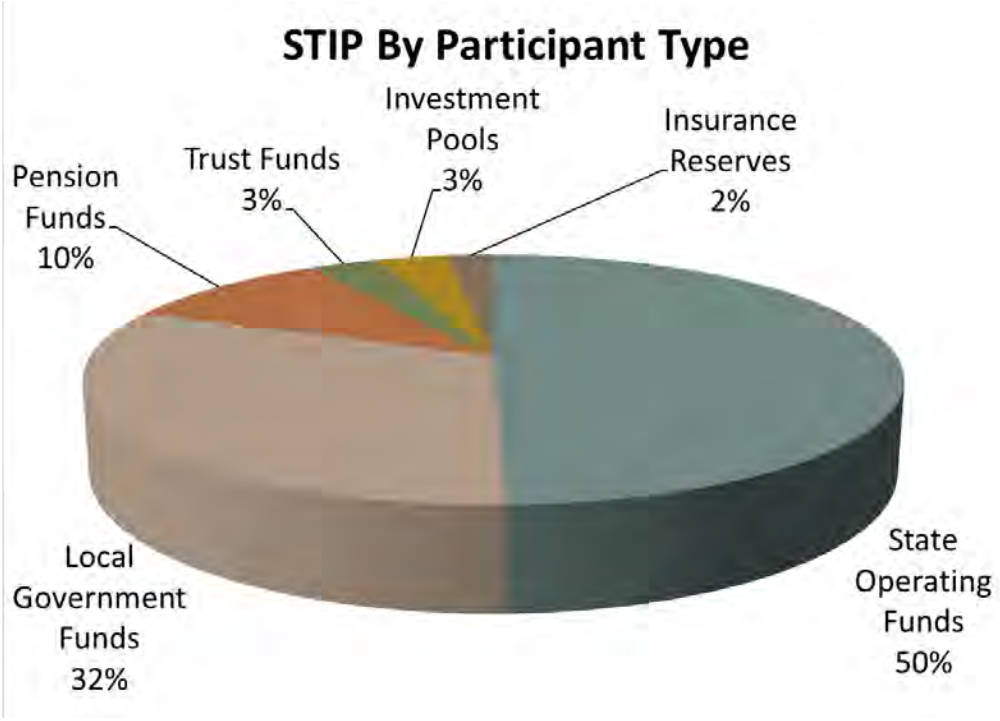


The Board's **SHORT TERM INVESTMENT POOL (STIP) PROGRAM** is used by state agencies, local governments and the retirement systems as an alternative to idle cash. STIP investments are short, highly liquid and among the safest obtainable. Although not a money market fund, STIP is structured in a similar way. Its yield tends to be higher due to lower expenses and an ability to make investments of a longer maturity due to the predictable nature of government cash needs.

STIP is NOT Federal Deposit Insurance Corporation (FDIC) insured or otherwise insured or guaranteed by the federal government, the State of Montana, the Board or any other entity against investment losses. The Board maintains a reserve fund to offset possible losses and limit fluctuations in STIP's net asset value (NAV).

Created in 1973, STIP provides participants ready access to cash. Shares are transacted at $1.00, fractional shares may be purchased, and participants may buy or sell shares with one business days' notice. The over $2.8 billion in pool investments are managed by Board Staff. There were 488 accounts invested in STIP during the year, including 165 local government accounts. All investments are made by Board staff and all income is distributed to participants on the first day of the month. The pool reported earnings for state and local government agencies of $10.52 million (unaudited) in Fiscal Year 2016. The table below shows the percent of shares by major participant type.

STIP Investments are short, highly liquid and among the safest obtainable.



The Board invests over $2.6 billion for more than 30 **TRUST FUNDS**, some of which were created and protected by the state Constitution. Other trusts have been created statutorily by the legislature or involve federal funds. Several trust funds were established as part of settlements between the state and private corporations to ensure environmental clean-up of polluted sites. The fiscal year changes in the trusts' fair value are shown below.

Trust Funds Investment Pool	1-Year	2-Year	10-Year
RETURNS	6.82%	3.23%	6.19%

Total Trust Funds By Type & Major Asset Type Net Asset Value* (In Millions) As of June 30, 2016

Trust Fund	Cash Equivalents	Fixed Income	Fixed Income/Real Estate (TFIP)	Loans	Total
Abandoned Mine Trust	$ 2.4	$ 3.9	$ -	$ -	$ 6.3
Big Sky Economic Devel	1.0	-	94.1	-	95.2
Butte Area One Rest	2.9	5.3	16.1	-	24.4
Butte-Silver Bow Redevelopment	0.8	-	13.1	-	14.0
Clark Fork River Rest	7.7	5.4	20.1	-	33.2
Clark Fork Site Resp	0.0	7.4	75.8	-	83.2
Coal Severance Tax Perm	19.3	-	397.0	153.4	569.7
Cultural Trust	0.1	-	14.4	-	14.5
East Helena Comp. Fund	2.9	-	2.9	-	5.9
Endowment For Children	0.1	-	1.3	-	1.3
FWP Mitigation	4.5	7.1	-	-	11.6
Harold Hamm Endowment	0.0	-	-	-	0.0
Montana Pole Superfund	6.3	-	23.3	-	29.6
Noxious Weeds	0.0	-	11.2	-	11.2
Older Montanans Trust Fund	0.0	-	1.1	-	1.2
Park Acquisition	0.2	-	26.2	-	26.4
Potter Trust Fund	0.0	-	0.2	-	0.2
Public School Trust	0.0	-	702.5	-	702.5
Real Property Trust	0.4	-	6.7	-	7.1
Regional Water Fund	1.0	-	98.7	-	99.8
Resource Indemnity Trust	0.0	-	114.9	-	115.0
Smelter Hill Uplands Rest	4.1	3.2	3.1	-	10.5
Streamside Tailings	2.8	0.4	23.2	-	26.4
Tobacco Trust	0.8	-	213.6	-	214.5
Treasure State Endowment	2.3	-	287.1	0.3	289.8
UCFRB Reserve	1.0	-	17.7	-	18.7
UCFRB Restoration	23.1	-	113.9	-	137.0
Upper Blackfoot Response	8.9	5.2	5.8	-	19.9
Wildlife Habitat	0.6	-	12.6	-	13.2
Zortman/Landusky Trust	0.0	17.1	-	-	17.2
Zortman/Landusky Water	0.2	14.5	-	-	14.7
Total	**$ 93.7**	**$ 69.6**	**$ 2,297.0**	**$ 153.7**	**$ 2,614.0**

Totals may not sum due to rounding differences.
*Net Asset Value (NAV) includes net receivable and payable accruals.

COAL SEVERANCE TAX TRUST FUND. Article IX, Section 5 of the state Constitution requires that 50 percent of all coal severance tax revenues be deposited in a permanent trust fund (Trust), in which the principal "shall forever remain inviolate unless appropriated by a three-fourths vote of each house" of the legislature. The Board is encouraged to invest 25 percent of the Trust in Montana economy with emphasis on new or expanding businesses.

The legislature has partitioned the Trust into several sub-funds. The Permanent Fund was initially established when the Trust was created, while the Severance Tax Bond Fund, created later, provides debt service guarantees and is invested solely in STIP.

Effective July 1, 1993, the Treasure State Endowment Fund was created and 50 percent of Trust revenues were dedicated to that account. The deposit of coal severance tax revenue to this fund terminated June 30, 2016 and now flows to the Permanent Fund.

Coal Severance Tax Trust Fund

…"principal of the trust shall forever remain inviolate unless appropriated by vote of three-fourths (3/4) of the members of each house of the legislature."

Montana Constitution – Article IX

Effective July 1, 1999, the Treasure State Endowment Regional Water Fund sub-fund was created and 25 percent of Trust revenues were dedicated to that account. The deposit of coal severance tax revenue to this fund terminated June 30, 2016 and now flows to the Permanent Fund.

Effective July 1, 2005, the Big Sky Economic Development Fund sub-fund was created and 25 percent of Trust revenues were dedicated to that account. The deposit of coal severance tax revenue to this fund terminates June 30, 2025.

Income from the Permanent Fund and the Bond Fund is deposited in the Permanent Fund Income Fund where it is transferred periodically to the state general fund. Effective July 1, 2015 through July 1, 2018, on July 1 of each year, up to $21 million of the interest income that is transferred to the general fund is statutorily appropriated to the Public Employees' Retirement System Defined Benefit Plan Trust Fund. Effective July 1, 2019, on July 1 of each year, up to $24 million of the interest income that is transferred to the general fund is statutorily appropriated to the Public Employees' Retirement System Defined Benefit Plan Trust Fund. All sub-funds, except the income fund, are protected by the Constitution and may be appropriated only by a three-fourths vote of each house of the legislature. Income from the Treasure State Endowment Fund is appropriated by the legislature for local government infrastructure projects. Treasure State Endowment Regional Water Fund income is appropriated by the legislature for local government water projects. Big Sky Economic Development Fund income is appropriated by the legislature for economic development projects.

The annual change in the fair values of the Coal Severance Tax Trust sub-funds is shown below:

Coal Severance Tax Trust Net Asset Value* (In Millions) Annual Change By Sub Fund & Investment Type As of June 30						
Sub Fund	**2016**	**Total %**	**2015**	**Total %**	**Change $**	**Change %**
Coal Severance Tax Perm	$ 569.7	53.94	$ 558.8	55.64	$ 10.9	1.95
Treasure State Endowment	289.8	27.44	267.7	26.66	22.1	8.24
Regional Water Fund	99.8	9.45	90.1	8.97	9.7	10.74
Big Sky Economic Devel	95.2	9.01	85.6	8.53	9.5	11.14
Severance Tax Bond Fund	1.7	0.16	2.1	0.21	(0.4)	(19.28)
Permanent Fund Income	0.0	0.00	0.0	0.00	0.0	245.59
Grand Total	$ 1,056.1	100.00	$ 1,004.4	100.00	$ 51.8	5.15
Investment Type						
Fixed Income (TFIP)	$ 877.1	83.04	$ 845.4	84.17	$ 31.7	3.75
Loans - Commercial	83.7	7.92	68.7	6.84	15.0	21.84
Loans - Local Gov Infrastructure	24.6	2.33	21.3	2.13	3.2	15.11
Loans - Value Added	0.3	0.02	0.6	0.06	(0.3)	(56.68)
Loans - Science & Tech	8.9	0.84	10.0	1.00	(1.1)	(11.45)
Loans - Montana Facility Finance	2.2	0.20	2.3	0.22	(0.1)	(4.68)
Loans - Intermediary	3.1	0.30	3.2	0.32	(0.1)	(3.15)
Loans - Veterans	31.0	2.94	27.9	2.78	3.1	11.14
Cash Equivalents (STIP)	25.4	2.40	24.9	2.48	0.4	1.78
Grand Total	$ 1,056.1	100.00	$ 1,004.4	100.00	$ 51.8	5.15

Totals may not sum due to rounding differences.
*Net Asset Value (NAV) includes net receivable and payable accruals.

OTHER TRUST FUNDS

Abandoned Mine Trust - an expendable trust funded by federal grants under the Surface Mining Control and Reclamation Act of 1977, Article IV. Ten percent of Montana's annual grant amount is deposited into this trust to fund programs related to abandoned mine land reclamation.

Butte Area One Restoration - funds derived from the 2008 consent decree between the Montana Department of Justice (DOJ) and Atlantic Richfield Company (ARCO) for projects that restore, replace or acquire the equivalent of injured natural resources or lost services at Butte Area One.

Butte-Silver Bow Redevelopment Trust - funds derived from a negotiated settlement between the City and County of Butte-Silver Bow and ARCO to fund projects and activities to include a variety of work to promote the redevelopment of the Butte Hill and adjacent areas as Superfund cleanup actions conclude.

Clark Fork River Restoration - funds derived from the 2008 consent decree between the DOJ and ARCO for restoration of the Clark Fork River and associated riparian areas from Warm Springs Ponds to Milltown Reservoir and related projects.

Clark Fork Site Response - funds derived from the 2008 consent decree between the Montana Department of Environmental Quality (DEQ), the U.S. Environmental Protection Agency (EPA), and ARCO to remediate the environmental contamination at the Clark Fork River Operable Unit of a federal Superfund site.

Cultural Trust and Park Acquisition - A portion of the coal severance tax is dedicated to a statutorily created Park Trust Fund and a Cultural Trust Fund (Trusts). Investment income generated by the Trusts is appropriated by the legislature to acquire/operate state parks and to fund cultural and aesthetics projects. The 1997 legislature appropriated $3.9 million of Cultural Trust principal to purchase historical properties.

East Helena Compensation Fund - funds derived from the 2008 settlement between the DOJ and the American Smelting and Refining Company (ASARCO) for purposes of the restoration and oversight of environmental cleanup on and around the former site of the ASARCO smelter in East Helena.

Endowment for Children - funds derived from state appropriation, gifts, grants, and donations, or any other source for programs and services related to child abuse and neglect, primarily prevention activities and family resource programs.

Fish, Wildlife, and Parks (FWP) Mitigation - an expendable trust funded by a 1988 agreement between the Montana FWP and the Bonneville Power Administration to provide protection, mitigation, and enhancement of wildlife and wildlife habitat affected by the development of Libby and Hungry Horse Dams.

Harold Hamm Endowment - created for the benefit of Helena College via a gift from Harold W. Hamm. The endowment distributes scholarships to students and faculty in the Aviation and Maintenance Technology program on an annual basis.

Montana Pole Superfund - funds derived from the 1996 consent decree between the DEQ, EPA, ARCO, Burlington Northern Railroad, Montana Resources, Inc., and other responsible parties for the environmental cleanup of the former Montana Pole and Treatment Plant in Butte.

Noxious Weeds - a non-expendable $10 million trust that receives funding from state and federal contributions and private donations for programs and services related to noxious weed control.

Trust Investments are managed primarily to generate income for the Board's Trust Fund clientele.

Older Montanans Trust Fund - funds derived from contributions and gifts to be used towards programs and services that promote dignity, respect, and enable an independent lifestyle in the least restrictive setting for Montana residents 60 years of age or older.

Potter Trust Fund - created for the benefit of Montana Tech per the Last Will and Testament of Peter Potter. The Trust is utilized by Montana Tech to provide financial aid assistance for students and to reimburse the university some administrative expenses.

Public School Trust - Article X, Sections 2 and 3 of the state Constitution requires that all royalties and other proceeds received from school lands granted to the state under federal enabling legislation be deposited in the Trust and Legacy (Schools) Fund, where it shall forever remain inviolate and guaranteed by the state against loss or diversion.

Real Property Trust - a non-expendable trust funded with proceeds from the sale of real property, oil, gas or mineral deposits, and from leases for the operation, development, and maintenance of real property under management of the Montana FWP.

Resource Indemnity Trust - Article IX, Section 2 of the state Constitution requires that revenues from the Resource Indemnity Tax on minerals be deposited in the Resource Indemnity Trust Fund, the principal of which "shall forever remain inviolate" until the principal reaches $100 million. The fund's book value reached $100 million in fiscal year 2002.

Smelter Hill Uplands Restoration - funds derived from the 2008 consent decree between the DOJ and ARCO for the restoration of the environment, vegetation and soils on lands affected by the Anaconda smelter.

Streamside Tailings - funds derived from a 1998 consent decree between the DEQ, EPA, ARCO, and other responsible parties, for the purpose of remediating the mine waste contamination at the Streamside Tailings Operable Unit of the Silver Bow Creek/Butte Area.

Tobacco Trust - funds derived from a 1999 master settlement agreement between the states and the nation's largest tobacco companies payable over 25 years beginning fiscal year 2000. Forty percent of Montana's share is deposited in this trust and funds programs related to health care benefits, services, or coverage and tobacco disease prevention.

Upper Blackfoot Response - funds derived from the 2008 settlement agreement between the DOJ, DEQ, EPA, ASARCO, and ARCO to be used, in consultation with the U.S. Forest Service, for conducting response and restoration activities within the Upper Blackfoot Mining Complex Site.

Upper Clark Fork River Basin (UCFRB) Restoration and UCFRB Reserve - funds derived from the 1998 consent decree between ARCO and the DOJ for the restoration, replacement, or acquisition of equivalent state natural resources injured in the Upper Clark Fork River Basin.

Wildlife Habitat - a non-expendable trust funded by twenty percent of the non-resident hunting license revenue collected between 1989 and 1994 for the acquisition, development, and maintenance of wildlife habitat.

Zortman/Landusky Water - funds paid by the Pegasus mining company and its insurer to provide long-term water treatment at the closed Zortman and Landusky mines near Malta**.**

Zortman/Landusky Trust - funds derived from state appropriations of $1.2 million a year until there are sufficient funds to generate $19.3 million by January 1, 2018 for long-term water treatment at the closed Zortman/Landusky mines near Malta.

The Board invests over $1.5 billion for several **INSURANCE PROGRAMS**, with the State Fund owning the largest dollar value of such securities.

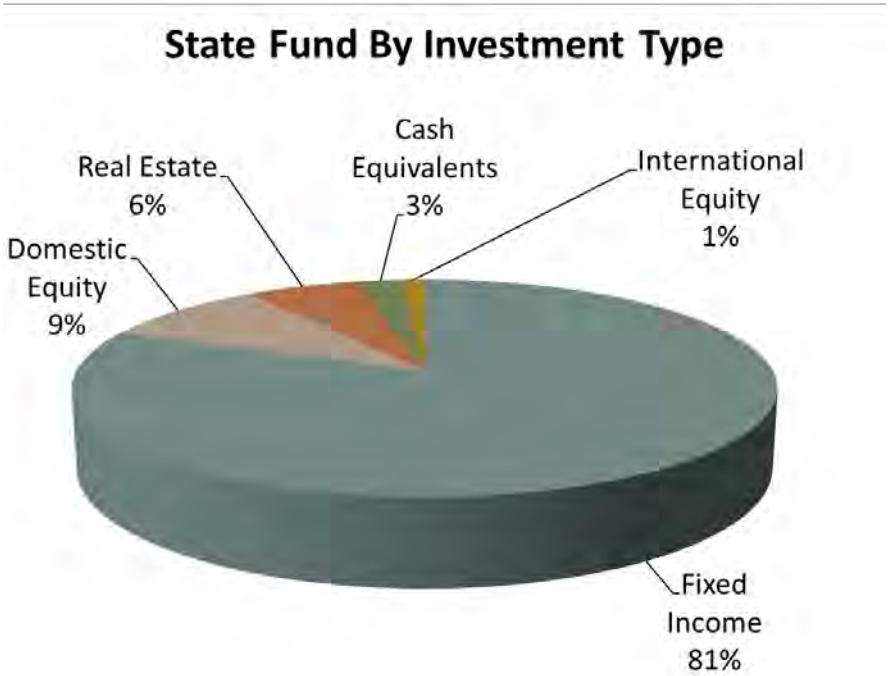
The State Compensation Insurance Fund (State Fund) provides workers' compensation and occupational disease insurance for claims arising from injuries including those that occurred prior to July 1, 1990.

STATE FUND INSURANCE RETURNS	1-Year	2-Year	10-Year
	4.81%	3.92%	5.53%

State Fund Insurance
Net Asset Value* (In Millions) Annual Change
As of June 30, 2016

	NAV	Total %	2015	Total%	$ Change	Change %
Corporate/Asset-Backed Bonds	$ 722.1	48.47	$ 697.5	47.81	$ 24.6	3.53
International Government	21.5	1.44	21.1	1.44	0.4	2.02
US Govt Direct Obligations	216.5	14.53	196.6	13.48	19.9	10.12
US Agency Bonds	250.1	16.79	256.0	17.55	(5.9)	(2.30)
Blackrock ACWI EX US Super Fund	17.1	1.15	19.1	1.31	(1.9)	(10.17)
Blackrock Equity Index (S&P 500)	136.7	9.18	146.3	10.03	(9.6)	(6.53)
American Core Realty	47.9	3.21	44.8	3.07	3.1	6.91
TIAA CREF Asset Management	42.5	2.85	39.8	2.73	2.6	6.60
Cash Equivalents (STIP)	35.4	2.38	37.8	2.59	(2.4)	(6.34)
Grand Total	$ 1,489.8	100.00	$ 1,458.9	100.00	$ 30.9	2.12

Totals may not sum due to rounding differences.
***Net Asset Value (NAV) includes net receivable and payable accruals.**



OTHER INSURANCE FUNDS INVESTMENTS

Other Insurance Total Trust Funds By Type & Major Asset Type Net Asset Values* (In Millions) As of June 30, 2016				
Other Insurance Funds	Cash Equivalents	Fixed Income	Public Stocks	Grand Total
Agency Insurance*	21.0	-	-	21.0
Employee Group Benefits	14.7	37.9	-	52.6
Hail Insurance*	4.3	-	-	4.3
MUS Group Insurance	4.4	24.5	-	28.9
MUS Workers Compensation	16.3	3.0	-	19.4
PERS Defined Cont Disability	0.3	1.2	1.6	3.1
Subsequent Injury Fund	0.0	-	-	0.0
Unemployment Insurance Benefits*	3.8	-	-	3.8
Uninsured Employees*	1.7	-	-	1.7
Grand Total	**66.5**	**66.6**	**1.6**	**134.7**

Totals may not foot due to rounding differences
*These are sub-accounts of the State Agency account and are included under State Operating Funds rather than Insurance Reserves on page 6.
*Net Asset Value (NAV) includes net receivable and payable accruals.

Agency Insurance - reserve account for the state's property self-insurance program (including liability, property, flood, etc.).

Employee Group Benefits - created in 1981, provides health and life insurance to non-university state employees.

Hail Insurance - provides benefits to producers engaged in the growing of crops subject to hail damage.

Montana University System (MUS) Group Insurance - reserve account for the Montana University System's self- insured health plan.

MUS Workers Compensation – accounts for self-insured workers compensation coverage for employees of the Montana University System.

Public Employees Retirement System (PERS) Defined Contribution Disability – provides disability benefits to eligible members who elect the PERS Defined Contribution Retirement Plan (DCRP).

Subsequent Injury - provides benefits to workers who are vocationally handicapped and whose Workers' Compensation benefits have expired.

Unemployment Insurance Benefits - Unemployment benefits are paid from this fund to eligible recipients.

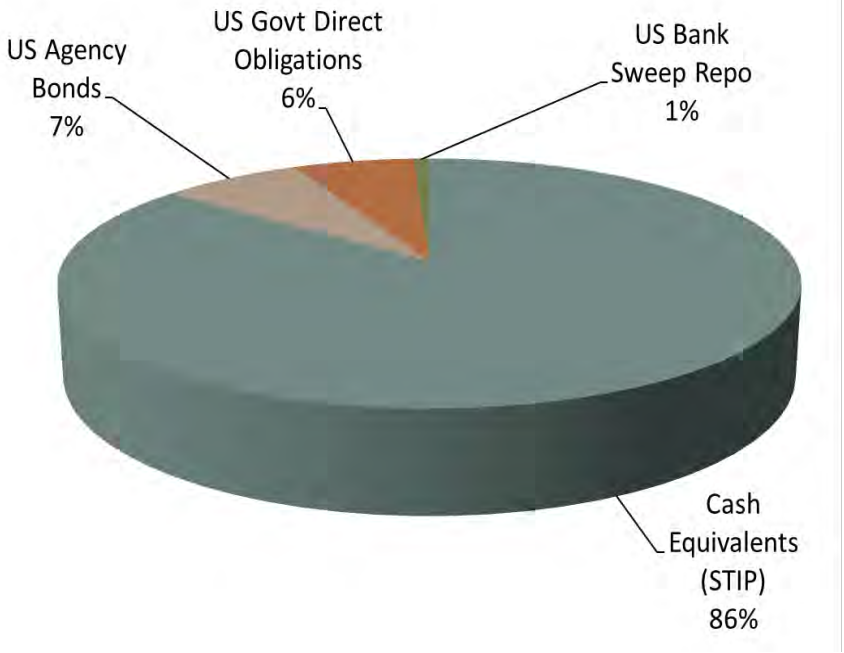
Uninsured Employees - accounts for activity related to uninsured workers compensation employers and related benefits paid.

The **TREASURER'S FUND** (Fund) is comprised of surplus cash in all state accounts that do not retain their investment earnings. All earnings are deposited in the state general fund. State law authorizes the Board to determine the amount of surplus cash in the Fund to be invested and the type of investments to be made. Invested balances at book value vary widely due to varying levels of excess cash in the state's general fund and other accounts comprising the Fund. The Fund is managed to maximize income, rather than for total rate of return. This Fund has been a major participant in STIP since 1973 when STIP was created.

Treasurer's Fund Balance
as of June 30, 2016
was $962.8 Million .

TREASURER'S FUND RETURNS	1-Year	2-Year	10-Year
	.47%	.37%	1.40%

Treasurer's Fund By Investment Type



Over the years, the Montana Legislature has directed that the Board provide certain financial incentives, typically at below-market interest rates, to certain borrowers who meet the program requirements set in law.

The In-State Loan Program, created in 1984 as part of the "Build Montana" program, invests Coal Tax Trust (Trust) funds in Montana to stimulate the state's economy. State law authorizes the Board to invest the Trust to increase employment and business opportunities, while maintaining and improving the state's physical environment.

Loan Types – Four different loan types are available in the In-State Investment Program, some of which offer a job credit interest rate reduction equal to 0.05 percent for each qualifying job created, up to a maximum reduction of 2.5 percent.

- ***The Commercial Loan Participation Program*** *allows the In-State Loan Program to participate up to 80% in a loan originated by an approved lender.* Unencumbered land, buildings, and equipment may be financed with the loan proceeds. The financial institutions charge a fee to service the loan and the Board's loan is collateralized proportionally to the Board's share of the loan. These loans may not exceed 25 percent of the Trust and the individual loans may not exceed 10 percent of the Trust. Loans exceeding 6percent of the Trust must have lender participation of at least 30 percent.

- ***The Infrastructure Loan Program*** provides loans to eligible local governments for constructing or purchasing infrastructure to be used by a basic sector business. Total loans outstanding in this Program are limited by law to $80 million.

- ***The Value-added Loan Program*** provides low interest loans to value-added type businesses that create or retain jobs. Total loans outstanding in this Program are limited by law to $70 million**.**

- ***The Intermediary Re-lending Program*** provides loans to local economic development organizations with revolving loan programs. Individual loans may not exceed $500,000 and total loans outstanding in this Program are limited by law to $5 million.

The Veteran's Home Loan Program provides low interest loans for Montana Veterans who are first-time home buyers. By law, the Montana Board of Housing administers the Program; however, the Board of Investments approves and funds all loans. Total loans outstanding in this Program are limited by law to $40 million.

Annual Change by Loan and Mortgage Type Net Asset Value* (In Millions) As of June 30						
	2016	Total %	2015	Total %	Change $	Change %
Commercial Loans	$ 83.7	58.65	$ 68.7	56.40	$ 15.0	21.84
Infrastructure Loans	24.6	17.22	21.3	17.53	3.2	15.11
Veteran's Home Loan Mortgage	31.0	21.74	27.9	22.92	3.1	11.14
Intermediary Program Loans	3.1	2.20	3.2	2.66	(0.1)	(3.15)
Value-added Loans	0.3	0.18	0.6	0.50	(0.3)	(56.68)
Total	$ 142.7	100.00	$ 121.8	100.00	$ 20.9	17.16

Totals may not sum due to rounding differences.
***Net Asset Value (NAV) includes net receivable and payable accruals.**

In addition to the Coal Tax Loan Program, the Board also invests other state funds in Montana and guarantees bonds as shown below:

In-State Loans, Other In-State Investments and Bond Guarantees Net Asset Value* (In Millions) As of June 30						
	2016	Total %	2015	Total %	Change $	Change %
Coal Tax Trust Loans	$ 111.7	31.26	$ 93.9	25.82	$ 17.8	18.94
Veteran's Home Loan Mortgage	31.0	8.68	27.9	7.68	3.1	11.14
Montana Science and Technology	8.9	2.49	10.0	2.76	(1.1)	(11.45)
Montana Facility Finance Authority Loans	2.2	0.60	2.3	0.62	(0.1)	(4.68)
Total AOF Loans and Mortgages	$ 153.7	43.03	$ 134.1	36.88	$ 19.6	14.65
Med Map LLC (St. Vincent Hospital, Billings)	-	0.00	7.9	2.17	(7.9)	(100.00)
Board of Housing	0.8	0.23	0.8	0.22	0.0	0.55
Total Bonds	$ 0.8	0.23	$ 8.7	2.39	$ (7.9)	(90.75)
Totals RFBP Residential Mortgages	6.8	1.89	8.0	2.20	(1.2)	(15.54)
Total MTRP Direct Real Estate	18.7	5.24	19.5	5.36	(0.8)	(3.86)
Bond Guarantees (1)	177.2	49.61	193.3	53.17	(16.1)	(8.32)
Total Other In-State and Bond Guarantees	$ 202.7	56.74	$ 220.8	60.73	$ (18.1)	(8.19)
Total	$ 357.2	100.00	$ 363.6	100.00	$ (6.3)	(1.74)

(1) Guarantees of INTERCAP and Montana Facilty Finance Bonds
Totals may not sum due to rounding differences.
***Net Asset Value (NAV) includes net receivable and payable accruals.**

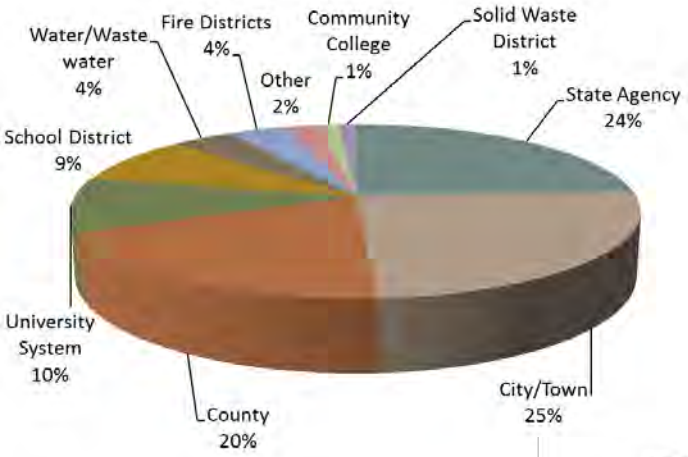
The above table reflects only what the Board of Investments directly manages or directly guarantees. The Montana Legislature has authorized other programs to use coal tax monies from various sub-funds. See page 15 for more information on these sub-funds.

For nearly 30 years, the Board has provided low interest loans to Montana state agencies, universities, and local governments for various projects. Since the program's inception, the Board's INTERCAP Loan Program (INTERCAP) has loaned $486.7 million statewide and issued $148.0 million in bonds with $97.3 million outstanding at June 30, 2016. The Board makes firm one-year commitments to fund the loans. On average, over the past five fiscal years, the program committed to $37.0 million and funded $28.7 million in loans. In fiscal year 2015, the program estimated fiscal year 2016 commitments and fundings would be approximately $30 million. In fiscal year 2016, the program committed to $41.1 million and funded $30.0 million in loans. For fiscal year 2017, the program estimates the Board will commit to and fund close to $30 million.

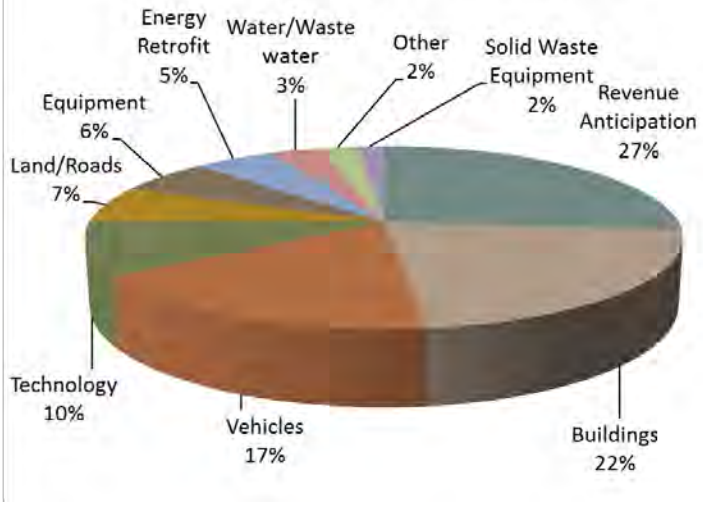
Loan interest rates are reset every February; the loan rate through February 15, 2017 is 1.55%.

Over 80% of all Montana counties and municipalities have financed projects through INTERCAP.

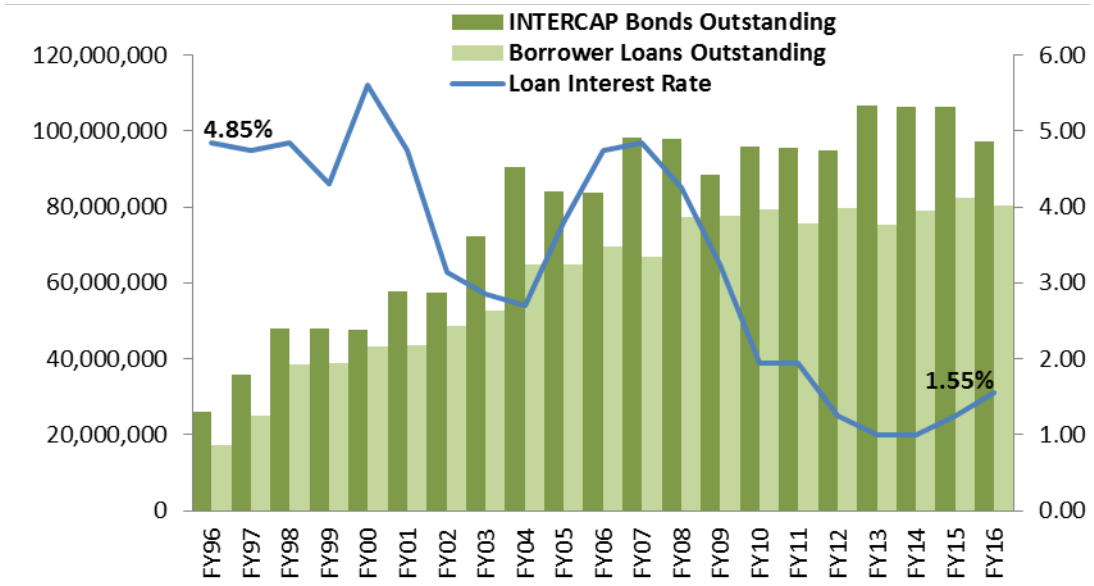
Loans By Borrower Type Since Inception



Loans By Project Type Since Inception



The table below compares the INTERCAP bonds outstanding vs. borrower loans in relation to the loan interest rate in effect at the time.



Through a statutory mechanism, the Board is allowed to pledge certain moneys as a guarantee on these loans, which allows for the low interest rate. To date (without intending any limitation) the Board has identified two funds, the Treasurer's Fund and the Coal Severance Tax Trust Fund, as being legally available for such purposes.

INTERCAP loans have been very high credit quality, and to date, the Board has never suffered a loss, due in part to reasonable underwriting standards and the credit soundness of State of Montana agencies, boards, and authorities and Montana local governments.

Other programs the Board administers under the Bond Program are as follows:

- ***Qualified Zone Academy Bond Program (QZAB)***

This program allows qualifying school districts to borrow money at no or nominal interest rates by issuing qualified zone academy bonds. The Board acts as a legal funding conduit only and has no pecuniary liability for the repayment of the bonds. Nine school districts have issued over $9.98 million in QZAB bonds as of June 30, 2016.

- ***Qualified School Construction Bond Program (QSCB)***

This program allows qualifying school districts to borrow money at no or nominal interest rates by issuing qualified school construction bonds. The Board acts as a legal funding conduit only and has no pecuniary liability for the repayment of the bonds. Two school districts have issued over $8.37 million in QSCB bonds as of June 30, 2016.

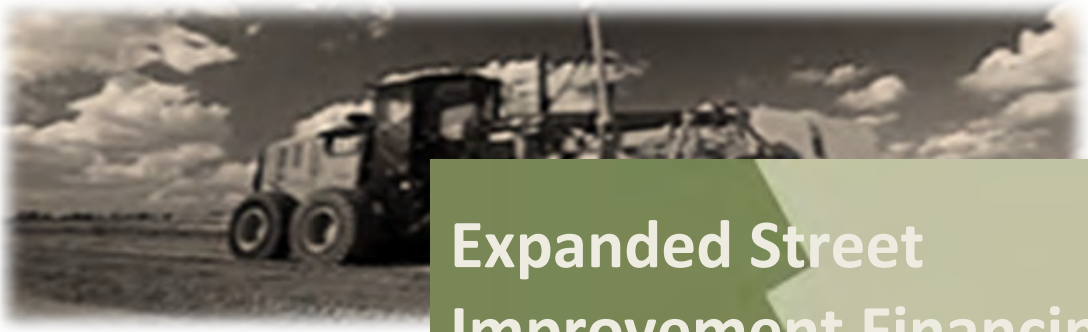
JOB GROWTH IN SOUTHWEST MONTANA

Garnet USA, located in the historic Ruby Valley, operates a hard rock garnet mining and processing facility that produces large quantities of abrasive industrial quality garnets. The Board's In-State Business Loan Participation Program participated in 80% of a $30 million loan to Garnett USA, to finance the assets for the operation of a garnet mine in Alder, Montana. Garnett USA currently employs over 50 people with plans to add more jobs at full capacity.

...AND IN GREAT FALLS

Loenbro, Inc. is an energy services company specializing in pipeline, industrial construction, insulation, inspection, fabrication and oilfield services. The Board's In-State Infrastructure Loan Program, in cooperation with the Cascade County, loaned nearly $7.5 million to Loenbro, Inc. to build their new Great Falls facility. In consideration for the terms of the loan, Loenbro, Inc. has agreed to create 450 jobs over a four-year period. The Infrastructure Loan Program also provides tax incentives to Loenbro, Inc. which, over the term of the loan, could equal the total amount of the loan.

...Loenbro has agreed to create 450 jobs



Expanded Street Improvement Financing

In fiscal year 2016, the Board expanded its INTERCAP Loan Program Policy to allow municipal street assessment revenue bonds to the Program's portfolio. This change opened another financing avenue for Montana municipalities to make street improvements while keeping costs down.

Lustre Elementary School District used INTERCAP to purchase a new replacement school bus. Pictured is one of many types of buses financed through INTERCAP used to safely transport Montana's children.

EQUIPMENT UPGRADES FOR RURAL COMMUNITIES

Tri City Interlocal Equipment Pool used INTERCAP to purchase an aerial bucket truck. The equipment pool is a joint venture for the Cities of Shelby, Cut Bank, and Conrad to obtain equipment. .

Montana Teachers' Retirement System
Valuation Results
July 1, 2016

- Shawn Graham
- Executive Director
- www.trs.mt.gov

Benefit Financing

- Basic Retirement Funding Equation

$$C + I = B + E$$

C = Contributions
I = Investment Income
B = Benefits Paid
E = Expenses (administration)

Participation in TRS

- Teachers, administrators, specialists and others employed in a teaching or educational services capacity by a public school district, state agency, county, community college, Montana University System or educational cooperative are covered by TRS.

– Active members	19,048
– Inactive members	14,592
– Retirees and Beneficiaries	15,164
– Employers	372

Actuarial Assumptions

- **Experience Study**: conducted every four years to compare the system's actual experience from the previous five years to what was expected to happen. Most recent experience study was adopted July 1, 2014.

Economic Assumptions:

General Wage Increases	4.00%
Investment Return	7.75%
Price Inflation	3.25%
Growth in Membership	0.00%
Interest on Member Accounts	5.00%
Administrative Expenses	0.31%

Demographic Assumptions:

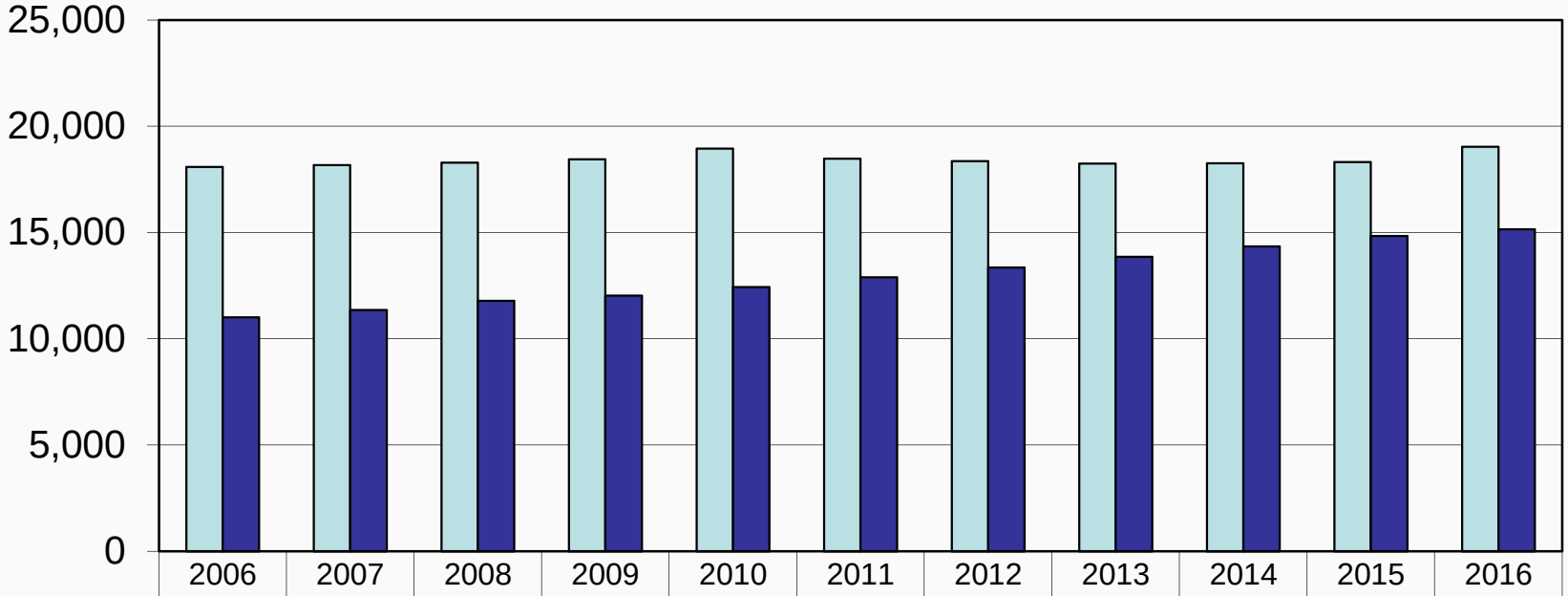
- Individual Salary Increases
- Retirement Rates
- Disablement Rates
- Mortality Rates for Healthy and Disabled
- Other Terminations of Employment
- Probability of Retaining Membership in System

Next Experience Study is scheduled for the period 7/1/2012 – 7/1/2017

Comments on Valuation

- Asset returns
  - Market asset return 2.08% vs. 7.75% expected (5.67% less than expected).
  - Actuarial asset return 8.79% vs. 7.75% expected (1.04% greater than expected).
- Funded Ratio
  - Funding increased from 67.46% to 69.28%
- Amortization Period
  - Amortization period decreased from 26 to 24 years

Active and Retired Membership



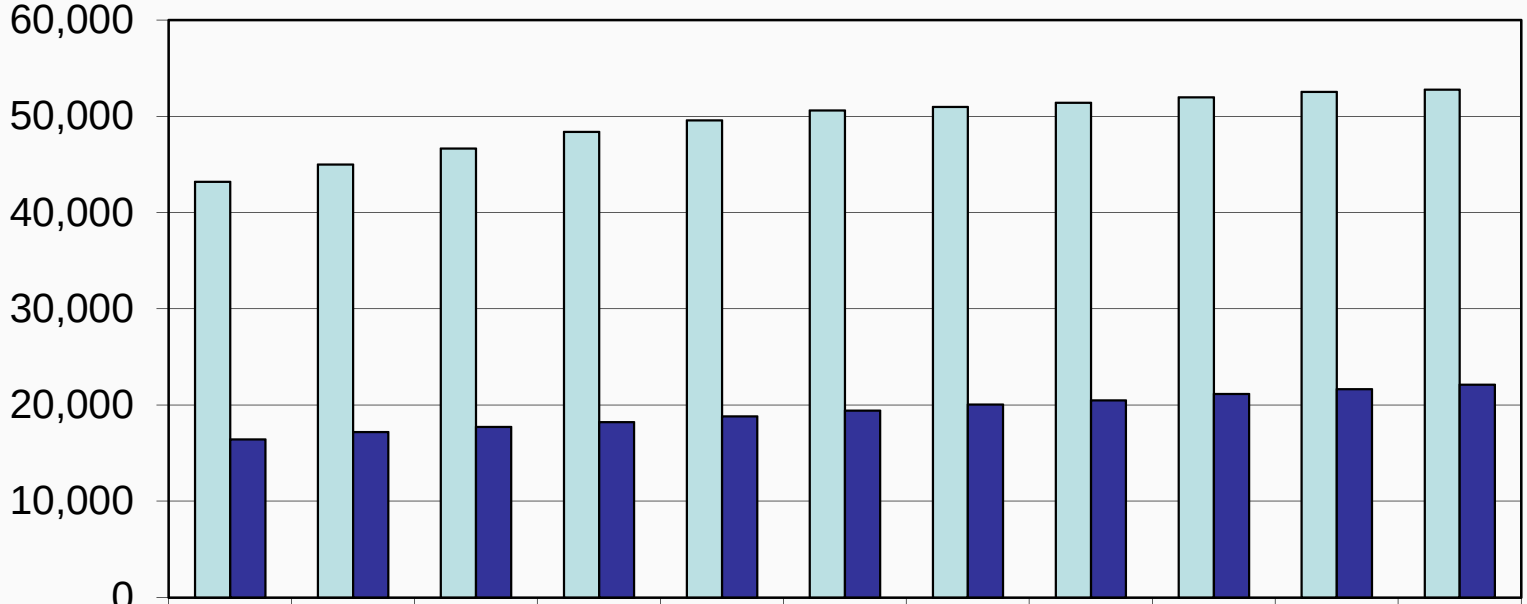
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Actives	18,099	18,176	18,292	18,456	18,953	18,484	18,372	18,249	18,272	18,316	19,048
Retirees	11,019	11,356	11,788	12,036	12,440	12,899	13,363	13,868	14,349	14,839	15,164

0.5% annual increase for active members since 2006; 4.0% increase for 2016.

3.3% annual increase for retired members since 2006; 2.2% increase for 2016.

0.6 retirees per active 10 years ago; 0.8 retirees per active now.

Average Salary and Benefits

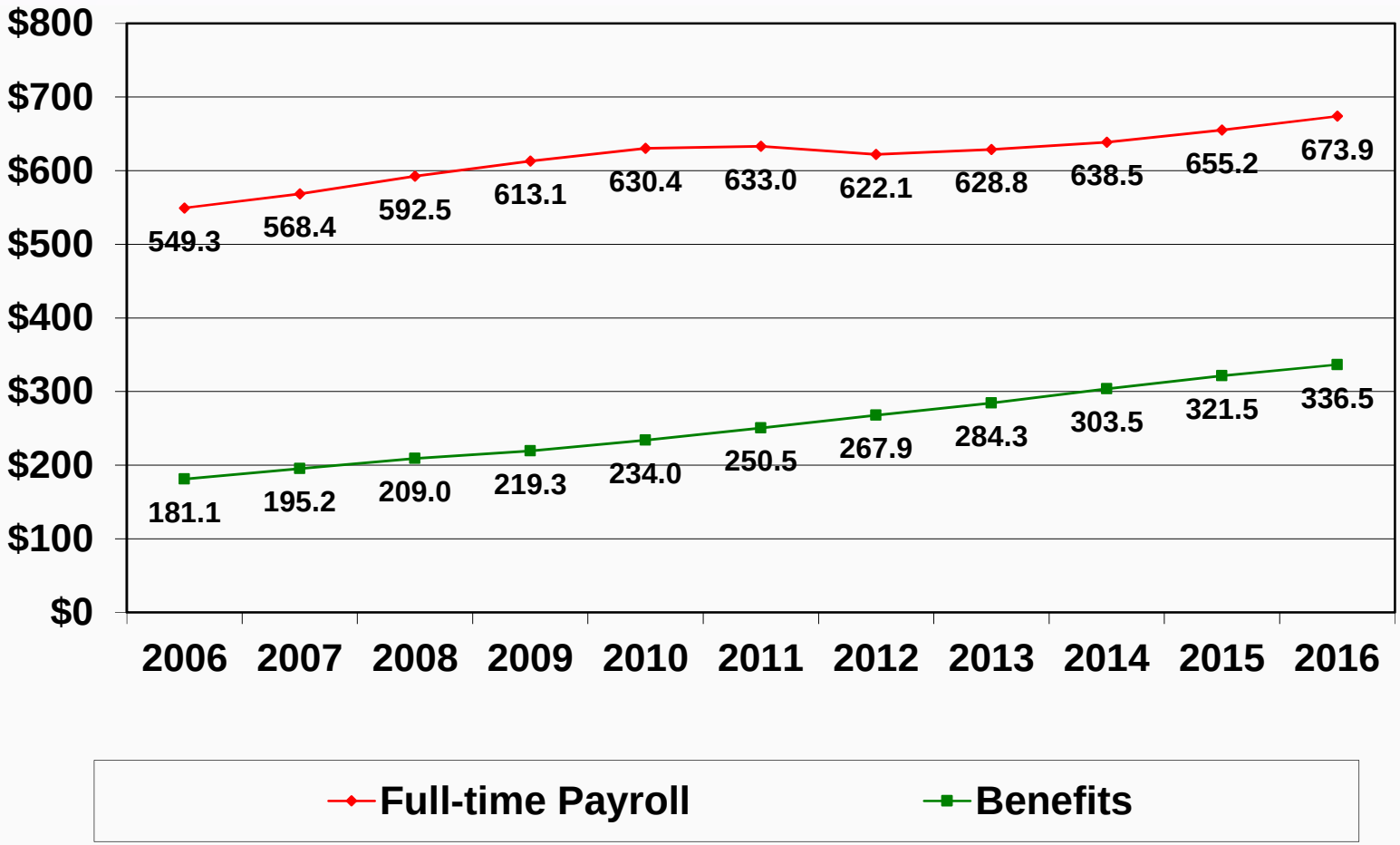


	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Full-Time Salary	43,198	44,986	46,677	48,377	49,598	50,616	50,987	51,421	51,967	52,551	52,776
Retirees Benefits	16,436	17,192	17,729	18,218	18,814	19,420	20,044	20,503	21,153	21,667	22,118

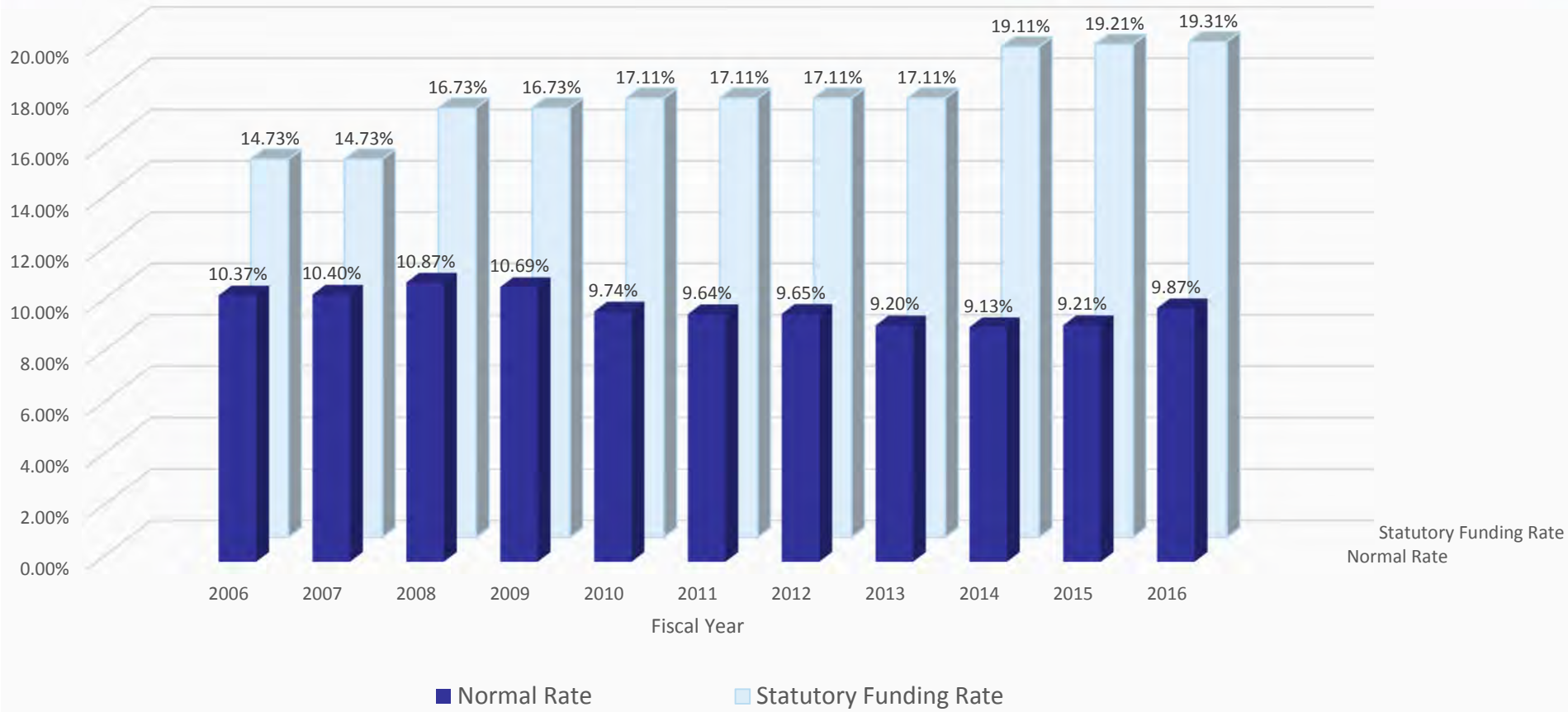
2.0% annual increase for average salary since 2006; 0.4% increase for 2016.

3.0% annual increase for average benefits since 2006; 2.1% increase for 2016.

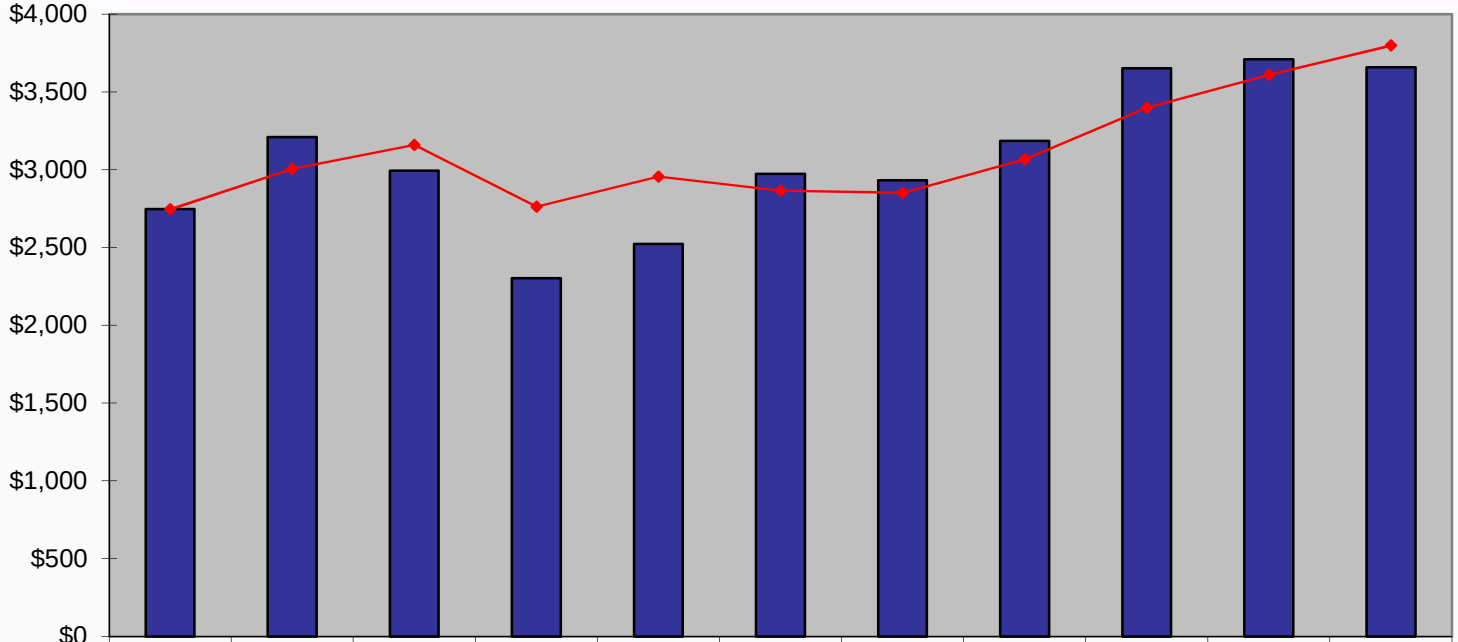
Payroll & Benefits (in Millions)



TRS Contribution vs. Normal Rate



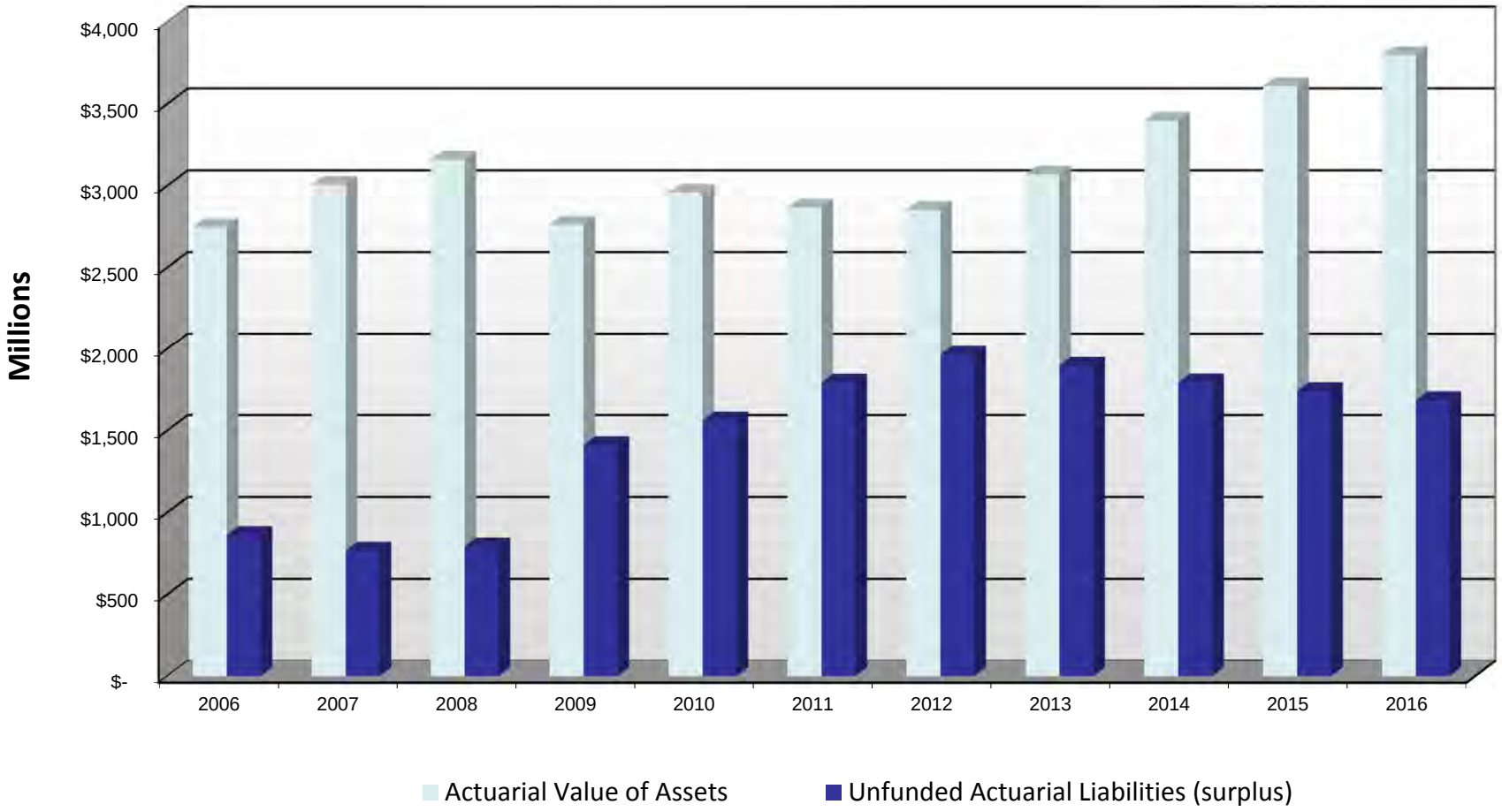
Assets ($ Millions)



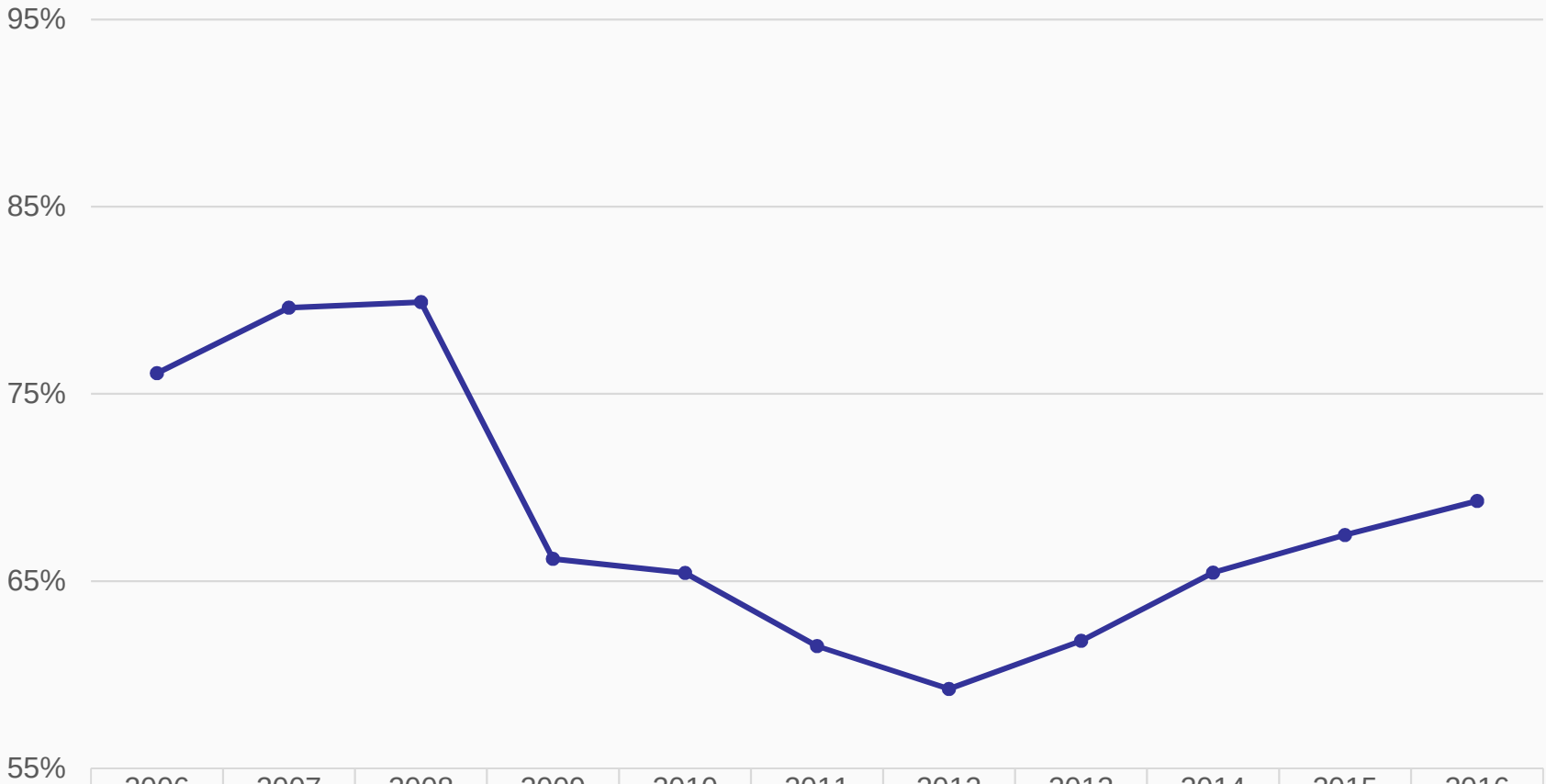
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Market Value	$2,746	$3,209	$2,993	$2,302	$2,521	$2,972	$2,932	$3,185	$3,652	$3,708	$3,657
Actuarial Value	$2,746	$3,006	$3,159	$2,762	$2,957	$2,867	$2,852	$3,068	$3,397	$3,610	$3,799

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Market Return	**8.9%**	**17.6%**	**(4.9)%**	**(20.8)%**	**12.9%**	**21.7%**	**2.2%**	**12.9%**	**17.1%**	**4.6%**	**2.1%**
Actuarial Return	**8.5%**	**10.2%**	**7.2%**	**(10.3)%**	**9.8%**	**(0.1)%**	**3.2%**	**12.0%**	**13.2%**	**9.6%**	**8.8%**

Actuarial Assets vs. UAAL



TRS Funded Ratio



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Funded Ratio	76%	80%	80%	66%	65%	62%	59%	62%	65%	67%	69%

Amortization Period

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Amortization Period	50	28.6	31.3	50	49.5	50	50	29	28	26	24

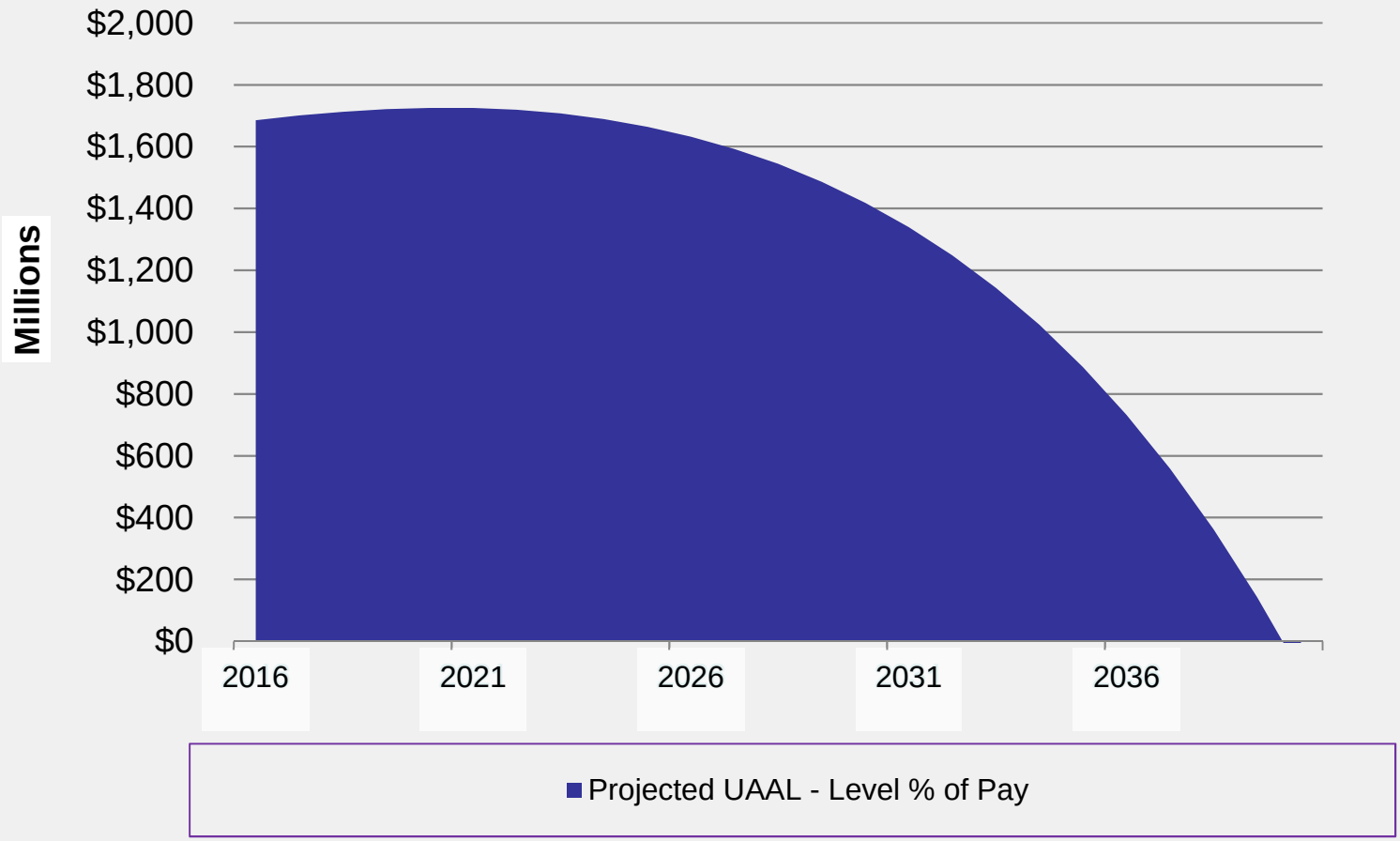
50 years = Does Not Amortize

Funding Results

	July 1, 2016 Valuation	July 1, 2015 Valuation
Total Normal Cost Rate	9.87%	9.21%
Less Member Rate	8.15%	8.15%
Employer Normal Cost Rate	1.72%	1.06%
Administrative Expense Load	0.31%	0.28%
Rate to Amortize UAL	9.23%	9.82%
Total Employer Statutory Rate	11.26%	11.16%
Actuarial Accrued Liability	$5,483.7 million	$5,351.4 million
Actuarial Value of Assets	$3,798.9 million	$3,609.8 million
Unfunded Accrued Liability	$1,684.8 million	$1,741.6 million
Funded Ratio	69.28%	67.46%
Amortization Period*	24 Years	26 Years

* Reflects anticipated increase in employer supplemental contribution rate

Progress Toward 100% Funding



Montana Public Employees' Retirement Board

Valuation Results
June 30, 2016

Presented November 15, 2016
Dore Schwinden, Executive Director, MPERA

Benefit Financing

Basic Retirement Funding Equation

C + I = B + E

C = Contributions

I = Investment Income

B = Benefits Paid

E = Expenses (administration)

Participation in MPERA

State, local governments, and certain employees of the Montana University system, & school districts are covered by MPERA.

- 42,153 Active Employees Including DC Members
- 25,462 Retirees & Beneficiaries
- 20,062 Inactive

- 569 Employers (DB, DC & 457)
- 220 Volunteer Fire Departments

Actuarial Assumptions

MPERA's experience study is conducted every 4-7 years. The most recent experience study was conducted in 2010 for the six-year period July 1, 2003 to June 30, 2009 to compare the system's actual experience from the previous years.

Economic Assumptions:

General Wage Increase	4.00%
Investment Return	7.75%
Price Inflation	3.00%
Growth in Membership	0.00%
Interest on Member Accounts	3.50%
Administrative Expense	0.27%

Demographic Assumptions:

- Individual Salary Increases
- Retirement Rates
- Disablement Rates
- Mortality Rates for Healthy and Disabled
- Other Terminations of Employment
- Probability of Retaining Membership in System

Next Experience Study is scheduled for the period 7/1/2009-6/30/2016

Comments on Valuation

Asset Returns

- Market asset returns averaged 2.05% vs. 7.75% expected (5.70% less than expected).
- Actuarial asset returns averaged 8.60% vs. 7.75% expected (0.85% greater than expected).

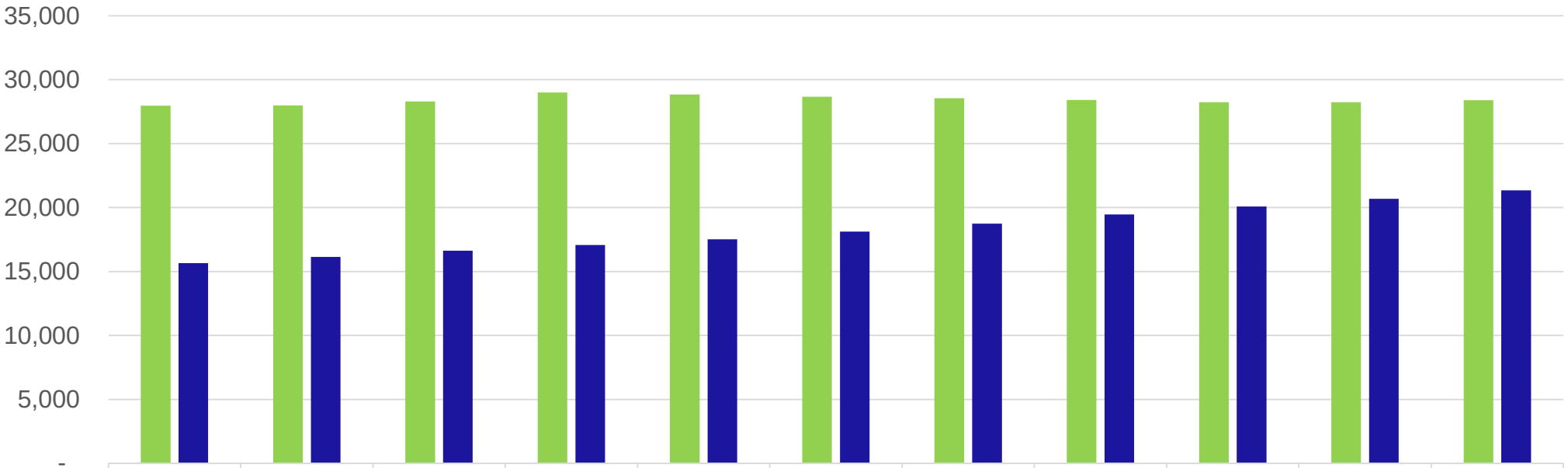
Funded Ratio

- Funding increased from 76.14% to 77.31%

Amortization Period

- Amortization period decreased from 28 years to 26 years.

PERS Active and Retired Membership



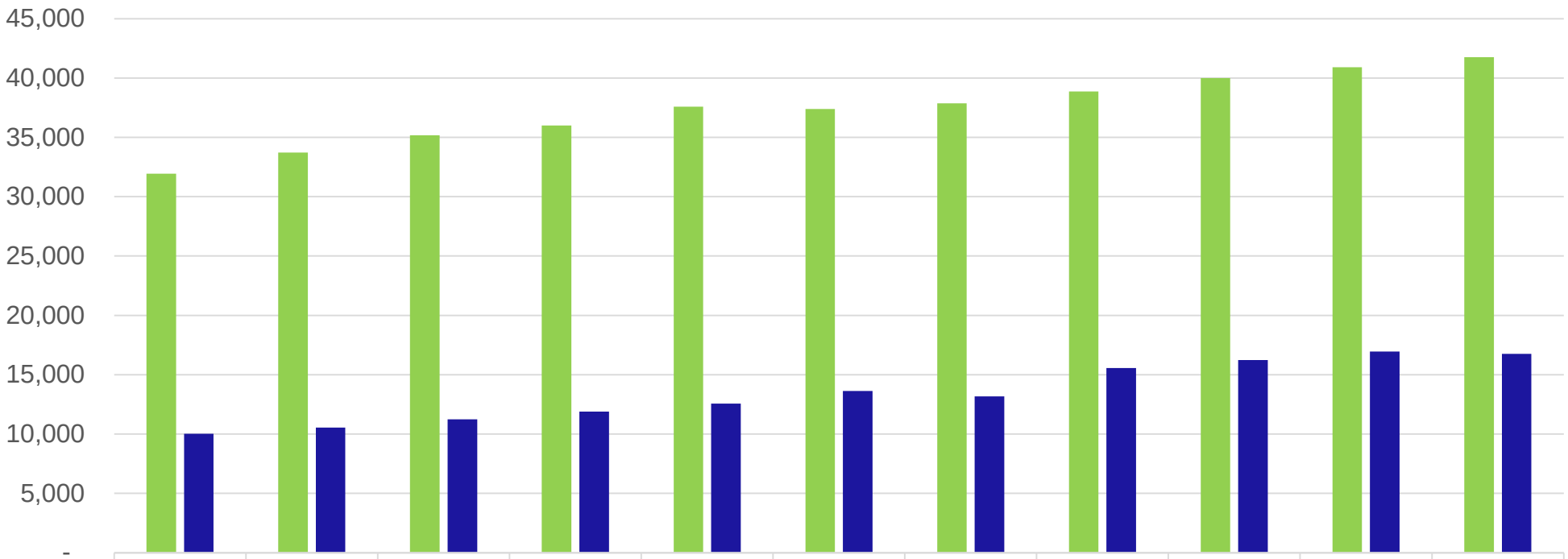
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Active	27,962	27,977	28,293	28,983	28,834	28,659	28,548	28,401	28,229	28,237	28,390
Retirees	15,654	16,137	16,627	17,075	17,512	18,123	18,738	19,451	20,081	20,681	21,333

0.04% annual increase for active members since 2008; 0.54% increase for 2016.

3.16% annual increase for retired members since 2008; 3.15% increase for 2016.

0.59 retirees per active 8 years ago; 0.75 retirees per active now.

PERS Average Salary and Benefits



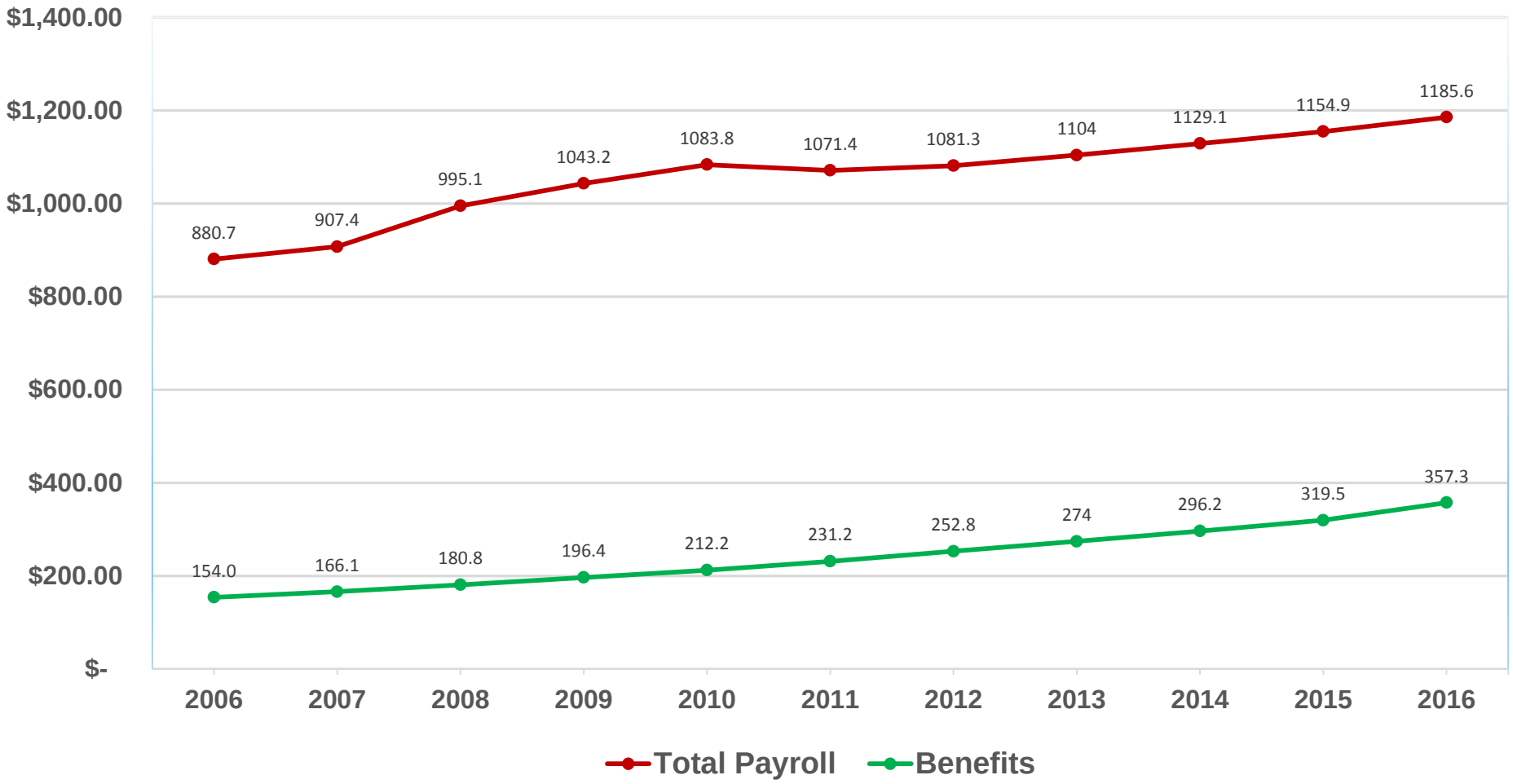
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Actives	31,930	33,716	35,172	35,994	37,587	37,384	37,876	38,872	39,998	40,899	41,763
Retirees Benefits	10,029	10,547	11,231	11,884	12,575	13,625	13,177	15,574	16,230	16,945	16,748

2.2% annual increase for average salary since 2008; 2.1% increase for 2016.

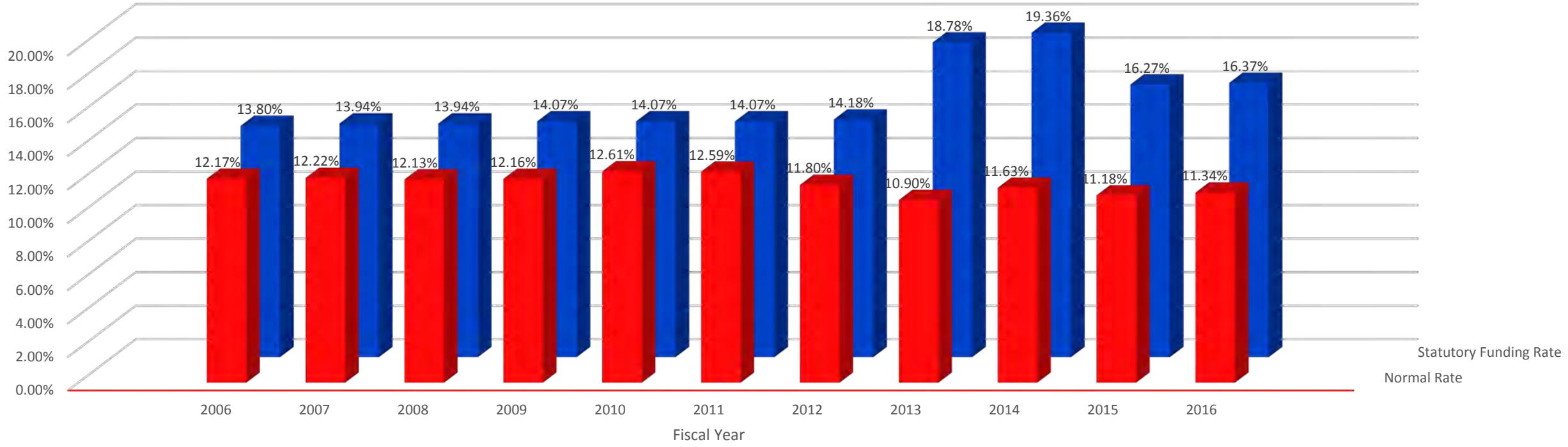
5.1% annual increase for average benefits since 2008; 1.1% increase for 2016.

PERS Payroll & Benefits

($ Millions)



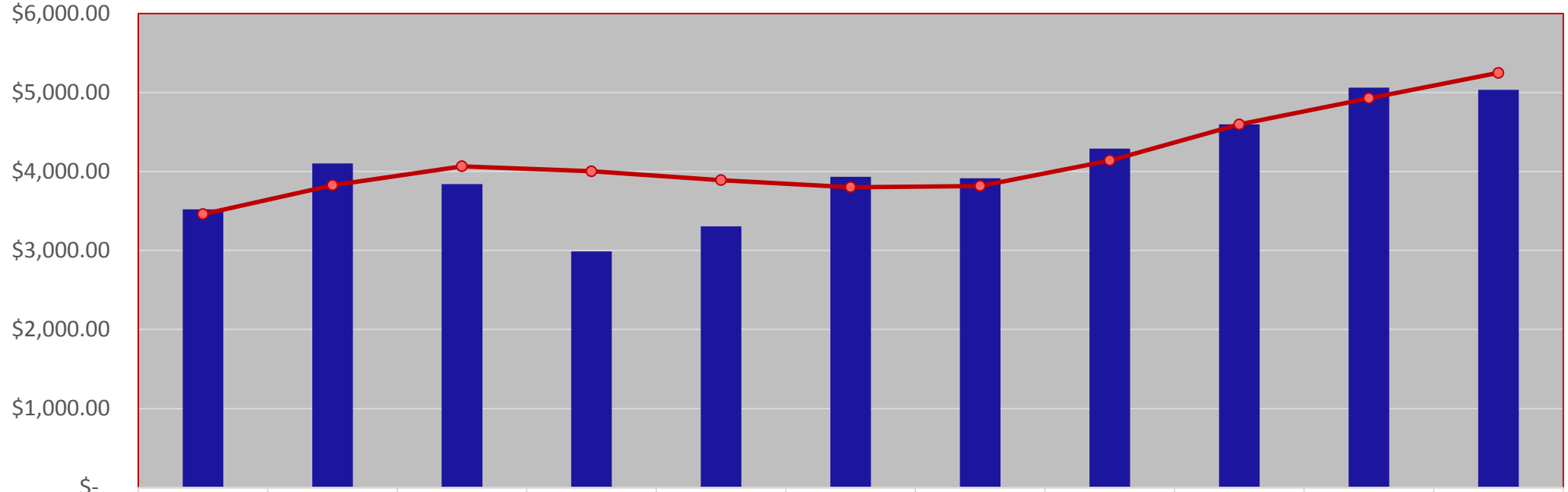
MPERA Contribution vs. Normal Rate



Normal Rate Statutory Funding Rate

PERS Assets

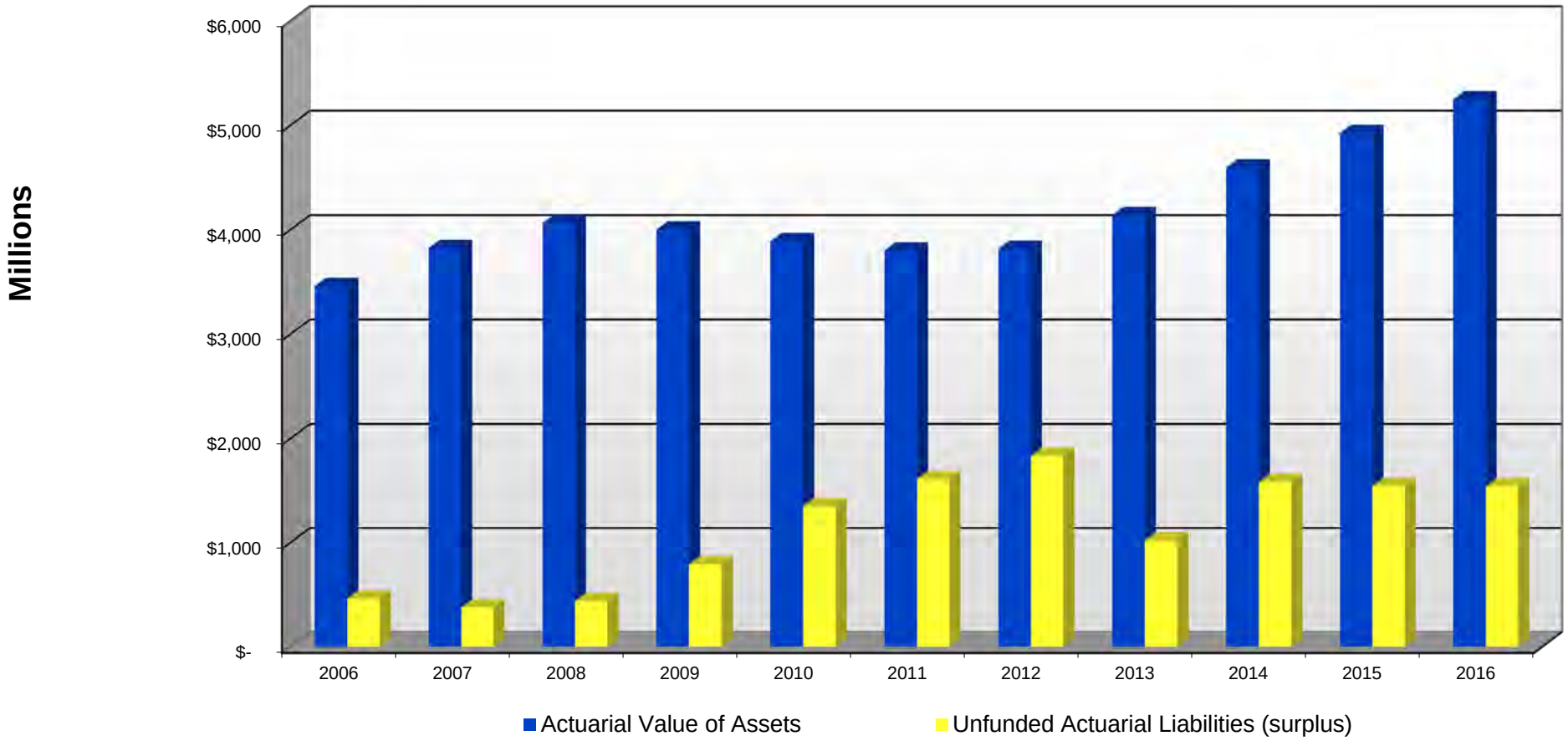
($ Millions)



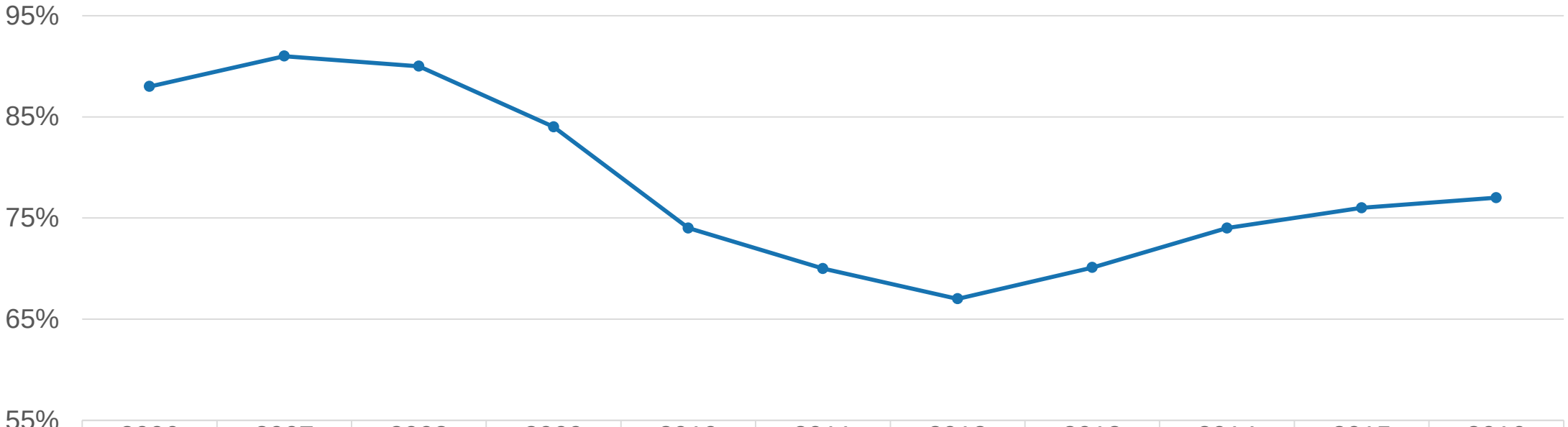
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Market Value	$3,520.00	$4,102.00	$3,841.00	$2,988.00	$3,304.00	$3,933.00	$3,913.00	$4,290.00	$4,596.00	$5,061.00	$5,033.00
Actuarial Value	$3,459.00	$3,825.00	$4,065.00	$4,002.00	$3,890.00	$3,801.00	$3,817.00	$4,140.00	$4,596.00	$4,927.00	$5,248.00

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Market Return	**9.00%**	**17.90%**	**(4.90%)**	**(20.90%)**	**12.90%**	**21.70%**	**2.30%**	**13.00%**	**17.10%**	**4.60%**	**2.00%**
Actuarial Return	**9.30%**	**11.90%**	**7.60%**	**(0.20%)**	**(1.20%)**	**(0.10%)**	**3.30%**	**11.90%**	**13.20%**	**9.60%**	**9.30%**

Actuarial Assets vs UAAL

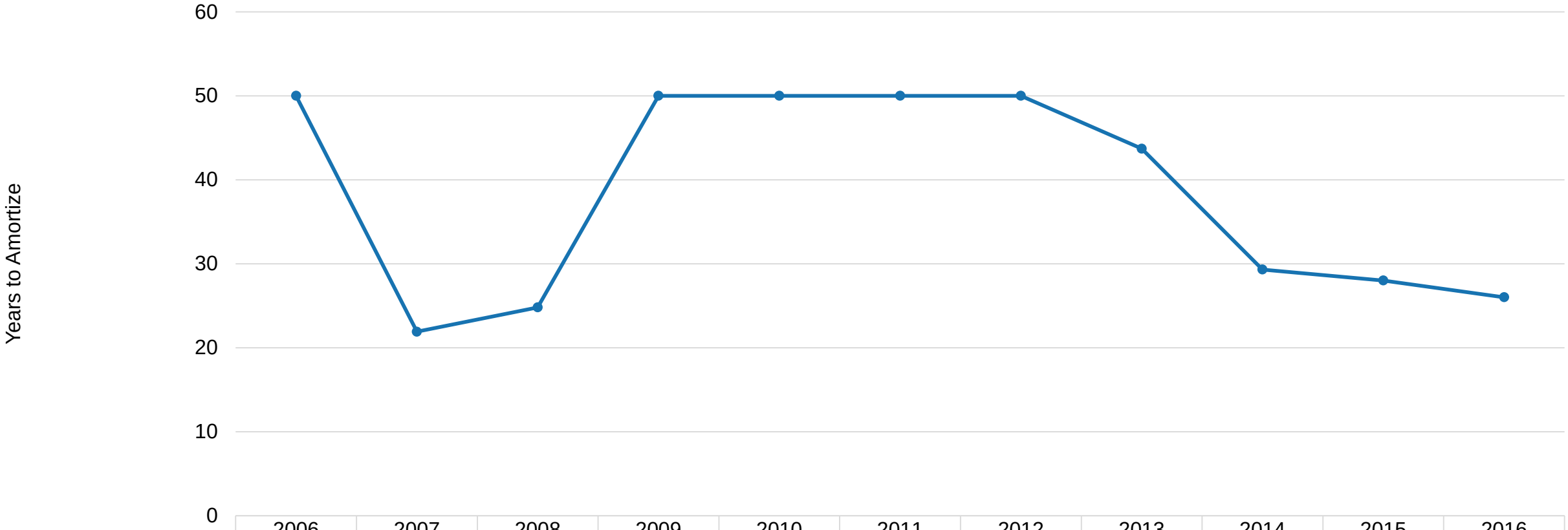


Funded Ratio of PERS



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Funded Ratio	88%	91%	90%	84%	74%	70%	67%	70%	74%	76%	77%

Amortization Period for PERS

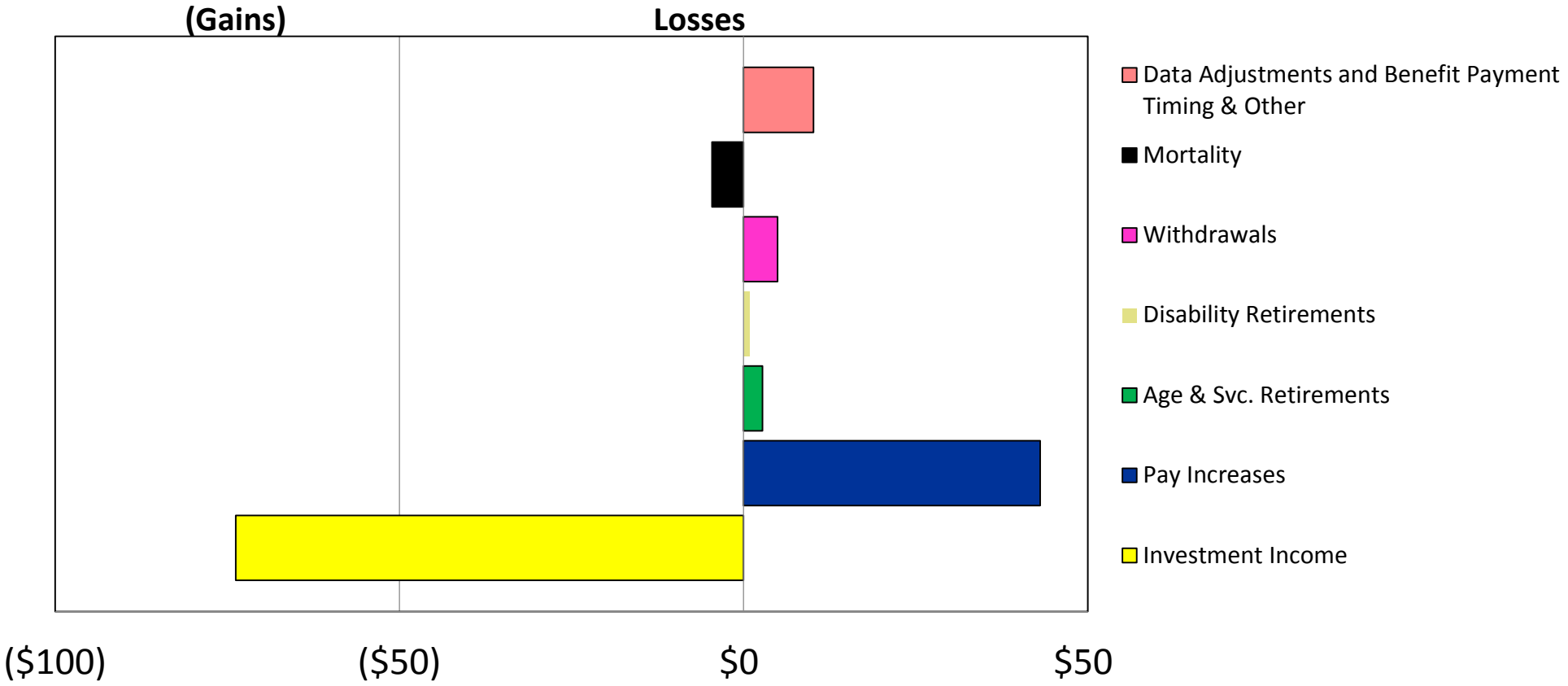


	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Amortization Period	50	21.9	24.8	50	50	50	50	43.7	29.3	28	26

50 years = Does not Amortize

PERS 2016 (Gain)/Loss Analysis

($ Millions)



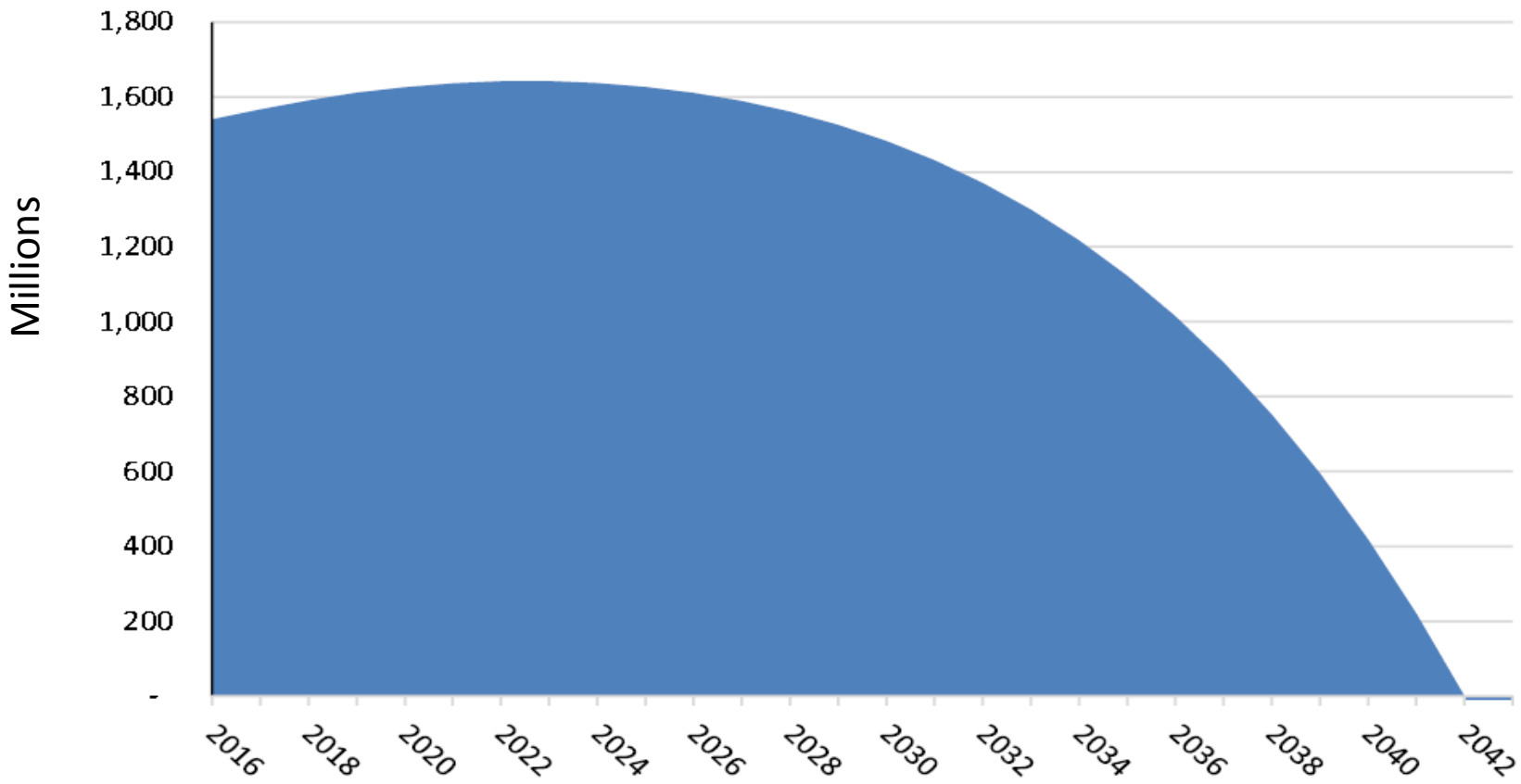
PERS Funding Results

	July 1, 2016 Valuation	July 1, 2015 Valuation
Total Normal Cost Rate	11.34%	11.18%
Administrative Expense Load	0.27%	0.27%
Rate to Amortize UAL	4.72%	4.78%
Transfer to DB Education Fund	0.04%	0.04%
Statutory Funding Rate	16.37%	16.27%
Actuarial Accrued Liability	$6,788.0 million	$6,470.3 million
Actuarial Value of Assets	$5,247.7 million	$4,926.5 million
Unfunded Accrued Liability	$1,540.3 million	$1,543.8 million
Funded Ratio	77.31%	76.14%
Amortization Period	26 Years	28 Years

Valuation Results-Other Plans

System	Funded Ratio		Amortization Period		Statutory Rate		30-Year Funding Rate	
	2016	2015	2016	2015	2016	2015	2016	2015
JRS	166%	164%	0	0	32.81%	32.81%	(3.43%)	(2.13%)
HPORS	66%	65%	28	29	51.38%	50.38%	50.20%	49.66%
SRS	83%	83%	Does not amortize	Does not amortize	19.36%	19.36%	22.75%	22.84%
GWPORS	84%	84%	Does not amortize	Does not amortize	19.56%	19.56%	21.64%	21.52%
MPORS	69%	66%	18	19	52.78%	52.78%	45.79%	45.55%
FURS	78%	76%	9	10	57.66%	57.66%	39.01%	40.48%
VFCA	80%	75%	7	10	5% of premium taxes		$1,110,005	$1,331,372

Progress Toward 100% Funding



Projected UAAL- Level % of Pay

TRS Cash Flow Analysis

November, 2016

Joe Cullen, CFA, CAIA, FRM

Dan Zarling, CFA

Eron Krpan, CIPM

Cash Flow Analysis

- Prior Years CF analysis
  - Aggregated PERS & TRS cash flows
  - Considered implied asset sales rather then total distributions
  - Focused on a 5 year rather 10 year cash flow analysis
- Going forward each plan will have their own cash flow analysis
  - All 9 plans have different Net Cash Needs (NCN) and funded ratios.
  - As we progress, asset allocation may be individualized for the unique needs and risk characteristic of each plan.
- As an example, TRS will be the subject of this presentation
  - Their NCN (as a % of assets) is the largest of all 9 plans

Excerpts from Actuarial Valuation As of July 1, 2016

Done by: Cavanaugh Macdonald Consulting, LLC

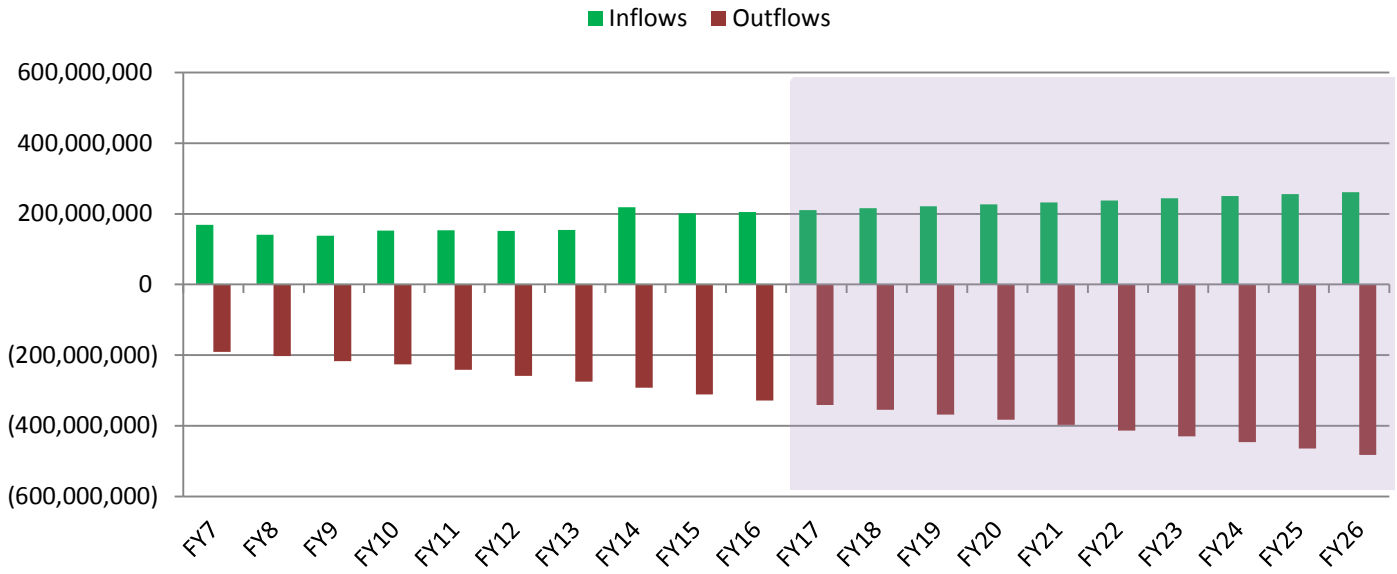
- "The investment return generally has the largest impact on the funding of the system"
  - If the amortization period is > 30 years, the actuary will recommend a contribution rate increase
- If the market value of assets were used
  - Funded Ratio:66.7%
  - Amortization Period: 28 Years
- Investment Return Assumption Scenarios
  - 7.75% (Current)
    - Funded Ratio: 69.3%
    - Amortization Period: 24 Years
  - 7.25%
    - Funded Ratio: 65.7%
    - Amortization Period: 34 Years
  - 6.75%
    - Funded Ratio: 62.2%
    - Amortization Period: 51 Years

Why is there a NCN?

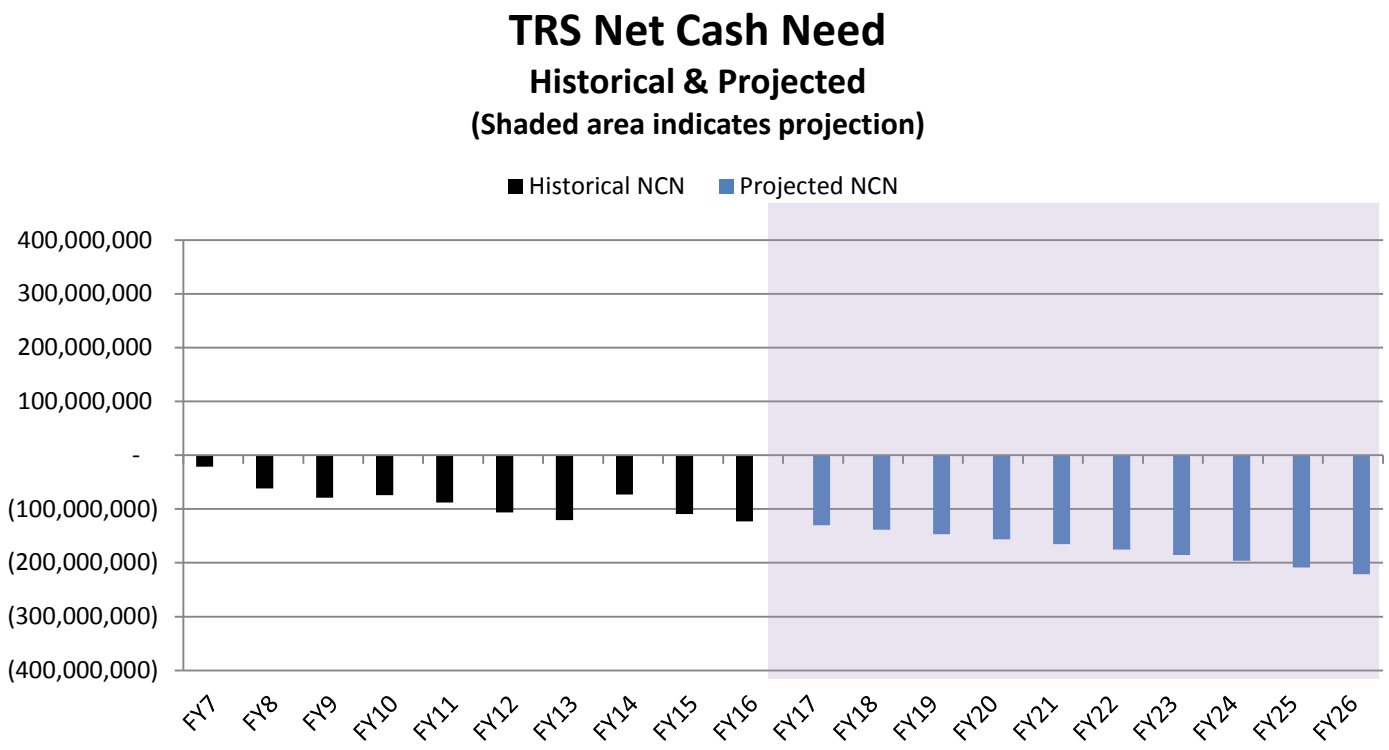
- The plan is mature. There are more retirees than full-time contributing members.
  - As of 7/1/2016 there were 12,769 full-time contributing members and 15,164 retired members and beneficiaries

- Pensioners are living longer lives causing benefit outflows to be larger than expected.

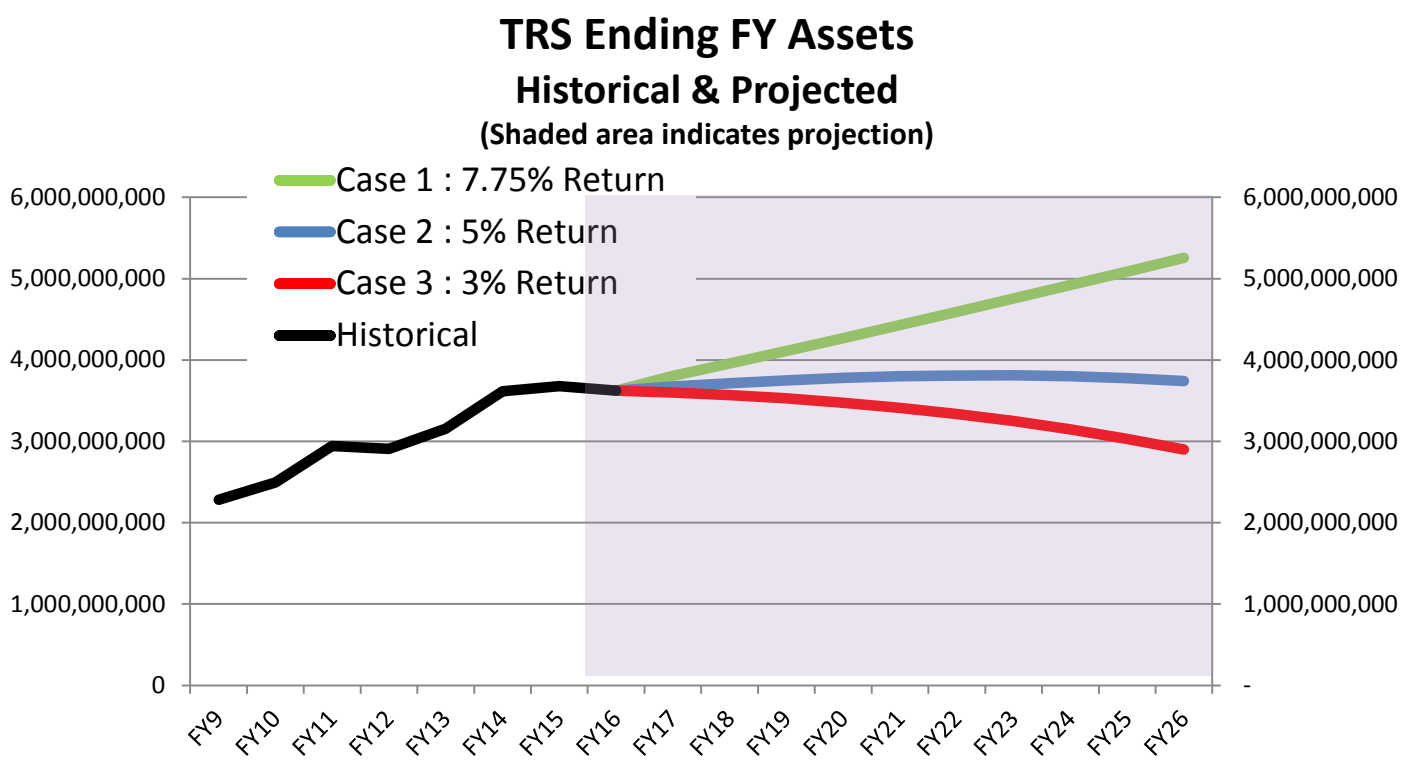
Inflows & Outflows
Historical & Projected
(Shaded area indicates projection)



- Inflows are expected to grow at around 2.5% per year for the next 10 years
- Outflows are expected to grow at around 4% per year for the next 10 years



- Net Cash Need (NCN) is the net amount of inflows and outflows.
- NCN is expected to grow at around 6% per year for the next 10 years
- Liquidity management will be an increasingly important consideration in the asset allocation of this plan.



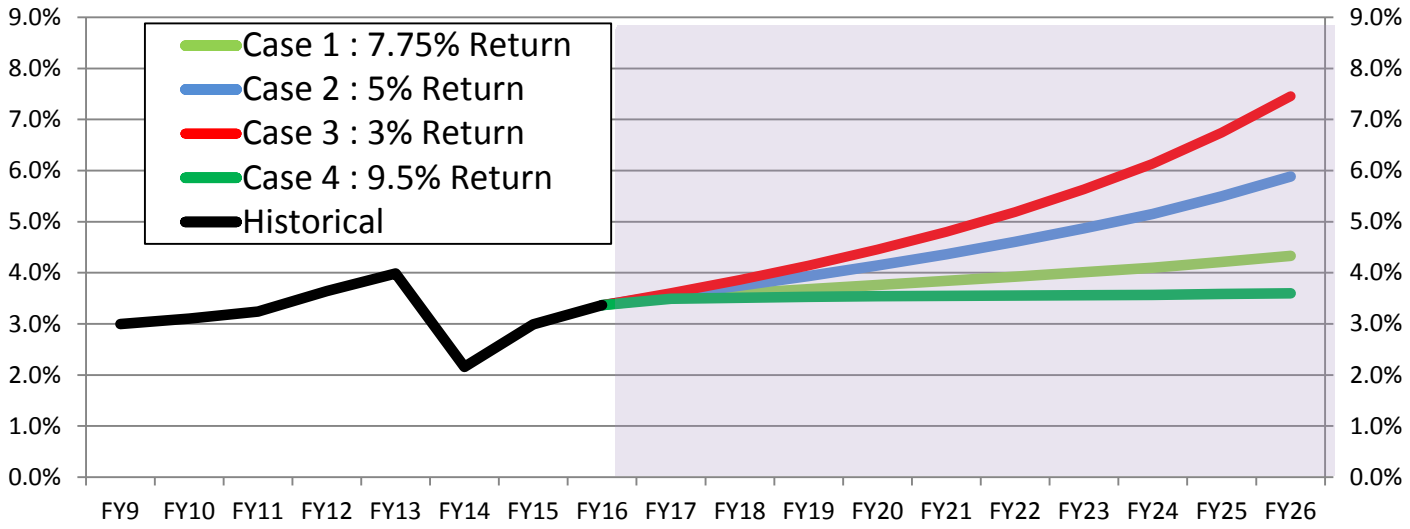
- Returns are assumed to be the same each year, without variation, in their respective scenarios

- It would take about a 5% annual return to keep the plan assets close to where they are now with respect to the market value of TRS plan assets

TRS Sensitivity Analysis - Constant Returns

NCN as % of Average FY Assets

(Shaded area indicates projection)

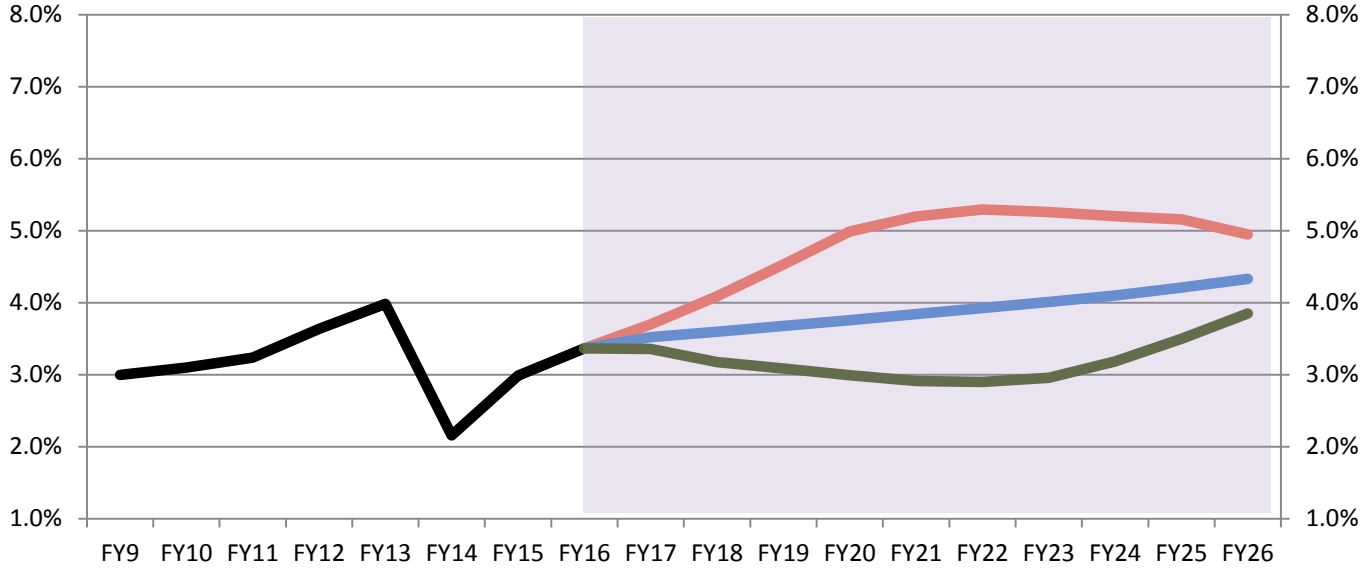


- Returns are assumed to be the same each year, without variation, in their respective scenarios
- NCN is expected to grow at 6% annually over the next ten years.
- TRS would need to generate an even return of about 9.5% annually (Case 4) in order to keep NCN as a % of Assets at about 3.4%.

TRS Sensitivity Analysis - Non-Constant Returns

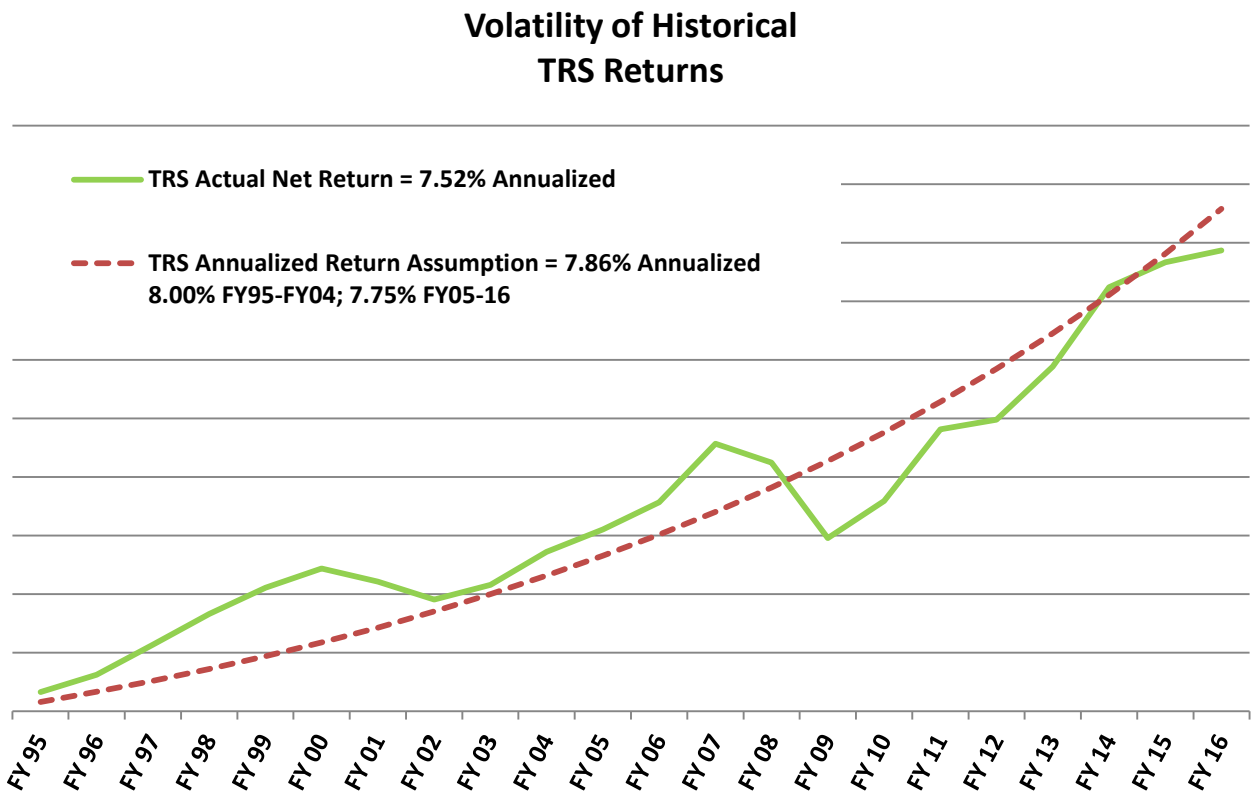
NCN as % of Average FY Assets

(Shaded area indicates projection)



- Returns are likely to exhibit volatility
  - Geometric Mean -> An annualized measure of compound return
  - Arithmetic Mean -> The simple average of a set of returns
- High (Low) returns in early years have a positive (negative) impact

	Hypothetical Return		
	Case 2	Case 5	Case 6
FY17	7.75%	17.8%	-2.3%
FY18	7.75%	14.8%	2.3%
FY19	7.75%	10.8%	-2.3%
FY20	7.75%	14.8%	4.8%
FY21	7.75%	9.8%	9.3%
FY22	7.75%	9.3%	9.8%
FY23	7.75%	4.8%	14.8%
FY24	7.75%	-2.3%	10.8%
FY25	7.75%	2.3%	14.8%
FY26	7.75%	-2.3%	17.8%
	Mean		
Geometric	7.75%	7.75%	7.75%
Arithmetic	7.75%	7.96%	7.96%



- Historical data closely tracks the actuarial assumed target rate of return over the long term

Cash Flow Analysis

Implications for Asset Allocation

- Liquidity – Short Term Cash Needs
  - Increasing Net Cash Need -> Higher Cash Levels
    - Gives us flexibility to rebalance, pay benefits, or strategically allocate to other asset classes
- Solvency – Long Term Asset Needs
  - Underfunded Status
    - Increases desire to allocate to riskier asset classes
      - Riskier asset allocations could lead to an even more underfunded status

Montana Public Retirement Plans
Asset Allocation
November 15, 2016

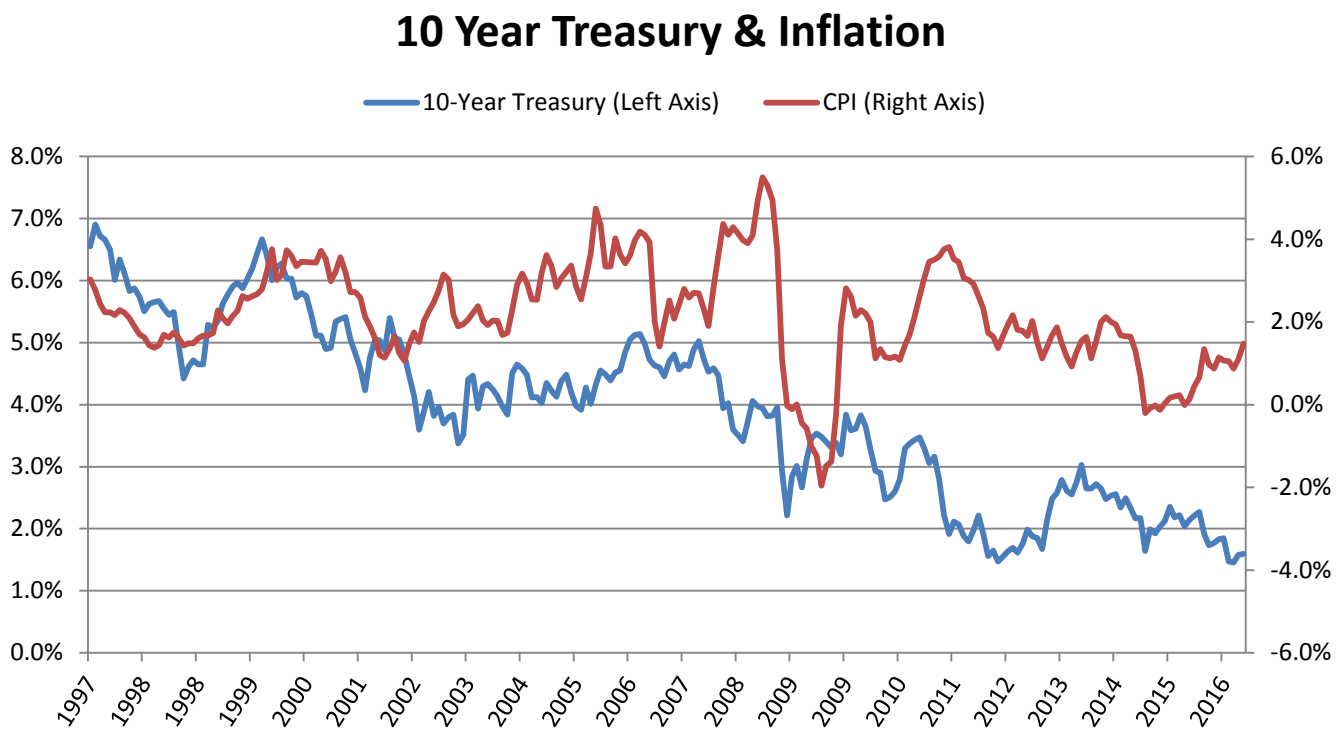
Key Takeaways

- Asset Allocation remains critical to the pension plans' long-term success.
- Multiple analytical procedures including cash flow analysis, mean-variance analysis, and scenario analysis were utilized in developing the asset allocation recommendation.
- From an economic viewpoint, the baseline assumptions are that the global economic growth will remain modest, interest rates will remain low, and inflation will be near levels targeted by the Federal Reserve. However, given current valuation levels of different asset classes, the asset allocation must improve its diversification to help protect against surprises in these assumptions.
- Incremental changes should be made to the asset allocation ranges to help achieve return expectations while managing risk prudently. More meaningful changes should be made to the organization and reporting of asset classes.
- The risk allocation across asset classes should be less concentrated, resulting in a more "barbell-like" approach.
- Readily available liquidity in STIP and U.S. Treasuries should be increased to provide the funding for a growing Net Cash Need to meet retirement plan benefit payments. Allocations need to be maintained in the riskier asset classes to help achieve actuarial return targets.

Key Takeaways continued

- Three Retirement Plan Objectives (in order of importance)
  - Absolute Performance (by far the most important to achieve success)
  - Relative Performance to Benchmarks
  - Relative Performance to Peers
- We can't take imprudent risks to assets to target actuarial returns (7.75%).
- The opportunity set of potential investment strategies should be expanded and risk should be more dispersed across additional risk factors/asset classes.
- The resulting Asset Allocation will have an expected return that is below the current actuarial return expectation. However, this shouldn't be viewed as a new event, unique to the Montana pension plans nor necessarily permanent.
- The recommended asset allocation will include greater specification of asset classes. Although this approach may be viewed as more complex, it also provides increased transparency, focus, and opportunity to manage risk more discretely.

Economic Environment



- Actuarial Rate lowered from 8.0% to 7.75% post Fiscal Year 2004
- 6/30/2004
  - 10 Year Treasury: 4.58%
  - CPI: 3.17%
- 9/30/2016
  - 10 Year Treasury: 1.60%
  - CPI: 1.48%

Diversified Strategies

- New asset class recommended for the Montana retirement plans. Strategies that don't fit well within other asset classes but make sense at the plan level.

- Intent is to improve the risk-adjusted return of the retirement plans' investment portfolio by helping to increase diversification and protect the against significant downside risks.

- Expected to include global asset allocation strategies, specific overlay strategies, as well as additional strategies that meet the Diversified Strategies objectives.

- Implementation and Reporting for these Diversified Strategies would be improved if contained in a new investment pool structure.

- Investment Objectives and Guidelines for this asset class must be presented to the Board for approval prior to implementation.

Current Approved Asset Allocation

- The current Asset Allocation (AA) defines the asset class ranges as well as additional constraints specifying sub-asset class ranges and the permitted percentages for "Passive" and "Active".

- We believe the Asset Allocation should only define the intended ranges for each asset class as a percentage of Retirement Plan assets.

- The additional constraints including the sub-asset classes and the Passive/Active mixture should be specified as needed in the appropriate Investment Objectives and Guidelines included in the Investment Policy Statement.

Pension Fund Asset Allocations Board Approved Ranges Current	
Investment Type	**Approved Range**
Asset Class - Domestic Equity	**28% - 44%**
Large	72% - 91%
Passive	**48% - 91%**
Active	**0% - 24%**
Mid	**6% - 17%**
Small	**3% - 11%**
Asset Class - International Equity	**14% - 22%**
Large	**79% - 92%**
Passive	**47% - 92%**
Active	**0% - 32%**
Small	**8% - 16%**
Emerging - Dedicated	**0% - 5%**
Asset Class - Private Equity	**9% - 15%**
Venture Capital	**10% - 25%**
Debt Related	**0% - 25%**
Buyouts and all other private equity-related strategies	**50% - 90%**
Asset Class - Fixed Income	**22% - 30%**
Domestic High Yield	**0% - 15%**
International	**0% - 10%**
Core (U.S. Investment Grade)	**80% - 100%**
Asset Class - Real Estate	**6% - 10%**
Core/Timberland	**35% - 65%**
Non-Core	**35% - 65%**
Asset Class - Cash Equivalents	**1% - 5%**
*Existing Policy allows total equity range of 58% - 72% and Timber may not exceed 2% of total pension assets.	

Comparison
Current to Proposed Asset Allocation

Pension Fund Asset Allocations Board Approved Ranges Current				Pension Fund Asset Allocations Proposed				Inter-mediate Term Expected
Asset Class	Range Low	Range High	Actual	Asset Class	Range Low	Range High	Actual	
Domestic Equity	28	44	38	Domestic Equities	24	38	38	34
International Equity	14	22	16	International Equities	12	18	16	16
Private Equity	9	15	11	Private Equity	9	15	10	11
				Natural Resources [1]	0	6	2	3
Real Estate	6	10	8	Real Estate	4	12	7	8
				TIPS	0	4	0	2
Fixed Income	22	30	24	Broad Fixed Income [2]	1	3	2	2
				US Treasury/Agency Fixed Income [2]	5	14	9	8
				Investment Grade Credit [2]	2	6	5	4
				Agency Mortgage-Backed Securities [2]	2	8	6	5
				High Yield [2]	1	5	2	3
				Diversified Strategies [3]	0	4	0	1
Cash	1	5	3	Cash [4]	1	6	3	3
Total				Total			100	100

[1] Existing Policy allows total equity range of 58% - 72% and Timber may not exceed 2% of total pension assets.

[1] Natural Resources will invest in strategies that include Timber, Energy, Agriculture, Water, and Other Commodities.

[2] Related fixed income asset classes may not go below a minimum of 15 percent of the portfolio.

[3] Diversified Strategies will hold no investments until the Diversified Strategies objectives and guidelines are formally approved by the board.

[4] The range for cash only includes the plans' allocation to STIP.

Proposed Pool Structure

- Pools become the vehicle for holding asset classes rather than considered as asset classes themselves
- Pools still representative of related asset classes but not considered asset classes themselves

Proposed Pool Structure	
Asset Class	Domestic Equities
Vehicle	**Montana Domestic Equity Pool**
Asset Class	International Equities
Vehicle	**Montana International Equity Pool**
Asset Class	Private Equity
Vehicle	**Montana Private Equity Pool**
Asset Class	Natural Resources
Asset Class	Real Estate
Asset Class	TIPS
Vehicle	**Montana Real-Asset Pool**
Asset Class	Broad Fixed Income
Asset Class	US Treasury/Agency Fixed Income
Asset Class	Investment Grade Credit
Asset Class	Agency Mortgage-Backed Securities
Asset Class	High Yield
Vehicle	**Retirement Funds Bond Pool**
Asset Class	Diversified Strategies
Vehicle	**Diversified Strategies Pool**
Asset Class	Cash
Vehicle	**Short Term Investment Pool**

Proposed Asset Allocation

To be included in Appendix I of the Investment Policy Statement

Pension Fund Asset Allocations		
Asset Class	Range Low	Range High
Domestic Equities	24	38
International Equities	12	18
Private Equity	9	15
Natural Resources [1]	0	6
Real Estate	4	12
TIPS	0	4
Broad Fixed Income [2]	1	3
US Treasury/Agency Fixed Income [2]	5	14
Investment Grade Credit [2]	2	6
Agency Mortgage-Backed Securities [2]	2	8
High Yield [2]	1	5
Diversified Strategies [3]	0	4
Cash [4]	1	6
Total		

[1] Natural Resources will invest in strategies that include Timber, Energy, Agriculture, Water, and Other Commodities.

[2] Related fixed income asset classes may not go below a minimum of 15 percent of the portfolio.

[3] Diversified Strategies will hold no investments until the Diversified Strategies objectives and guidelines are formally approved by the board.

[4] The range for cash only includes the plans' allocation to STIP.

Appendix I: Montana Public Retirement Plans Asset Allocation Ranges

All nine Montana Public Retirement Plans currently share the same asset allocation ranges but this may change in the future.

Permitted Ranges:

Pension Fund Asset Allocations Board Approved Ranges Approved 4/5/16	
Investment Type	**Approved Range**
Asset Class - Domestic Equity	**28% - 44%**
Large	72% - 91%
Passive	**48% - 91%**
Active	**0% - 24%**
Mid	**6% - 17%**
Small	**3% - 11%**
Asset Class - International Equity	**14% - 22%**
Large	**79% - 92%**
Passive	**47% - 92%**
Active	**0% - 32%**
Small	**8% - 16%**
Emerging - Dedicated	**0% - 5%**
Asset Class - Private Equity	**9% - 15%**
Venture Capital	**10% - 25%**
Debt Related	**0% - 25%**
Buyouts and all other private equity-related strategies	**50% - 90%**
Asset Class - Fixed Income	**22% - 30%**
Domestic High Yield	**0% - 15%**
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Core (U.S. Investment Grade)	**80% - 100%**
Asset Class - Real Estate	**6% - 10%**
Core/Timberland	**35% - 65%**
Non-Core	**35% - 65%**
Asset Class - Cash Equivalents	**1% - 5%**
*Existing Policy allows total equity range of 58% - 72% and Timber may not exceed 2% of total pension assets.	

Other Restrictions:

1. Total Plan Equities shall maintain a range between 58% and 72% of total Plan assets; and
2. Timberland Investments shall not exceed 2% of total Plan assets.

Appendix II: Investment Objectives and Guidelines

Schedule II-A:
Investment Objectives and Guidelines
Montana Domestic Equity Pool (MDEP)

Effective Date of Schedule: April 5, 2016

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

Statement of Purpose:
The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Pool; and
2. Provide diversified exposure to the domestic equity market in a prudent and cost effective manner.

Investment Objective:

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

Performance:
Success in achieving this objective will be measured by comparing the risk and after-fee return of MDEP to the **S&P 1500 Index** (the "Benchmark"). Performance results will be monitored and evaluated quarterly. However, the success in achieving the objective will be measured on a three-year, five-year, and ten-year annualized basis.

Investment Guidelines:

The Montana Board Investment Staff will have full discretion to manage MDEP 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.

The majority of the MDEP investments will be managed by external investment managers.

Permitted Investments:

MDEP may invest only in the following:

1. Securities and derivatives held in separate accounts, commingled funds, limited partnerships, or limited liability companies managed by external investment managers and governed by their respective investment management contracts and investment guidelines;
2. Exchange-Traded Funds (ETFs) based on a domestic equity index that is approved by the Chief Investment Officer and purchased and monitored by Staff; and
3. Cash – either an investment in the Short-Term Investment Pool (STIP) or a vehicle available through the Custodian.

Other Restrictions:

1. The market capitalization by mandate shall adhere to the following ranges as a percentage of the Pool's total market value:
    a. Large Cap 72 - 91%
    b. Mid-Cap 6 - 17%
    c. Small-Cap 3 - 11%
2. The Pool's percentage of market value invested in passive/index strategies shall be greater than 45%;
3. Cash held at the Pool level (not including cash held by external managers in separate accounts or commingled funds) is limited to 5% of the Pool's market value;
4. The Pool's percentage of market value invested in mandates using an active investment strategy by any one Manager shall be no greater than 15%; and
5. The Pool's percentage of market value invested in any single mandate/portfolio using an active investment strategy shall be no greater than 10%.
6. The Pool's percentage of market value invested in the Large Cap mandate using a long/short investment strategy shall be no greater than 12%.

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

Schedule II-B:
Investment Objectives and Guidelines
Montana International Equity Pool (MTIP)

Effective Date of Schedule: April 5, 2016

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

Statement of Purpose:
The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Pool; and
2. Provide diversified exposure to the international and global equity markets in a prudent and cost effective manner.

Investment Objective:

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

Performance:
Success in achieving this objective will be measured by comparing the risk and after-fee return of MTIP to the **MSCI All Country World ex-US Investable Market Index** (the "Benchmark"). Performance results will be monitored and evaluated quarterly. However, the success in achieving the objective will be measured on a three-year, five-year, and ten-year annualized basis.

Investment Guidelines:

The Montana Board Investment Staff will have full discretion to manage MTIP 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.

The majority of the MTIP investments will be managed by external investment managers.

Permitted Investments:

MTIP may invest only in the following:

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

2. Exchange-Traded Funds (ETFs) based on an international equity index that is approved by the Chief Investment Officer and purchased and monitored by Staff; and
3. Cash – either an investment in the Short-Term Investment Pool (STIP) or a vehicle available through the Custodian.

Other Restrictions:

1. The market capitalization by mandate shall adhere to the following ranges as a percentage of the Pool's total market value:
    a. Large Cap 79-92%
    b. Small-Cap 8-16%
2. The Pool's percentage of market value invested in passive/index strategies shall be greater than 42%;
3. The Pool's percentage of market value invested in dedicated Emerging Market mandates shall be no greater than 5%;
4. Cash held at the Pool level (not including cash held by external managers in separate accounts or commingled funds) is limited to 5% of the Pool's market value;
5. The Pool's percentage of market value invested in mandates using an active investment strategy by any one Manager shall be no greater than 15%; and
6. The Pool's percentage of market value invested in any single mandate/portfolio using an active investment strategy shall be no greater than 10%.

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

Schedule II-C:
Investment Objectives and Guidelines
Montana Private Equity Pool (MPEP)

Effective Date of Schedule: April 5, 2016

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

Statement of Purpose:
The purpose of these objectives and guidelines is to:

1. Establish the investment objectives and performance standards of the Pool; and
2. Provide diversified exposure to the Private Investment markets in a prudent and cost effective manner.

Investment Objective:

Strategic:
The objective of the MPEP is to attain the highest possible return within the parameters of the Investment Guidelines set forth below.

Performance:
There is no generally accepted benchmark index for private equity performance comparisons. Characteristically, private equity partnership investments are impacted by the "J-curve" effect, in which fees and transaction costs create negative returns during the initial investment years before distributions are realized. Private equity investing requires a long time horizon in order to realize the value provided by the creation or restructuring of private companies.

The performance objective for MPEP is the achievement of long-term net returns (after management fees and general partner's carried interest) above a benchmark reflecting public equity market returns plus an appropriate premium to compensate for the higher degree of risk, including the illiquidity risk for Private Investments compared to Public Market Investments**.**

Success in achieving this objective will be measured by comparing the net return of MPEP to the **S&P 1500 Index plus 400 basis points** (the "Benchmark") on an annualized basis. Performance results will be monitored quarterly. However, the success in achieving the objective will be measured on a five-year and ten-year annualized basis.

Investment Guidelines:

The Montana Board Investment Staff will have full discretion to manage MPEP 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.

The majority of the MPEP investments will be managed by external investment managers via a partnership structure in which the Montana Board of Investments will have a limited partnership interest.

Permitted Investments:

MPEP may invest only in the following:

1. Private Investment partnership interests. These private partnerships may be direct limited partnerships, limited liability companies, or vehicles that primarily invest in partnerships, including Fund-of-Funds and Secondary Funds;
2. Investments held in separate accounts or commingled funds managed by external investment managers and governed by their respective investment management contracts and investment guidelines;
3. MPEP may co-invest with private investment managers in transactions that are suitable for inclusion into a private investment partnership;
4. Individual public or private securities received as distributions from funds;
5. "Equitized" liquidity strategies that provide exposure to public equity indexes; and
6. Cash – either an investment in the Short-Term Investment Pool (STIP) or a vehicle available through the Custodian.

Other Restrictions

1. No more than 7.5% of the aggregate of MPEP net asset value plus uncalled committed capital should be in a single Direct Limited Partnership;
2. No more than 15% of the aggregate of MPEP net asset value plus uncalled committed capital should be placed with a single fund manager or General Partner;
3. No more than 30% of the aggregate of MPEP net asset value plus uncalled committed capital should considered "Non-U.S." exposure based on the primary objective of the Fund, Partnership, Separate Account, or Index;
4. Cash held at the Pool level (not including cash held in the underlying partnership interests/funds or cash that is equitized) is limited to 5% of the Pool's market value; and
5. Individual public securities received as distributions will be liquidated over a reasonable time period dependent on market conditions.

The following table provides a guideline range with respect to MPEP's strategy diversification. It is important to note that these ranges reference the sum of the pool's net asset value and uncalled commitments.

Strategy	Policy Range
Buyout and all other private equity related strategies not related to Venture Capital or Debt-Related	50% - 80%
Venture Capital	10% - 25%
Debt-related	0% - 25%

For the purpose of the ranges provided above, Special Situations and Secondary funds will be classified in the category that is most reflective of the underlying investments in the funds.

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

Schedule II-D:
Investment Objectives and Guidelines
Montana Real Estate Pool (MTRP)

Effective Date of Schedule: April 5, 2016

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

Statement of Purpose:
The purpose of these objectives and guidelines is to:

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

Investment Objective:

Strategic:
The objective of the MTRP is to attain the highest possible return within the parameters of the Investment Guidelines set forth below.

Performance:
Success in achieving this objective will be measured by comparing the risk and after-fee return of MTRP to the **NCREIF Open End Diversified Core Equity Net Index** (the "Benchmark"). Performance results will be monitored and evaluated quarterly. However, the success in achieving the objective will be measured on a five-year, and ten-year annualized basis. Because MTRP's underlying funds typically report their returns 30-90 days after quarter-end, the Benchmark will be compared on a one-quarter lagged basis.

Investment Guidelines:

The Montana Board Investment Staff will have full discretion to manage MTRP 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.

The majority of the MTRP investments will be managed by external investment managers.

Permitted Investments:

MTRP may invest only in the following:

1. Open-Ended Commingled Funds investing in "Core" Real Estate. Real Estate is classified as "Core" if it is an investment in operating and substantially-leased institutional quality real estate in the traditional property types (apartments, office, retail, industrial, and hotel);
2. Private Investment partnership interests in "Non-Core" Real Estate and Timberland. These private partnerships may be direct limited partnerships, limited liability companies, or vehicles that primarily invest in partnerships, including Fund-of-Funds and Secondary Funds.
3. MTRP may co-invest with private investment managers in transactions that are suitable for inclusion into a private Real Estate investment partnership;
4. Individual public or private securities received as distributions from funds and equitized liquidity funds are also permitted to be held in MTRP;
5. Separate Accounts, Open-Ended Funds, Closed-Ended Funds, Exchange-Traded Funds (ETFs), or Master Limited Partnerships (MLPs) managing publicly traded Real Estate or Timberland related investments, where the funds are approved by the Chief Investment Officer and purchased and monitored by Staff; and
6. Cash – either an investment in the Short-Term Investment Pool (STIP) or a vehicle available through the Custodian.

Other Restrictions

1. No more than 7.5% of the aggregate of MTRP net asset value plus uncalled committed capital should be in a single Fund, Partnership, or Separate Account;
2. No more than 15% of the aggregate of MTRP net asset value plus uncalled committed capital should be placed with a single fund manager.
3. Separate Accounts, Open-Ended Funds, Closed-Ended Funds, Exchange-Traded Funds (ETFs), or Master Limited Partnerships (MLPs) managing publicly traded Real Estate or Timberland related investments may not exceed 20% of the aggregate of MTRP net asset value plus uncalled committed capital;
4. No more than 30% of the aggregate of MTRP net asset value plus uncalled committed capital should considered "Non-U.S." exposure based on the primary objective of the Fund, Partnership, Separate Account, or Index;
5. Cash held at the Pool level (not including cash held in the underlying partnership interests, funds, or accounts, or cash that is equitized) is limited to 5% of the Pool's market value; and
6. Individual public securities received as distributions will be liquidated over a reasonable time period dependent on market conditions.

The following table provides a guideline range with respect to MTRP's strategy diversification. It is important to note that these ranges reference the sum of the pool's net asset value and uncalled commitments.

Strategy	Pool Policy Range	Total Pensions Policy Range
Core Real Estate / Timber Investments	35% - 65%	
Non-Core Real Estate Investments	35% - 65%	
Timberland Investments	Included w/Core	0% - 2%

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

Leverage

Leverage is a significant risk factor. On an individual fund basis, the leverage level can range up to 75.0 percent. Leverage consists of the combined borrowing at the property level and the fund level. On a select basis, the leverage may exceed 75.0 percent for a given investment, if it is determined to be reasonable to do so. Leverage shall be monitored on an individual fund level and new investments shall be made with the intention that the total MTRP portfolio leverage shall not exceed 60%.

Strategy	Leverage Policy Range
Core Real Estate Investments	0% - 50%
Non-Core Real Estate Investments	0% - 75%
Timberland Investments	0% - 30%

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

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

Schedule II-E:
Investment Objectives and Guidelines
Montana Retirement Funds Bond Pool (RFBP)

Effective Date of Schedule: April 5, 2016

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

Statement of Purpose:
The purpose of these objectives and guidelines is to:

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

Investment Objective:

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

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

Investment Guidelines:

The Montana Board Investment Staff will have full discretion to manage RFBP 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:

RFBP may invest only in the following:

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

3. Cash – either an investment in the Short-Term Investment Pool (STIP) or a vehicle available through the Custodian.

Other Restrictions

1. A minimum of 20% of the market value of the RFBP must be held in U.S. Treasury/Agency securities;
2. A maximum of 50% of the market value of the RFBP shall be held in corporate securities;
3. A maximum of 10% of the market value of the RFBP shall be held in Non-U.S. securities whether they are denominated in U.S. dollars or a foreign currency;
4. A maximum of 40% of the market value of the RFBP shall be held in U.S. residential Agency Mortgage-Backed Securities (MBS & CMO);
5. A maximum of 10% of the market value of the RFBP shall be held in asset backed securities (ABS);
6. A maximum of 10% of the market value of the RFBP shall be held in commercial mortgage backed securities (CMBS);
7. A maximum of 5% of the market value of the RFBP shall be held in all other Permitted Investments in the aggregate that are not classified as a Corporate, U.S. residential agency mortgage-backed, ABS, CMBS, or U.S. Treasury/Agency security;
8. The average duration of the RFBP will be maintained in a range of + or – 20% of the index duration;
9. A maximum of 15% of the market value of the RFBP shall be invested in fixed income securities either non-rated or rated lower than Baa3 by Moody's or BBB- by S&P. (In the case of split rated securities, the lowest rating will apply.);
10. A maximum of 5% of the market value of the RFBP shall be invested in dedicated Emerging Market mandates;
11. A maximum of 5% of the market value of the RFBP shall be invested in Cash held at the Pool level (not including cash held by internal or external managers in separate accounts or commingled funds);
12. The Pool's percentage of market value invested in mandates using an active investment strategy by any one Manager other than any internally managed assets shall be no greater than 15%; and
13. The Pool's percentage of market value invested in any single mandate/portfolio using an active investment strategy, other than internally managed mandates, shall be no greater than 10%.

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

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

To: Board of Directors

From: Doug Hill

Date: November 15, 2016

Subject: Commercial and Residential Loan Portfolios

As of October 31, 2016, the commercial loan portfolio balance was $105,246,221, and represents 105 individual loans or participations. There are 7 reservations that total $10,147,287 and 14 commitments that total $56,399,552. The commercial loan portfolio has a yield of 3.52%, as of October 31, 2016. There is one loan past due over 90 days, which is the On-The-Border restaurant in Great Falls and the outstanding principal balance is $1,162,873.43.

The following table shows how much of the $5,000,000 the Legislature originally allocated to the Intermediary Relending Program (IRP) is available.

IRP Availability		
Outstanding Balance		3,234,299.95
Committed Loans		
Gallatin Development Corp.- 9856	250,000.00	
Montana Community Development Corp. - 9904	250,000.00	
Ravalli County Economic Development - 9926	176,000.00	
Lake County Community Development Corp. - 9927	187,500.00	
Montana Business Assistance Connection - 10004	250,000.00	
Headwaters RC&D - 10014	250,000.00	
Total Committed Loans		1,363,500.00
Total Outstanding & Unused Commitments		4,597,799.95
Legislative Allocation		5,000,000.00
IRP Available Funds		**402,200.05**

The residential loan portfolio, as of October 31, 2016, has an outstanding balance of $6,869,631. There were no outstanding reservations. There were five loans past due over 30 days totaling $219,062.89, representing 3.19% of the portfolio. Four of these loans are FHA guaranteed and one is VA guaranteed.

The Veterans Home Mortgage portfolio reflected an outstanding balance, as of October 31, 2016, of $32,546,910. There were four reservations totaling $760,500. There are two loans past due over 30 days totaling $422,154, representing 1.30% of the portfolio.

INTERCAP Loan Program

Activity Summary

As of September 30, 2016

Since Inception 1987 - September 2016

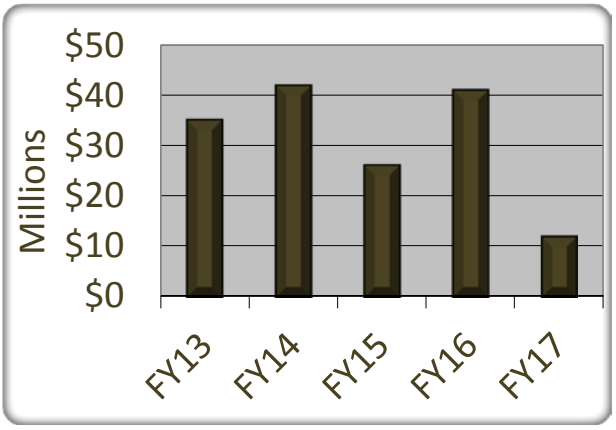
Total Bonds Issued	148,000,000
Total Loan Commitments	540,449,922
Total Loans Funded	497,883,551
Total Bonds Outstanding	97,340,000
Total Loans Outstanding	83,592,872
Loan Commitments Pending	42,566,371

FY2017

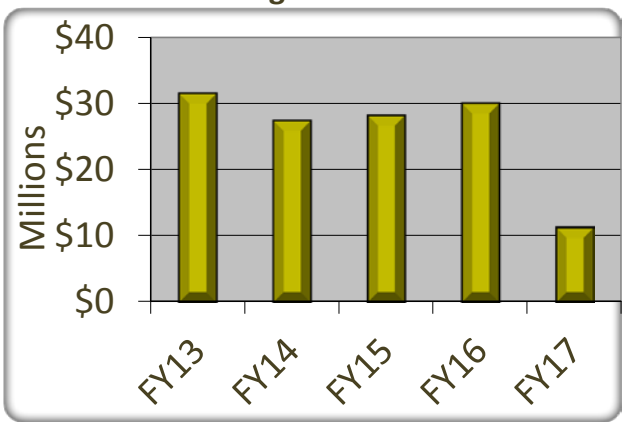
Month	Commitments	Fundings
July-16	$ 2,209,456	$ 4,887,453
August	9,179,288	3,335,752
September	671,500	3,096,709
October	-	-
November	-	-
December	-	-
January	-	-
February	-	-
March	-	-
April	-	-
May	-	-
June-17	-	-
To Date	$ 12,060,244	$ 11,319,915

Note: Commitments include withdrawn and expired loans.

Commitments FY13-FY17



Fundings FY13-FY17



Variable Loan Rate History February 16, 2009 - February 15, 2017

February 16, 2009 - February 15, 2010	3.25%	February 16, 2013 - February 15, 2014	1.00%
February 16, 2010 - February 15, 2011	1.95%	February 16, 2014 - February 15, 2015	1.00%
February 16, 2011 - February 15, 2012	1.95%	February 16, 2015 - February 15, 2016	1.25%
February 16, 2012 - February 15, 2013	1.25%	February 16, 2016 - February 15, 2017	1.55%

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
(406) 444-0001

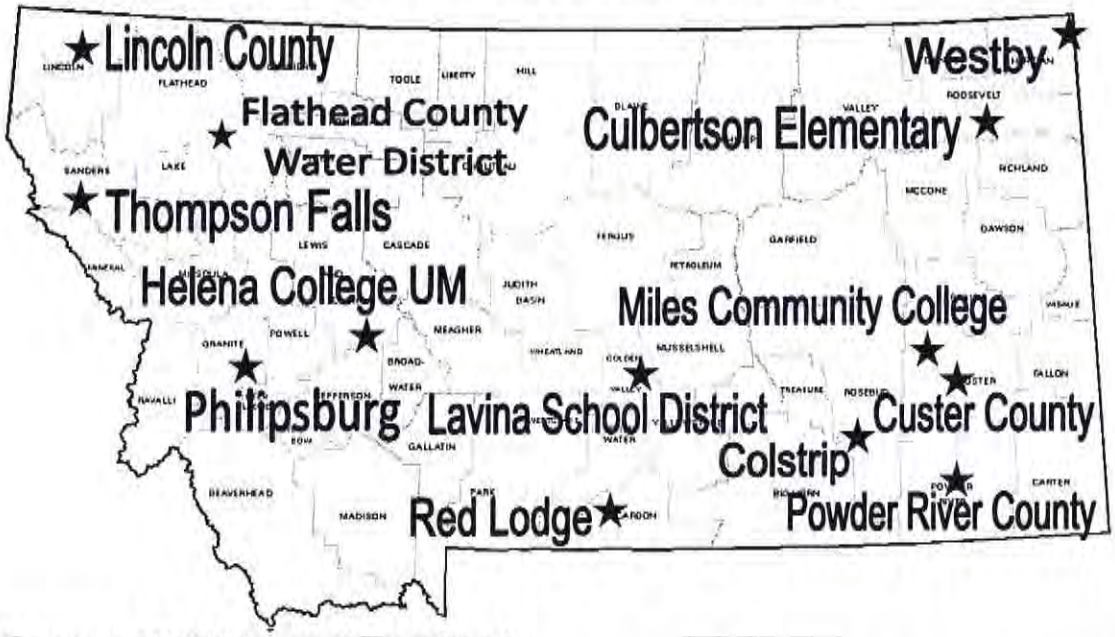
To: Members of the Board

From: Louise Welsh, Senior Bond Program Officer

Date: November 15, 2016

Subject: INTERCAP Staff Approved Loans Committed

Staff approved the following loans between July 1 and September 30, 2016.



Borrower: **NEW**	Town of Westby
Purpose:	Interim financing for wastewater treatment system improvements
Staff Approval Date	July 13, 2016
Board Loan Amount:	$ 752,000
Other Funding Sources:	$ 1,208,000
Total Project Cost:	$ 1,960,000
Term:	2 years

Borrower:	Powder River County
Purpose:	Renovate the County Nursing Home
Staff Approval Date	July 18, 2016
Board Loan Amount:	$ 320,000
Other Funding Sources:	$ 585,298
Total Project Cost:	$ 905,298
Term:	15 years

Borrower:	Lavina School District
Purpose:	Replace school building roof and boiler
Staff Approval Date	July 22, 2016
Board Loan Amount:	$ 36,790
Other Funding Sources:	$ 0
Total Project Cost:	$ 36,790
Term:	10 years

Borrower:	Custer County
Purpose:	Purchase a skid-steer
Staff Approval Date	July 29, 2016
Board Loan Amount:	$ 25,666
Other Funding Sources:	$ 40,000
Total Project Cost:	$ 65,666
Term:	4 years

Borrower:	Thompson Falls
Purpose:	Finance a pumper fire truck
Staff Approval Date	July 29, 2016
Board Loan Amount:	$ 75,000
Other Funding Sources:	$ 0
Total Project Cost:	$ 75,000
Term:	7 years

Borrower:	Culbertson Elementary School District #17
Purpose:	Classroom addition project
Staff Approval Date	August 3, 2016
Board Loan Amount:	$ 1,000,000
Other Funding Sources:	$ 2,500,000
Total Project Cost:	$ 3,500,000
Term:	15 years

Borrower:	Town of Philipsburg
Purpose:	Finance wastewater system improvements
Staff Approval Date	August 9, 2016
Board Loan Amount:	$ 599,288
Other Funding Sources:	$ 1,000
Total Project Cost:	$ 600,288
Term:	15 years

Borrower:	Miles Community College
Purpose:	Construct new Agriculture Advancement Center
Staff Approval Date	August 18, 2016
Board Loan Amount:	$ 480,000
Other Funding Sources:	$ 3,097,556
Total Project Cost:	$ 3,577,556
Term:	15 years

Borrower:	City of Colstrip
Purpose:	Solid waste revenue bond to purchase a garbage truck
Staff Approval Date	August 23, 2016
Board Loan Amount:	$ 100,000
Other Funding Sources:	$ 152,072
Total Project Cost:	$ 252,072
Term:	5 years

Borrower:	Helena College University of Montana
Purpose:	Purchase property within approved acquisition zone
Staff Approval Date	September 14, 2016
Board Loan Amount:	$ 187,500
Other Funding Sources:	$ 0
Total Project Cost:	$ 187,500
Term:	10 years

Borrower:	Lincoln County
Purpose:	Improvements to County Fairgrounds in Eureka
Staff Approval Date	September 26, 2016
Board Loan Amount:	$411,000
Other Funding Sources:	$ 150,000
Total Project Cost:	$561,000
Term:	15 years

Borrower:	City of Red Lodge
Purpose:	Construct a City Park shed to store equipment
Staff Approval Date	September 27, 2016
Board Loan Amount:	$ 40,000
Other Funding Sources:	$ 0
Total Project Cost:	$ 40,000
Term:	6 years

Borrower: **NEW**	Flathead County Water District #101 (Columbia Falls)
Purpose:	Emergency repairs to water system
Staff Approval Date	September 28, 2016
Board Loan Amount:	$ 33,000
Other Funding Sources:	$ 20,000
Total Project Cost:	$ 53,000
Term:	10 years

Montana Board of Investments
Loan Committee
INTERCAP Loan Summary and Approval

Borrower Montana Department of Transportation (MDT)

Date October 17, 2016

Approval Date _____

MDT requests to borrow $3,000,000 to finance vehicle purchases for the State Motor Pool (SMP). The loan will be in the form of a general promise to pay of the MDT with a seven (7) year term. MDT estimates it will begin to draw funds in March 2017. MDT plans to purchase 119 vehicles as summarized in the following table. Nine (9) of the total are additional vehicles requested by state agencies for lease. The remaining 110 vehicles will be replacements to the motor pool fleet.

Quantity	Type	Estimated Cost
60	Mid-Size 4 Door Sedan	$1,287,900
17	Small SUV 4WD	393,883
13	Small Pickup 4WD	355,163
11	Passenger Mini Van	258,922
7	Large Pickup 4WD	203,616
6	Large SUV 4WD	203,064
5	Hybrid Sedan	119,268
Total 119		$ 2,821,816 [1]

[1] Note this is an estimated cost of the vehicles to be purchased. MDT is requesting $3.0 M in the event actual bids are higher than this estimate.

Authorization

17-5-2001 Montana Code Annotated (MCA) (1) An agency responsible for the procurement and provision of vehicles, ...using an enterprise fund or an internal service fund...is authorized to enter into contracts, loan agreements, or other forms of indebtedness payable over a term not to exceed seven (7) years for the purpose of financing the cost of the vehicles and equipment and to pledge to the repayment of the indebtedness the revenue of the enterprise fund or internal service fund if: (a) the term of the indebtedness does not exceed the useful life of the items being financed; and (b) at the time that the indebtedness is incurred, the projected revenue of the fund, based on the fees and charges approved by the legislature and other available fund revenue, will be sufficient to repay the indebtedness over the proposed term and to maintain the operation of the enterprise.

INTERCAP Debt

The MDT has been an INTERCAP borrower since 1997 financing nearly $46 million for SMP vehicles. The Board has authorized loans outstanding not to exceed $10.5 million to the MDT. If approved, this request will raise MDT's current $6.7 million outstanding loan balance to $9.7 million. MDT has four (4) outstanding INTERCAP loans that are current and fully funded.

Repayment

There will be approximately $497,000 annual debt service on the proposed loan. Each biennium the Legislature approves SMP fees charged to agencies that either lease cars or use the daily-use fleet that is available on a first-come, first-served basis. MDT pledges these fees to repay its INTERCAP loans. The user fees include a loan repayment cost based on INTERCAP's average variable interest rate.

Collateral

Due to the large transactions with the MDT and its fleet rotation, these loans do not use titles as security as is typical with vehicle loans. In lieu of placing liens on individual vehicles, the MDT covenants that there are no liens on its entire fleet and they are available for sale to satisfy loan obligations, if necessary. Currently, the SMP fleet collateral book value is $10.2 million, which provides the Board 1.53 collateral coverage in relation to MDT's $6.7 million outstanding INTERCAP debt. If the full amount of the proposed loan is drawn, MDT will still have sufficient collateral coverage of 1.31. This coverage assumes older vehicles are removed and new vehicles purchased with this loan are added to the fleet collateral book value.

Financial Report

	FY16	FY15
Beginning Fund Balance	$ 5,926,000	$ 5,607,000
Revenues	4,192,000	4,443,000
Expenditures	3,896,000	4,124,000
Ending Fund Balance	$ 6,222,000	$ 5,926,000
Net Change in Fund Balance	$ 296,000	$ 319,000
Fund Balance Cash	$ 2,180,000	$ 1,573,000
Fund Balance *Unrestricted*	$ 1,585,000	$ 968,000

COMMENTS:

FY15 Without the $106,000 one-time revenue and ($1,488,000) depreciation expense, the net change in fund balance would have been $1,701,000.

FY16 Without the $229,000 one-time revenue and ($1,398,000) depreciation expense, the net change in fund balance would have been $1,465,000. The decrease in revenue from FY15 was due to SMP reducing their usage fees. SMP lowered the fees to account for a change in how depreciation expense for its Hybrid vehicles was booked. The actual revenue came in very close to projections, while expenses remained relatively flat.

Recommendation

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

Staff Loan Committee - Recommendation

David Ewer, Executive Director _____ Date: 10/26/16

Geri Burton, Deputy Director _____ Date: 10.20.16

Louise Welse, Sr Bond Program Officer _____ Date: 10/18/16

Julie Flynn, Bond Program Officer _____ Date: 10-17-16

Board Loan Committee – November 15, 2016

		Approval	
Jack Prothero, Chairperson – Loan Committee	☐ Yes	☐ No	☐ Abstain
Kathy Bassette, Member	☐ Yes	☐ No	☐ Abstain
Terry Cohea, Member	☐ Yes	☐ No	☐ Abstain

Approval Date: _____

Montana Board of Investments
LOAN COMMITTEE
November 15, 2016
INTERCAP Loan Summary and Approval

Borrower Department of Natural Resources and Conservation

Date October 19, 2016

Approval Date _____

The Department of Natural Resources and Conservation (DNRC) requests a $1.9 million interim loan in anticipation of issuing State of Montana Coal Severance Tax (CST) Bonds for its Renewable Resource Grant and Loan (RRGL) Program. The loan will be in the form of a bond anticipation note (BAN). DNRC will use the BAN proceeds to refinance existing local government debt or to finance costs associated with rehabilitating local government water and sewer facilities as approved by the 2015 legislature in House Bill 8 (HB8). DNRC is requesting a two (2) year term with the intention of drawing the funds beginning December 2016 and issuing the CST Bonds in the summer 2018.

Authorization

Montana Code Annotated (MCA) Sections 17-5-701 through 17-5-719 and 17-5-731 authorizes the issuance and sale of the Coal Severance Tax (CST) Bonds and the BAN in anticipation of the CST Bonds. Statutes of particular interest for authorization follow.

CST Bonds authorization

17-5-702 MCA (1) The legislature intends that projects to be financed by coal severance tax bonds include renewable resource projects as part of the program established in Title 85, chapter 1, part 6.

17-5-706 MCA The board of examiners, upon approval of the legislature as hereinafter provided, shall issue and sell coal severance tax bonds to finance approved renewable resource projects when authorized to do so by any law that sets out the amount and purpose of the issue. Each project must be separately approved as to amount by a two-thirds vote (67%) of each house of the legislature.

Article IX, section 5, of the Montana Constitution: Three-fourths vote (75%) required of each house to pledge the monies necessary for the payment of principal and interest on the coal severance tax bonds.

- ✓ 2015 Legislative Session: HB8 passed by 88% in the Senate and 87% in the House of Representatives authorizing the issuance of $27.5 million in coal severance tax bonds.

17-5-719 MCA: No more than $250 million worth of coal severance tax bonds may be issued for renewable resource development projects and activities.

- ✓ To date, DNRC has issued $244.4 million, leaving $5.6 million bonding authority available.

BAN authorization

17-5-731 MCA (1) When the board of examiners has been authorized by the legislature to issue and sell bonds under this part, it may, pending the issuance of the bonds, issue temporary notes in anticipation of the receipt of proceeds to be derived from the sale of the bonds. (2) Bond anticipation notes...maturing not more than 3 years after the date of issue may be issued from time to time as needed.

INTERCAP Debt

Since 1996, INTERCAP has financed more than $42.2 million on an interim basis for the various loan programs administered by DNRC. Currently, DNRC has $5.1 million outstanding in bond anticipation notes (BANs); final maturity October 2018. Assuming a full draw down of DNRC's $4.7 million remaining commitment and this proposed $1.9 million BAN, DNRC's total INTERCAP outstanding could potentially reach $11.7 million. By program, the potential outstanding breakdown is $5.0 million RRGL, $3.7 million Drinking Water State Revolving Fund, and $3.0 million Water Protection State Revolving Fund. However, historically, DNRC pays down or pays off these notes well before maturity with excess loan repayments or bond issuance. That practice keeps DNRC's running INTERCAP outstanding total at a manageable level.

Recommendation

DNRC can adequately service the debt. Approval recommended with the following conditions:

1. The loan will be in the form of a State of Montana Coal Severance Tax Bond Anticipation Note (BAN).
2. RRGL Program borrowers will have taken all steps necessary for obtaining bond financing before DNRC requests interim funding from INTERCAP.
3. The funding of the INTERCAP loan is subject to a firm takeout by the Board of Examiners. Board staff has on file a copy of the Board of Examiners signed approval.
4. DNRC will not use the BAN proceeds to fund loans in the private person loan portion of the RRGL program.

Staff Loan Committee – Recommendation

David Ewer, Executive Director		Date 10/24/16
Geri Burton, Deputy Director		Date 10-20-16
Louise Welsh, Sr. Bond Program Officer		Date 10/19/16
Julie Flynn, Bond Program Officer		Date 10 19-16

Board Loan Committee – November 15, 2016

	Approval
Jack Prothero, Chairperson – Loan Committee	☐ Yes ☐ No ☐ Abstain
Kathy Bassette, Member	☐ Yes ☐ No ☐ Abstain
Terry Cohea, Member	☐ Yes ☐ No ☐ Abstain

Montana Board of Investments
INTERCAP Loan Summary and Approval

Borrower Board of Regents of Higher Education of the State of Montana (BOR) on behalf of the University of Montana – Missoula (UM)

Date October 19, 2016

Approval Date _____

The Borrower requests $1,100,000 to finance the final portion of the research space on the 3rd floor of the Interdisciplinary Science Building (ISB). The loan will be in the form of a general promise to pay of UM over a five (5) year term based on allowable non-state revenue (see Revenue Pledge section). INTERCAP will be the sole funding source for this project.

At its May 2016 meeting, the Board approved UM's request for $1.35 million to complete a portion of the ISB's 3rd floor. Repayment from that loan was the Facility and Administrative (F&A) cost recoveries primarily from the $8.2 million National Aeronautics and Space Administration (NASA) grant. In June 2016, UM completed that phase and closed on the INTERCAP loan.

This financing is for the final phase of the project that is expected to wrap up December 2016. Once complete, the ISB will be able to fully house the dynamic research being undertaken at UM in the natural sciences. Since 2007, UM has been constructing facilities within the ISB as grant funds have become available to finance research projects sponsored by the National Science Foundation, NASA, and now the National Institute of General Medical Sciences of the National Institutes of Health.

Authorization

20-25-402, MCA (1) In carrying out the powers provided in... 20-25-302, the regents may: (a) borrow money for any purpose or purposes stated in parts 3 and 4 of this chapter... (c) issue bonds, notes,... (d) pledge for the payment of... the principal and interest on bonds, notes, or other securities authorized in this chapter or otherwise obligate: (i) the net income received from rents, board, or both in housing, food service, and other facilities;... (e) make payments on loans or purchases from any other available income not obligated for those purposes, including receipts from sale of materials, equipment, and fixtures of the facilities or from sales of the facilities themselves, other than land;

20-25-302, MCA The regents of the Montana university system may: (6) do all things necessary to plan for and propose financing, including all necessary loan applications, for: (a) classroom, laboratory,...and other instructional facilities; (b) office, recordkeeping, storage, equipment maintenance, and other administrative and operational facilities;

July 14, 2005 – BOR ITEM 128-1004-R0705 authorization to build the ISB, complete 1-1/2 floors, and issue bonds to finance the project passed 5-0. The Governor authorized the project August 18, 2005 per 18-2-102, MCA.

March 5, 2015 – BOR ITEM 166-1001-R0315 authorization to expend up to $1,500,000 to construct the research space on the 3rd floor of the ISB passed 7-0.

March 4, 2016 – BOR ITEM 170-1045-R0316 authorization to expend an additional $1,100,000 to complete final research space on the 3rd floor of the ISB passed 6-0. [Video discussion is available on BOR's meeting website; March 3, 2016 PM beginning at 0:14:19 and the vote on the issue is at March 4, 2016 2:18:20.[1]]

August 4, 2016 – Office of the Commissioner of Higher Education (OCHE) approved the INTERCAP application and repayment source in accordance with the INTERCAP Program Agreement between the Board and BOR dated January 2, 2007 (the "Agreement"), Article II, Section 2.01(a). Note: OCHE approval certifies that it performed

[1] http://www.mus.edu/board/meetings/agendas-and-minutes.asp

sufficient due diligence as to the appropriateness of the Project in the context of the overall plans and policies of BOR and UM, and that the proposed loan complies with existing contracts, statutes, the BOR Indenture, and all legislative directives, mandates, and limitations.

INTERCAP Debt

BOR has been using INTERCAP since 1992 financing just over $48.4 million on behalf of the University of Montana and Montana State University campuses for various projects. Total outstanding to date for all the campuses is $15.8 million with the longest term maturing June 2029. At this time, the universities have $4.0 remaining INTERCAP commitments that if drawn upon would make a potential total outstanding of nearly $19.8 million.

The UM campuses combined have $3.8 million in remaining INTERCAP commitment and $4.2 million principal outstanding. Including this loan request pending approval, UM campuses total potential outstanding will be nearly $9.1 million, or 9.3% of the total INTERCAP Bonds outstanding, which falls below the Board's 19% cap.

Revenue Pledge

There will be ~$245,000 annual debt service on the proposed loan. The UM Center for Biomolecular Structure and Dynamics (CBSD) was selected for a five-year, $10.6 million grant through the National Institute of General Medical Sciences (NIGMS) Institutional Development Award (IDeA) program. The Institute's Center of Biomolecular Research Excellence (CoBRE) grant will facilitate the development of biophysical, structural and mathematical approaches in understanding health and disease. Further information regarding the CoBRE and IDeA Networks is available at: https://www.nigms.nih.gov/Research/CRCB/IDeA/Pages/default.aspx.

Repayment will come from UM's surplus net revenue pledge of the Facility and Administrative (F&A) cost recoveries primarily from the $10.6 million NIGMS grant, which is projected to provide ~$630,000 annually over the grant's five-year period.

F&A are non-state revenue available to UM to pay debt service and are otherwise known as indirect cost recovery (ICR/IDC) payments. These are a negotiated percent of federal grant awards that the U.S. Office of Budget & Management (OMB) Circular No. A-21 allows UM to expend in areas (including debt service) not directly related to individual grant projects, but in furtherance of the overall campus research effort. The five-year history in the table below reflects F&A revenue as a reliable source of debt repayment for UM.

Historical Federal Indirect Cost Recoveries [Facility & Administrative Costs (F&A)]					
	2012	**2013**	**2014**	**2015**	**2016**
Total Grants and Contracts (excluding Student Aid)	61,543,835	59,306,532	58,272,583	64,572,795	78,536,904
Federal Grants and Contracts (excluding Student Aid)	52,225,414	50,189,935	47,078,129	51,542,806	61,836,138
% Federal of Total	85%	85%	81%	80%	79%
Facilities & Administrative (F&A) Revenue (excluding Student Aid)	8,541,585	8,475,422	7,869,208	8,411,416	10,290,923
Estimated F&A Revenue Available Derived From Federal Contracts	7,972,792	7,816,372	7,816,372	7,907,256	9,815,464

To the extent the pledged resource is insufficient, UM will, as authorized by and according to applicable provisions and limitations of law, budget and appropriate any allowable non-state revenue sufficient to pay the

principal of and interest on the loans when due. The Financial Report below demonstrates UM can adequately service the debt.

Financial Report

UM-Missoula overall	FY16	FY15
Net Assets, beginning of year	$ 141,167,540	$ 178,364,704
Fund Balance Capital Asset Gain/(Loss)	(98,060)	77,850
Revenues	409,481,003	399,234,412
Expenditures	388,423,125	385,826,049
GASB 68 Pension Adjustment	(8,470,520)	(50,683,377)
Net Assets, end of year	$ 153,656,838	$ 141,167,540
Net Change in Fund Balance	$ 21,057,878	$ 13,408,363
Non-State Revenue	$ 337,600,115	$ 331,034,663
Fund Balance Cash	$ 18,210,469	$ 19,907,751
Fund Balance Unrestricted	$ 103,211,934	$ 99,970,049

COMMENTS

The implementation of Statement No. 68 Accounting and Financial Reporting for Pensions issued by the Governmental Accounting Standards Board (GASB 68) in June 2012 is reflected in both years above. The Net Change in Fund Balance shown above does not factor in the fund balance capital asset adjustments or the GASB 68 Pension Adjustment.

Recommendation

UM has provided a copy of the NIGMS grant with the terms and conditions showing the award has sufficient indirect cost recovery (F&A) allowances on an annual basis to support the debt service, along with a Memorandum of Understanding from the University Vice President for Research committing sufficient F&A revenue to repayment of the loan.

The UM has the resources to service this proposed debt. Approval recommended with the following condition:

Staff Loan Committee

David Ewer, Executive Director _____ Recommended 10/24/16

Geri Burton, Deputy Director _____ Recommended 10-20-16

Louise Welsh, Sr. Bond Program Officer _____ Recommended 10/17/16

Julie Flynn, Bond Program Officer _____ Recommended 10-19-16

Board Loan Committee – November 15, 2016

Jack Prothero, Chairperson – Loan Committee ☐ Yes ☐ No ☐ Abstain

Kathy Bassette, Member ☐ Yes ☐ No ☐ Abstain

Terry Cohea, Member ☐ Yes ☐ No ☐ Abstain

Approved _____

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
(406) 444-0001

To: Members of the Board

From: Louise Welsh, Senior Bond Program Officer

Date: November 15, 2016

Subject: INTERCAP Series 2017 Bonds – Final Bond Resolution No. 236

At the November 17, 2015 meeting, the Board approved a preliminary resolution authorizing staff to proceed with the issuance of approximately $10 million in additional bonds for the INTERCAP Program with the final amount to be determined based on program demand and to borrow from the Board as may be required to meet the needs of the Program prior to the issuance of bonds. In tune with the partial redemption plan for Series 98, the Program's historical fundings and repayments, and a sizeable borrower financing anticipated in the spring 2017, staff is requesting authorization to issue up to $20 million on March 1, 2017.

Bond Authority

With the exception of refundings or issues to purchase tax or revenue anticipation notes, the Board may not have more than $190 million of its bonds issued and outstanding under the Municipal Finance Consolidation Act of 1983, Title 17, Chapter 5, Part 16, Montana Code Annotated. As shown below, the Board will remain within the statutory limit.

$105 million Bonds Outstanding*
20 million New Series 2017 Bond Issue
$125 million

*Rounding to the nearest million, the total includes $97 million INTERCAP Bonds (less approximately $7 million partial redemption of Series 1998 in 2017), $9 million Qualified Zone Academy Bonds (QZAB), and $6 million Qualified School Construction Bonds (QSCB). Only the INTERCAP Bonds are credit enhanced by the Board.

The purpose of the attached Resolution No. 236 is

- ✓ to serve as the Board's authorization to bondholders that the INTERCAP Series 2017 Bonds have been approved and are on parity with all other outstanding INTERCAP bonds.
- ✓ to acknowledge the Board resources used or to be used to fund loans to eligible Montana government units in the interim of its INTERCAP Program receiving bond proceeds. [Over $5.3 million funded as of the end of October.]
- ✓ to approve the Series 2017 Supplemental Indenture.

- ✓ to pledge INTERCAP Series 2017 Bonds' reserve account enhanced with a promise for the Board to loan monies to restore any deficiency in the reserve account and to purchase tendered bonds that have not been redeemed by the trustee or remarketed by the remarketing agent.

- ✓ to authorize staff to approve and execute the necessary documents to accomplish the sale.

Recommendation:

Staff recommends that the Board:

1. Authorize staff to take steps as deemed necessary to issue up to $20 million in INTERCAP bonds for a term of 25 years.

2. Authorize staff to use the Bond proceeds to purchase those loans temporarily funded by the Board.

3. Adopt the final bond resolution.

CERTIFICATE AS TO RESOLUTION AND ADOPTING VOTE

I, the undersigned, being the duly qualified and acting recording officer of the Board of Investments of the State of Montana (the "Board"), hereby certify that the attached resolution is a true copy of Resolution No. 236 entitled: "RESOLUTION OF THE BOARD OF INVESTMENTS OF THE STATE OF MONTANA RELATING TO ITS ANNUAL ADJUSTABLE RATE TENDER OPTION MUNICIPAL FINANCE CONSOLIDATION ACT BONDS (INTERCAP REVOLVING PROGRAM), SERIES 2017, AUTHORIZING ISSUANCE AND SALE OF THE SERIES 2017 BONDS, AUTHORIZING AND APPROVING THE LOAN TO RESERVE ACCOUNT H, AUTHORIZING AND APPROVING THE PURCHASE OF TENDERED SERIES 2017 BONDS, AUTHORIZING THE APPROVAL OF FORMS OF DOCUMENTATION, MAKING CERTAIN FINDINGS AND DETERMINATIONS REGARDING THE SERIES 2017 BONDS AND PROJECTS TO BE FINANCED OR REFINANCED THEREBY AND AUTHORIZING THE SALE OF THE SERIES 2017 BONDS TO PIPER JAFFRAY & CO. AND D.A. DAVIDSON & CO." (the "Resolution"), on file in the original records of the Board in my legal custody; that the Resolution was duly adopted by the Board at a regular meeting on November 15, 2016, and that the meeting was duly held by the Board and was attended throughout by a quorum, pursuant to call and notice of such meeting given as required by law; and that the Resolution has not as of the date hereof been amended or repealed.

I further certify that, upon vote being taken on the Resolution at said meeting, the following members voted in favor thereof: _____

_____

_____; voted against the same: _____; abstained from voting thereon: _____; or were absent: _____.

WITNESS my hand and seal officially this __ day of November, 2016.

(SEAL)

_____
David Ewer
Executive Director

RESOLUTION NO. 236

RESOLUTION OF THE BOARD OF INVESTMENTS OF THE STATE OF MONTANA RELATING TO ITS ANNUAL ADJUSTABLE RATE TENDER OPTION MUNICIPAL FINANCE CONSOLIDATION ACT BONDS (INTERCAP REVOLVING PROGRAM), SERIES 2017, AUTHORIZING ISSUANCE AND SALE OF THE SERIES 2017 BONDS, AUTHORIZING AND APPROVING THE LOAN TO RESERVE ACCOUNT H, AUTHORIZING AND APPROVING THE PURCHASE OF TENDERED SERIES 2017 BONDS, AUTHORIZING THE APPROVAL OF FORMS OF DOCUMENTATION, MAKING CERTAIN FINDINGS AND DETERMINATIONS REGARDING THE SERIES 2017 BONDS AND PROJECTS TO BE FINANCED OR REFINANCED THEREBY AND AUTHORIZING THE SALE OF THE SERIES 2017 BONDS TO PIPER JAFFRAY & CO. AND D.A. DAVIDSON & CO.

BE IT RESOLVED by the Board of Investments of the State of Montana (the "Board"), as follows:

Section 1. Recitals.

1.01. General Authority. The Board is authorized by the Municipal Finance Consolidation Act, Title 17, Chapter 5, Part 16, Montana Code Annotated (the "Act"), to issue notes and bonds to finance loans or refinance its loans to Montana governmental units and its purchases of their bonds and notes, to establish or replenish revenue securing the payments of its bonds and notes, and to finance all other expenditures of the Board incident to and necessary or convenient to carry out the provisions of the Act. Bonds so issued may be secured by a trust indenture and by a reserve fund to which the Board may agree to advance monies to restore reserve fund deficiencies. The Board is further authorized to issue temporary notes in anticipation of the sale of its securities. The Board is also authorized by Section 17-6-201, M.C.A., to invest funds in its control in bonds issued by the Board. Any bonds so issued shall not constitute a liability or obligation of or a pledge of the full faith and credit of the State of Montana (the "State") but are payable solely from the revenues or funds of the Board generated or received by purposes of the Act. Local Government Units are authorized by various provisions of the Montana Code Annotated (the "Borrowers Acts") to issue bonds, notes or other obligations for the purpose of financing or refinancing the acquisition and installation of equipment, personal and real property improvements or provide temporary financing of projects or for other authorized purposes and State Entities are authorized to borrow funds through State legislation or the appropriation process.

1.02. Proposed Financing and Refinancing. The following financing and refinancing has been proposed to be undertaken by the Board pursuant to the Act: (a) the Board would issue its Annual Adjustable Rate Tender Option Municipal Finance Consolidation Act Bonds (INTERCAP Revolving Program) Series 2017 (the "Series 2017 Bonds") in an aggregate principal amount not to exceed $20,000,000, pursuant to the Indenture of Trust dated as of

March 1, 1991, as amended and supplemented (the "Indenture"), and a Series Supplemental Indenture to be dated as of March 1, 2017 (the "Supplemental Indenture"), both between the Board and U.S. Bank National Association (successor by merger to First Trust Company of Montana National Association), as Trustee (the "Trustee"), and on a parity with the Board's Annual Adjustable Rate Tender Option Municipal Finance Consolidation Act Bonds (INTERCAP Revolving Program) Series 1998, Series 2000, Series 2003, Series 2004, Series 2007, Series 2010, and Series 2013 (collectively, the "Outstanding Bonds"); (b) the Series 2017 Bonds will be sold to Piper Jaffray & Co. and D.A. Davidson & Co. (the "Underwriters"), pursuant to the terms of a Bond Purchase Agreement (the "Bond Purchase Agreement"); (c) pursuant to the Program, the Board makes Loans to eligible Local Governmental Units and State Entities (the "Borrowers") and which Loans are evidenced by the execution and delivery of a loan agreement, an installment purchase contract, or as may otherwise be required (the "Contract"), and a note or bond (the "Note") for the purpose of financing or refinancing the cost of acquiring and installing equipment, personal and real property improvements or to provide temporary financing of projects or for other authorized purposes; (d) the proceeds realized from the sale of the Series 2017 Bonds would be applied by the Board to pay and redeem the Board of Investments of the State of Montana Bond Anticipation Notes (INTERCAP Revolving Program), Taxable Series 2016, in the principal amount of up to $8,500,000 (the "Bond Anticipation Notes"), the proceeds of which were applied to make a Loan under the Program to finance the costs of an eligible Borrower Project, to make loans (the "Loans") to Borrowers, to pay costs of issuance, to provide funds to pay interest on the Series 2017 Bonds, if necessary, to reimburse Reserve Fund G, if appropriate, and to fund a deposit to Reserve Account H; (e) proceeds of the Series 2017 Bonds not immediately loaned to Borrowers shall be invested at the maximum rate of interest permissible under the Internal Revenue Code of 1986, as amended (the "Code"), to the extent available for permitted investments; (f) each of the Contracts and Notes would be issued pursuant to and secured by a resolution of the Borrower or an act of the Montana Legislature (the "Contract Resolution") and would constitute a valid and binding obligation of the Borrower; (g) Loan repayments not required to pay principal of and interest on Outstanding Bonds as specified in the Indenture will be used to make additional Loans to Borrowers; (h) pursuant to Resolution Number 68 of the Board (the "Reserve Fund Resolution") the Board has established the municipal finance consolidation act reserve fund (the "Reserve Fund") and authorized the creation of accounts therein to secure bonds and notes issued by the Board, including the Series 2017 Bonds; (i) pursuant to the Indenture various funds and accounts have been established, including Reserve Account H as an account within the Reserve Fund, and a Reserve Account H Reserve Requirement has been established at seven and one-half percent (7.5%) of the aggregate original principal amount of all series of Bonds of which any Bonds are outstanding; (j) upon issuance of the Series 2017 Bonds proceeds thereof will be deposited in Reserve Account H to satisfy the Reserve Requirement; (k) pursuant to the Indenture the Board would agree to loan amounts sufficient to restore deficiencies in the Reserve Account H as provided and defined in the Indenture, which loan would be repaid from revenues in the Bond Fund under the Indenture; (l) pursuant to the Indenture and Supplemental Indenture, the Board would agree to purchase the Series 2017 Bonds tendered by Bondholders or Beneficial Owners in accordance with the provisions of the Indenture and Supplemental Indenture; (m) pursuant to the Indenture and Supplemental Indenture, the Series 2017 Bonds would be limited obligations of the Board payable on a parity with other Outstanding Bonds, solely from and secured by the Revenues (as therein defined), including repayments of principal and interest on the Loans,

investment income, monies in the various funds and accounts under the Indenture and proceeds of the loan from the Board, if necessary; (n) the Series 2017 Bonds will be offered and sold by the Underwriters pursuant to an Official Statement (the "Official Statement"); and (o) the Series 2017 Bonds tendered for purchase in accordance with the Indenture and Supplemental Indenture shall be remarketed by Piper Jaffray & Co. and D.A. Davidson & Co., as Remarketing Agent under a Remarketing Agreement to be entered into between the Board and the Remarketing Agent (the "Remarketing Agreement").

1.03. Other Funds Used to Make Loans to Borrowers. The Board authorizes the Deputy Director and the Bond Program Officers to use, to the extent necessary or appropriate, certain funds of the Board ("Reserve Fund G") on an interim basis to provide Loans to Borrowers pending the issuance of the Series 2017 Bonds. Proceeds of the Series 2017 Bonds used to acquire Loans made from the Bond Anticipation Notes or from Reserve Fund G will be deposited in the Bond Anticipation Note Account to pay and redeem the Bond Anticipation Notes or in Reserve Fund G to reimburse such account, respectively, and such Loans will thereafter be attributed to the Series 2017 Bonds.

1.04. Other Documents. The Executive Director or Deputy Director and Senior Bond Program Officer are authorized to approve the following documents in consultation with and upon recommendation of the Board's general counsel and bond counsel:

(A) the Supplemental Indenture;
(B) the Bond Purchase Agreement;
(C) the Remarketing Agreement;
(D) a Preliminary Official Statement (the "Preliminary Official Statement"); and
(E) the Agreement Concerning Continuing Disclosure between the Board and the Trustee (the "Continuing Disclosure Agreement").

Section 2. Findings and Determinations. The Board hereby finds, determines and declares, as follows:

(A) The Board is authorized by the Act to issue and sell the Series 2017 Bonds to pay and redeem the Bond Anticipation Notes, to finance Loans to Borrowers from the proceeds thereof, to reimburse, if appropriate, Reserve Fund G, to repay the Advances and to enter into, execute and perform its obligations under the Indenture, the Supplemental Indenture, the Bond Purchase Agreement, the Contracts, the Remarketing Agreement and the Continuing Disclosure Agreement.

(B) The issuance and sale of the Series 2017 Bonds, the redemption of the Bond Anticipation Notes, the purchase of Notes of Borrowers from the proceeds thereof, and, if appropriate, the reimbursement of Reserve Fund G will further the purpose and policies of the Act by obtaining economies of scale and providing additional security for indebtedness of the Borrowers, thereby reducing their marketing, financing and interest costs.

Section 3. Loan to Reserve Account H and Purchase of Tendered Series 2017 Bonds.

3.01. Reserve Account H. To further secure the Series 2017 Bonds and assure their marketability on terms most favorable to the Board, thereby reducing the costs to be paid on the Loans by Borrowers, the Board has determined to exercise its authority under the Act and agree to loan funds to the Reserve Account H created pursuant to Resolution No. 68 and the Indenture in an amount equal to the deficiency, if any, therein, all as set forth in Section 6.09 of the Indenture.

3.02. Tendered Series 2017 Bonds. To further reduce the interest costs to be paid on the Loans by Borrowers, the Board has determined to issue the Series 2017 Bonds as variable rate obligations, the interest rate of which will be annually adjusted in accordance with the terms of the Indenture. To provide the liquidity necessary for the variable rate financing, the Board has agreed to purchase any Series 2017 Bonds that are tendered for purchase and that cannot be remarketed at the adjusted interest rate, at a rate not to exceed 15% per annum for a fee equal to 0.25% of the principal amount of the Series 2017 Bonds so purchased, all as provided and set forth in Section 6.10 of the Indenture.

3.03. Ratification of Obligations and Source for Satisfaction of Obligations. The Board agrees to make loans to the Reserve Account H as described in Section 3.01 of this Resolution and agrees to purchase the Series 2017 Bonds as described in Section 3.02 hereof, all as described more particularly in the Indenture. Counsel to and staff of the Board have reviewed the Indenture and the form of the Supplemental Indenture and have assessed the risks to the Board in executing the Supplemental Indenture and have informed the Board of such risks. The Board recognizes that pursuant to the Indenture it may be obligated to make a loan to Reserve Account H in the event that: (a) a Borrower defaults on the payment of principal and interest on its Loan, (b) the Board does not make loans in the amounts anticipated, or (c) the investments of the funds under the Indenture do not generate anticipated revenues. The Board further recognizes that in the event the interest rate on tax-exempt bonds exceeds 15% per annum, it may be required to purchase the Series 2017 Bonds. The Board further represents that in the event it is required to purchase the Series 2017 Bonds or make a loan to Reserve Account H as described in this section, it would utilize money on hand in the Treasurer's Fund and the Coal Severance Tax Trust Fund and, to the extent necessary, other legally available funds, to honor its obligations.

Section 4. Document Approval and Authorization. The final approval of the Supplemental Indenture, Bond Purchase Agreement, Continuing Disclosure Agreement, Remarketing Agreement and Preliminary Official Statement referenced in Section 1.04 by the Executive Director or Deputy Director and the Senior Bond Program Officer shall constitute approval by this Board, which approval shall be conclusively evidenced by the execution of the documents by the Executive Director or his designee. The Chairman, Executive Director, Deputy Director or Senior Bond Program Officer, or any one or more of them, are hereby authorized to execute and deliver the Supplemental Indenture, Bond Purchase Agreement, Continuing Disclosure Agreement, Remarketing Agreement and Official Statement, and to deem the Preliminary Official Statement final under applicable federal securities laws, on behalf of the Board, and to authorize the Underwriters to distribute the same. The Chairman, Executive

Director, Deputy Director and Senior Bond Program Officer, or any one or more of them, are further authorized to execute and deliver such other agreements, instruments, or certificates as are necessary or appropriate in connection with the Series 2017 Bonds.

Section 5. The Series 2017 Bonds.

5.01. Bonds. The Series 2017 Bonds, in the aggregate principal amount not to exceed $20,000,000, are hereby authorized to be issued, sold and secured pursuant to and as provided for in the Indenture, the Supplemental Indenture, the Reserve Fund Resolution and this resolution. The Series 2017 Bonds shall be dated, as originally issued, as of March 1, 2017 and shall mature on or about March 1, 2042, all as provided in the Supplemental Indenture. The Series 2017 Bonds shall bear interest at the initial rate of interest and yield to be agreed upon by the Executive Director, Deputy Director, Senior Bond Program Officer and the Underwriters as of the day of sale, which rate and yield shall not exceed 3.50% per annum and which rate shall be adjusted annually as provided in the Indenture and shall be in the form and contain such other terms and provisions as provided for in the Indenture and Supplemental Indenture. The purchase price of the Series 2017 Bonds shall not be less than 99.00% of the principal amount thereof.

5.02. Execution and Delivery. The Chairman, Executive Director, Deputy Director, and/or Senior Bond Program Officer shall execute the Series 2017 Bonds pursuant to the Indenture and cause them to be delivered by the Trustee to the original purchasers designated herein in exchange for the purchase price thereof. The Chairman, Executive Director, or Deputy Director is also authorized to execute such other agreements, instruments, and certificates as are necessary or appropriate to the issuance and delivery of the Series 2017 Bonds and the other documents described herein.

PASSED AND APPROVED by the Board of Investments of the State of Montana this 15th day of November, 2016.

_____
Chairman

Attest:

_____
Executive Director

Montana Board of Investments

Investment Performance Analysis

Period Ended: September 30, 2016

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Executive Summary

Economic and Capital Market Review

Returns for the 3rd quarter were positive across all asset classes in which the MBOI Retirement Plans are invested. U.S. and international equities provided the strongest returns, as the S&P 1500 Index returned 3.98% and the MSCI ACW ex-US Index returned 6.91%. Real estate and private equity provided solid returns of 2.10% and 2.38%, respectively. Finally, fixed income provided a slightly positive return, as the Bloomberg Aggregate Bond Index returned 0.46% for the quarter. Several of the key drivers of 3rd quarter performance are outlined in **Figure 1**.

Figure 1: Drivers of 3rd Quarter Asset Class Performance

Positive Drivers	Negative Drivers
1. **Continued Accommodative U.S. Monetary Policy** – The Federal Reserve continued to delay a long anticipated increase in short-term interest rates, as concerns about wage growth and inflation were less significant than concerns about fragile U.S. economic growth and global central bank policy coordination. All else being equal, an accommodative Fed provided a tailwind to both fixed income and equities in the third quarter. However, due to recent strength in employment markets coupled with a strong 1st read on Q3 GDP growth, it is looking increasingly likely that a Fed rate hike will be enacted in December 2016 or early in 2017. 2. **Stabilizing Energy Markets** – Oil prices stabilized in a range of $40-$50 per barrel during the quarter. Aggressive production by OPEC countries and Russia was offset by production disruptions and increasing global demand. Prices were further buoyed by an OPEC agreement in late September to reduce output. Throughout October prices receded a bit due to doubts about the ability of OPEC countries to follow through on the commitment. 3. **Rebound in Emerging Markets Equity** – Emerging markets continued to rebound in the 3rd quarter, with the MSCI Emerging Markets Index returning 9.03%. Providing support for emerging markets were stabilization of energy markets, a general rally in commodity prices for the calendar year, and some stabilization in key markets, such as Brazil.	1. **U.S. Election Uncertainty** – Markets have weakened through the end of September and into October and November as a tightening and particularly divisive election cycle approaches its conclusion. Regardless of the outcome, it is likely that markets will remain weak and potentially volatile, as buyers retreat in an environment of increased uncertainty.

Figure 2: Key Market Index Returns

Period Ending September 30, 2016

Index	Asset Class	Q3	CYTD	1 Year	5 Year	10 Year
S&P 500 (Cap Wtd)	U.S. Large Cap Equity	**3.85**	**7.84**	**15.43**	**16.37**	**7.24**
Russell 2000	U.S. Small Cap Equity	**9.05**	**11.46**	**15.47**	**15.82**	**7.07**
MSCI EAFE (Net)	Int'l Developed Markets	**6.43**	**1.73**	**6.52**	**7.39**	**1.82**
MSCI Emerging Markets (Net)	Int'l Emerging Markets	**9.03**	**16.02**	**16.78**	**3.03**	**3.94**
Bloomberg US Agg Bond	U.S. Fixed Income	**0.46**	**5.80**	**5.19**	**3.08**	**4.79**
NCREIF ODCE (Gross)	Private Real Estate	**2.05**	**6.50**	**10.06**	**12.39**	**6.02**
Bloomberg Commodity	Commodities	**-3.86**	**8.85**	**-2.59**	**-9.37**	**-5.33**

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 September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years
Total Fund Composite (Net)	**3.24**	**6.18**	**9.49**	**7.25**	**10.25**	**9.22**	**5.77**
Public Employees Benchmark	3.25	7.67	10.50	7.98	10.75	9.81	6.06
Difference	*-0.01*	*-1.49*	*-1.01*	*-0.73*	*-0.50*	*-0.59*	*-0.29*
Rank	**72**	**63**	**40**	**1**	**3**	**1**	**9**

[1] Fiscal year to date covers the trailing period beginning July 1, 2016.

RVK Commentary

- **Strong Absolute Returns** – The third quarter provided a solid return of 3.24% net of fees. Returns were positive across all asset classes, but the strongest returns were derived from the domestic and international equity portfolios. Private equity continued to lag public markets, which is consistent with past trends during strong bull markets.

- **Continued Strength of Peer Rankings** – MBOI rankings versus peers remain extremely strong across all trailing periods beyond one year. The plans continue to rank in the top decile over all annualized periods beyond three years. In addition, on a risk-adjusted basis, the plans continue to perform exceptionally, providing higher return than peers with less risk over a ten-year period. A graphic demonstrating this relationship can be found on page 8 and 9 of the Performance Report.

- **Strong Relative Returns for Asset Class Composites –** The asset class composites performed relatively well in comparison to their respective benchmarks for the quarter. The domestic equity pool, which lagged its benchmark substantially over the past year, posted a modest recovery and outperformed by 12 basis points. The Retirement Funds Bond Pool, Trust Funds Investment Pool, Real Estate Investment Pool, and Short Term Investment Pool outperformed their respective indices for the quarter. The only exceptions to this trend were the International Equity Pool and Private Equity Pool, which trailed by 32 basis points and 122 basis points, respectively.

- **Private Equity Relative Performance Lag** – Private equity once again lagged the S&P 1500 + 4% for the quarter. Although there was a short respite from the performance lag when public equity markets turned negative earlier in the year, the trend of lagging performance returned once the equity bull market reignited in the third quarter.

MBOI Performance Highlights: Asset Class Composites

The performance of the major asset class composites within the MBOI portfolio are summarized on **pages 11-13** of the quarterly performance report. A high level commentary on each asset class is also provided below. Unless stated otherwise, all returns are reported on a net of fees basis.

- **Montana Domestic Equity Pool** – The MBOI Domestic Equity Pool returned 4.10% for the quarter, exceeding the S&P 1500 Comp Index by 12 basis points. Relative to peers, the pool ranked in the 67th percentile for the quarter. Supporting the observation that active U.S. equity managers have struggled over the past year, the pool ranked roughly at median over the trailing year despite trailing its benchmark by 159 basis points. Over longer time periods, the pool has performed well, ranking above median in all trailing periods of three years and beyond.

- **Montana International Equity Pool** – The MBOI International Equity Pool returned 6.73% for the quarter, underperforming the International Equity Custom Benchmark by 32 basis points. Relative to peers, the pool ranked in the 47th percentile for the quarter. Over the past 3-, 5- and 7-year periods, the international equity pool is now exceeding its benchmark. While peer rankings continue to lag, the pool has shown modest improvement over the past three years.

- **Retirement Funds Bond Pool**—The Retirement Funds Bond Pool returned 0.87% for the quarter, exceeding the Bloomberg US Aggregate Bond Fund by 41 basis points. In addition to the past quarter, the pool continues to perform well relative to the index and peers over virtually all trailing periods.

- **Trust Funds Investment Pool**—The fixed income portion of the Trust Funds Investment Pool largely mirrored the Retirement Funds Bond Pool. However, absolute and relative returns were slightly higher over the past year due to the presence of real estate in the portfolio.

- **Real Estate Pool**—The Real Estate Pool, which is benchmarked on a lagged basis, returned 2.10% for the quarter, exceeding the NCREIF ODCE Index by 19 basis points. Relative to peers, the pool ranked in the 64th percentile. Over the longer term, the real estate pool continues to lag the index for reasons that involve timing of entry into the asset class, as well as material differences between benchmark and portfolio holdings. Nevertheless, performance of the real estate portfolio continues to strengthen relative to both peers and benchmarks.

- **Short Term Investment Pool**—The Short Term Investment Pool outperformed for the quarter relative to the 1-Month Libor Index and the iMoneynet Money Fund Median[1]. The absolute return of the pool over the past year was only 51 basis points; however, this is due to extremely low interest rates on the short end of the yield curve.

- **Private Equity Pool**—The Private Equity Pool returned 2.38% for the quarter, which underperformed the S&P 1500 + 4% (one quarter lagged) by 122 basis points. Private equity continues to provide valuable diversification and return enhancement for the MBOI pension plans. Over 10 years, the portfolio has returned 9.13% net of fees, which exceeds the return of all other asset classes in the portfolio. While the pool lagged its index substantially in recent years, this performance is expected due to the magnitude and duration of the public equity bull market.

Overall, the MBOI portfolio continues to perform well. Absolute and relative returns were supported by decisions made by the Board over the past 10 years. More recently, the heavy allocation to U.S. equity and reorganization of the active management strategy in the equity pools have been supportive of returns. While the portfolio remains a constantly evolving process, the past decisions of the Board continue to bear fruit.

[1] The iMoneynet Money Fund Median is reported on a gross of fees basis.

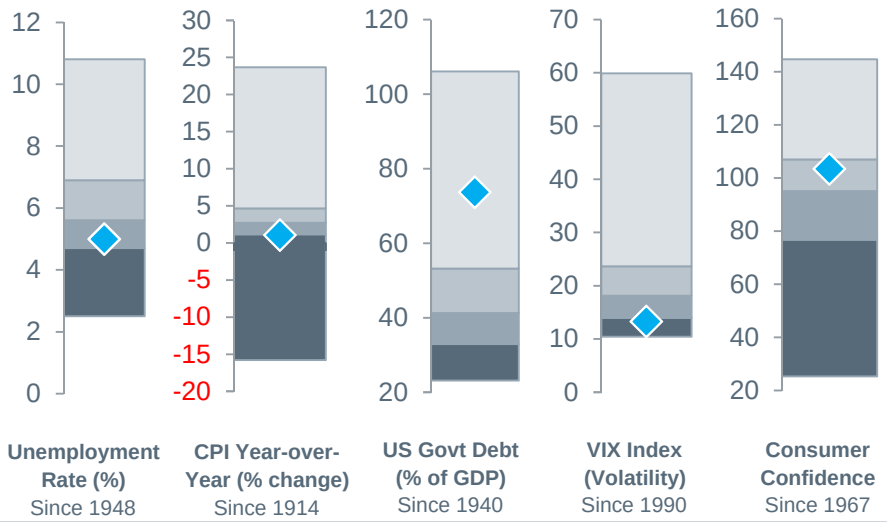
Capital Markets Review

Third Quarter Economic Environment

Key Economic Indicators

The third quarter of 2016 was generally positive for risk assets. Global equity and credit markets rallied, with both developed and emerging markets adding to gains realized earlier in the year. July was a particularly strong month for equities as volatility sparked by the UK referendum vote in June subsided. Government bond returns were mainly flat during the third quarter, though long duration assets in the US underperformed other global developed markets as the market began to price in a Federal Reserve interest rate hike. Commodity returns were mixed during the quarter, with energy and agricultural commodities giving back prior gains while precious metals performed well.

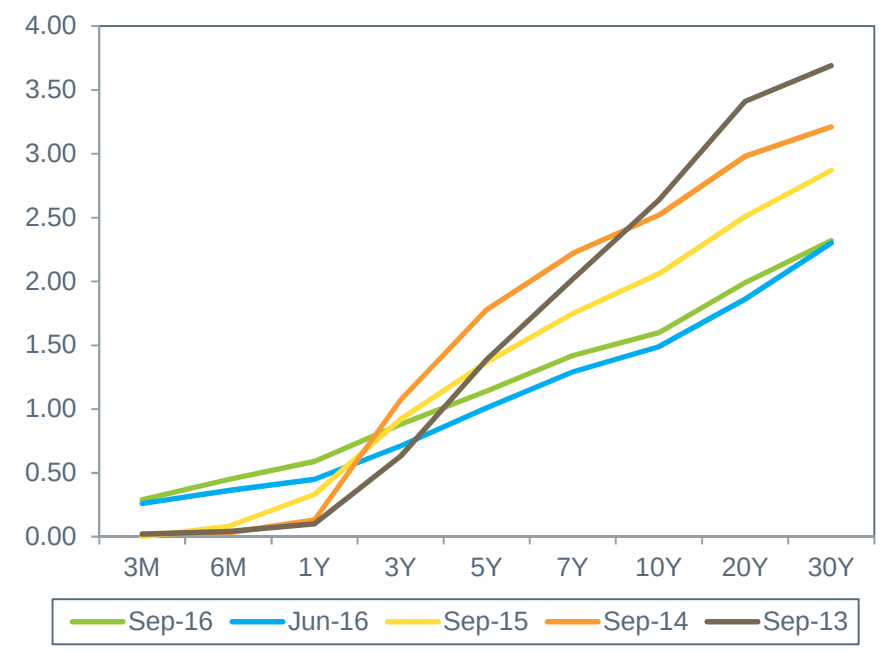
Key Economic Indicators



Economic Indicators	Sep-16		Jun-16	Sep-15	Sep-13	20 Yr
Federal Funds Rate (%)	0.29	▼	0.30	0.07	0.06	2.41
Breakeven Infl. - 1 Yr (%)	0.95	▼	1.17	-1.75	0.41	N/A
Breakeven Infl. - 10 Yr (%)	1.61	▲	1.44	1.43	2.19	N/A
CPI YoY (Headline) (%)	1.5	▲	1.0	0.0	1.2	2.2
Unemployment Rate (%)	5.0	▲	4.9	5.1	7.3	6.0
Real GDP YoY (%)	1.5	▲	1.3	2.2	1.7	2.4
PMI - Manufacturing	51.50	▼	53.20	50.00	55.40	52.18
USD Total Wtd Idx	90.01	▼	90.65	92.10	75.20	86.79
WTI Crude Oil per Barrel ($)	48.2	▼	48.3	45.1	102.3	55.7
Gold Spot per Oz ($)	1,315.8	▼	1,322.2	1,115.1	1,328.9	773.8

Market Performance (%)	QTD	CYTD	1 Yr	5 Yr	10 Yr
S&P 500 (Cap Wtd)	3.85	7.84	15.43	16.37	7.24
Russell 2000	9.05	11.46	15.47	15.82	7.07
MSCI EAFE (Net)	6.43	1.73	6.52	7.39	1.82
MSCI EAFE SC (Net)	8.64	5.19	12.33	11.07	4.39
MSCI Emg Mkts (Net)	9.03	16.02	16.78	3.03	3.94
Bloomberg US Agg Bond	0.46	5.80	5.19	3.08	4.79
BofA ML 3 Mo US T-Bill	0.10	0.24	0.27	0.10	0.92
NCREIF ODCE (Gross)	2.05	6.50	10.06	12.39	6.02
Wilshire US REIT	-1.21	9.75	17.94	15.82	5.93
HFRI FOF Comp	2.39	-0.25	0.47	3.16	1.77
Bloomberg Cmdty (TR)	-3.86	8.85	-2.59	-9.37	-5.33

Treasury Yield Curve (%)



Treasury data courtesy of the US Department of the Treasury. Economic data courtesy of Bloomberg Professional Service.
Breakeven Inflation does not have 20 years of history; therefore, its 20-year average is shown as N/A.

RVK

Third Quarter Review

Broad Market

US equity markets finished the quarter with positive returns as the Russell 3000 Index returned 4.4%. Returns were positive across all market capitalizations and styles.

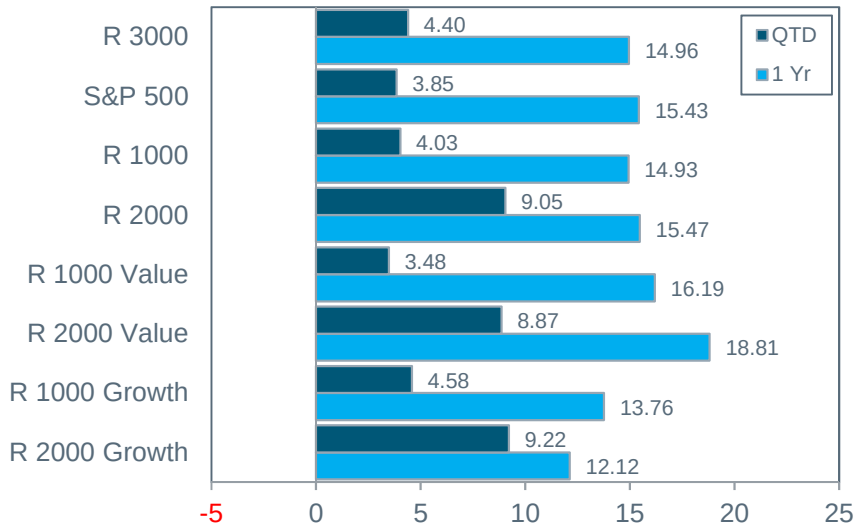
Market Cap

The Russell Micro Cap Index returned 11.2%, which established micro-cap as the best performing cap range. Smaller-cap indices have also performed well year-to-date, led by the Russell 2000 Value index, which has returned 15.5% in 2016.

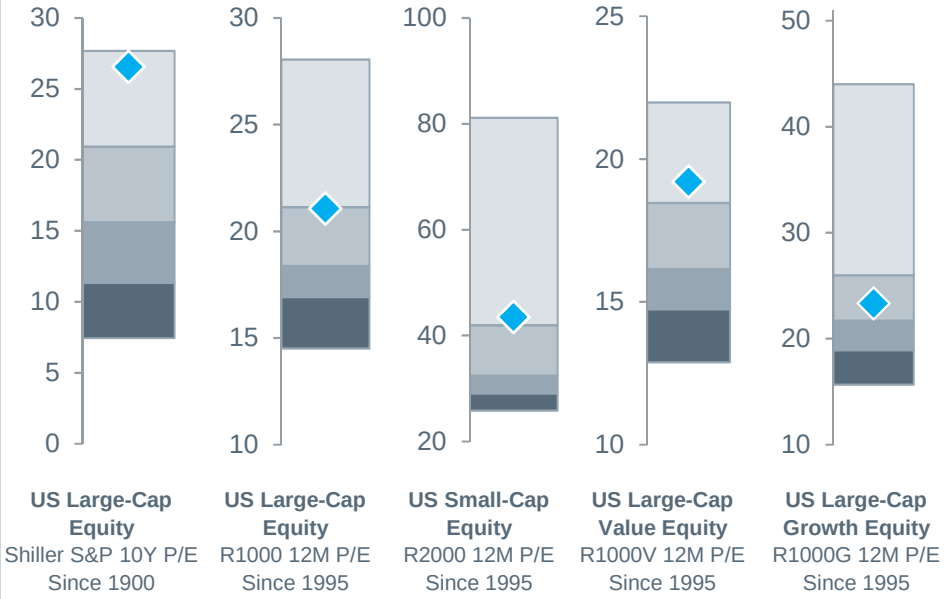
Style and Sector

In an environment of muted volatility, there was a notable reversal in sector performance as income-oriented stocks posted negative returns. For example, telecom and utilities sectors within the S&P 500 returned -5.6% and -5.9%, respectively. More economically sensitive sectors, such as information technology, industrials, and financials, outperformed during the third quarter.

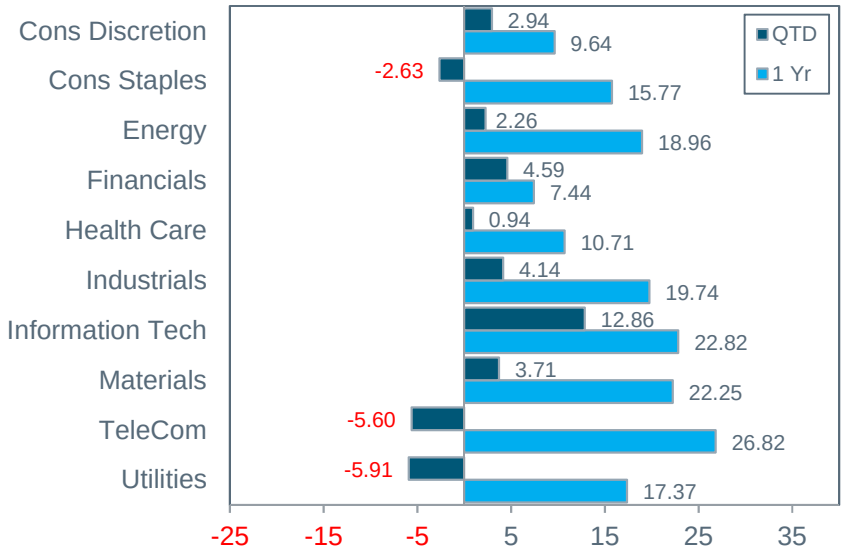
Style and Capitalization Market Performance (%)



Valuations



S&P 500 Index Sector Performance (%)



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

Third Quarter Review

Developed Markets

After a weak second quarter, developed international markets saw strong, positive returns in the third quarter, on both an absolute basis and relative to the broad US equity market. Country returns were largely positive with only a few in the red.

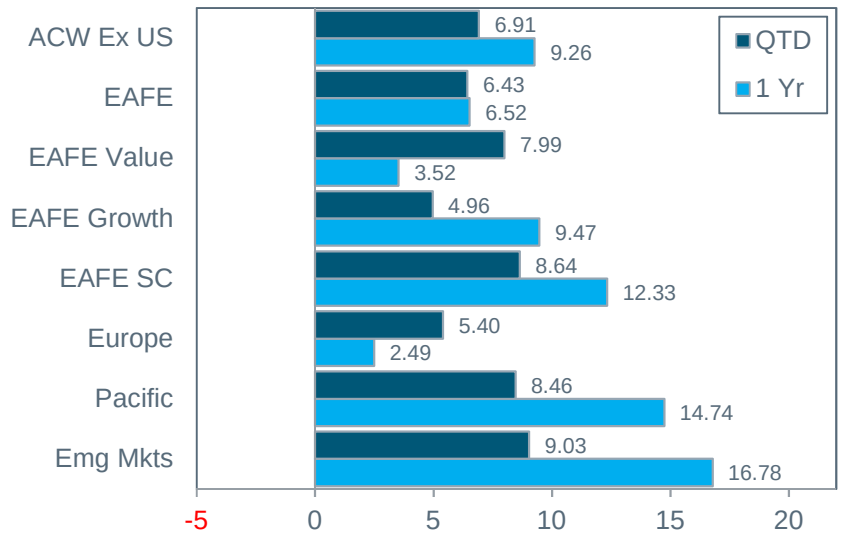
Emerging Markets

Emerging markets continued their rally for the year and outperformed all other equity regions.

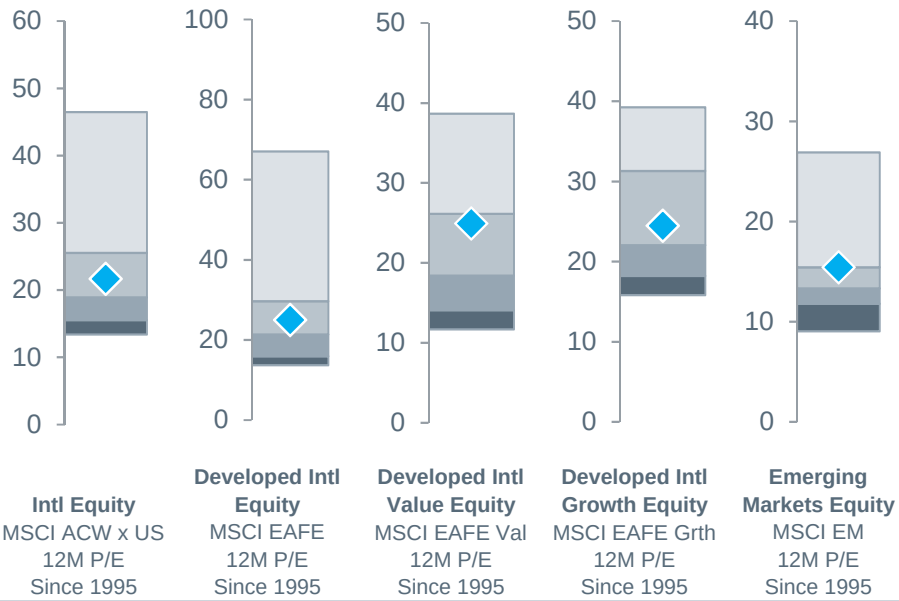
Market Cap & Style

The style trend reversed in Developed Markets, with value outperforming growth stocks and small cap outperforming large cap. In contrast to developed markets, small cap stocks in emerging markets could not keep pace with the rally in larger stocks, and growth outperformed value for the quarter.

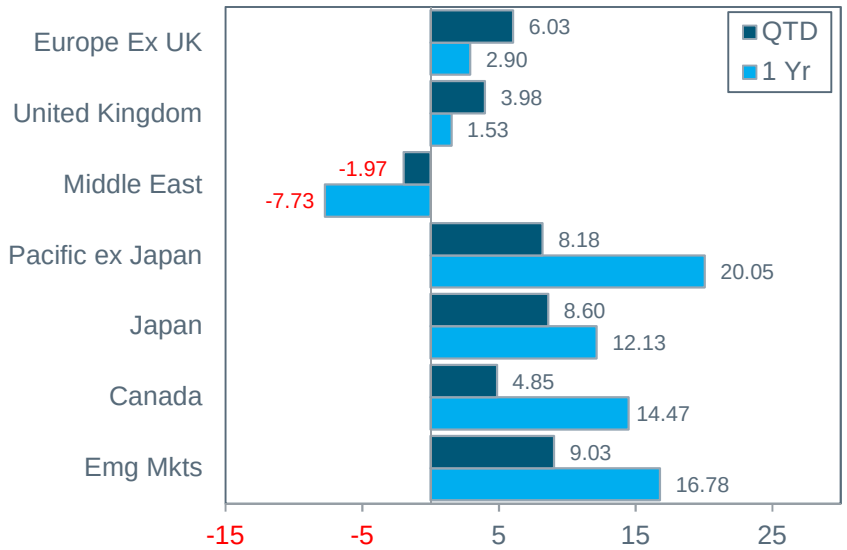
MSCI Style and Capitalization Market Performance (%)



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.

Third Quarter Review

Broad Market

Virtually all fixed income sectors posted slight positive performance as interest rates remained flat during the quarter. The Bloomberg US Aggregate posted a quarterly return of 0.46%.

Credit Market

Credit spreads tightened for the quarter, led by a continued resurgence of energy and commodity credits. The Bloomberg US Corporate High Yield Index returned 5.55%, as lower quality credits appreciated significantly.

Money Market Reform

Money market reforms, which became effective on October 14, 2016, drove many investors to transition from prime money market funds to government money market funds in order to avoid floating NAVs and liquidity restrictions. The spread widened due to increased demand for government securities coupled with reduced demand for short-dated bank debt and commercial paper.

Valuations

US Treasury Bonds
10-Yr US Treasury Yields
Since 1953

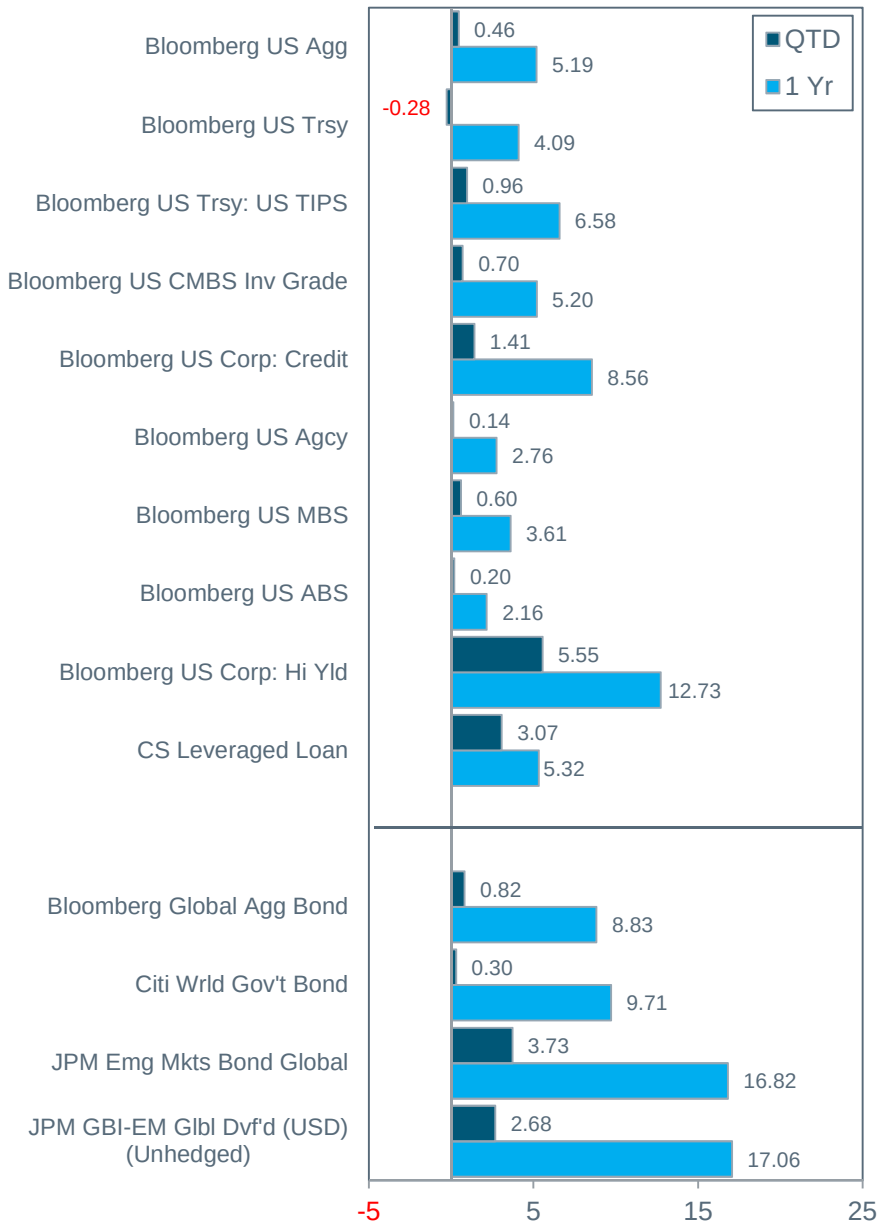
US Aggregate Bonds
Bloomberg US Agg Spreads
Since 2000

US Corporate Bonds
Bloomberg US Corp Spreads
Since 1989

US Credit Bonds
Bloomberg US Credit Spreads
Since 2000

US High-Yield Bonds
Bloomberg US Corp:HY Spreads
Since 2000

Fixed Income Performance (%)



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

Third Quarter Review - Absolute Return

General Market - Hedge Funds

Hedge funds built on a better-than-expected second quarter and posted strong returns again in the third quarter. The Fund of Hedge Fund ("FoHF") managers that RVK closely follows were up anywhere from 2% to 4% during the quarter and have in most cases recovered losses from earlier in the year. Preliminary peer group data show that this was the best quarter for FoHFs since the fourth quarter of 2013. Drivers of returns for the group came from Equity Long/Short ("ELS"), Event Driven, and Credit strategies.

General Market - Global Tactical Asset Allocation (GTAA)

GTAA managers provided a relatively narrow range of performance during the third quarter. Those among the top performing managers avoided or de-emphasized US large cap equity exposure in favor of emerging market equity and credit-sensitive fixed income. Managers with overweight exposure to Japan were also rewarded. Despite strong performance for the broader group during the quarter, those with larger positions in cash, yield-oriented US equity, and MLP exposures lagged the group by the widest margin.

Third Quarter Review - Real Assets

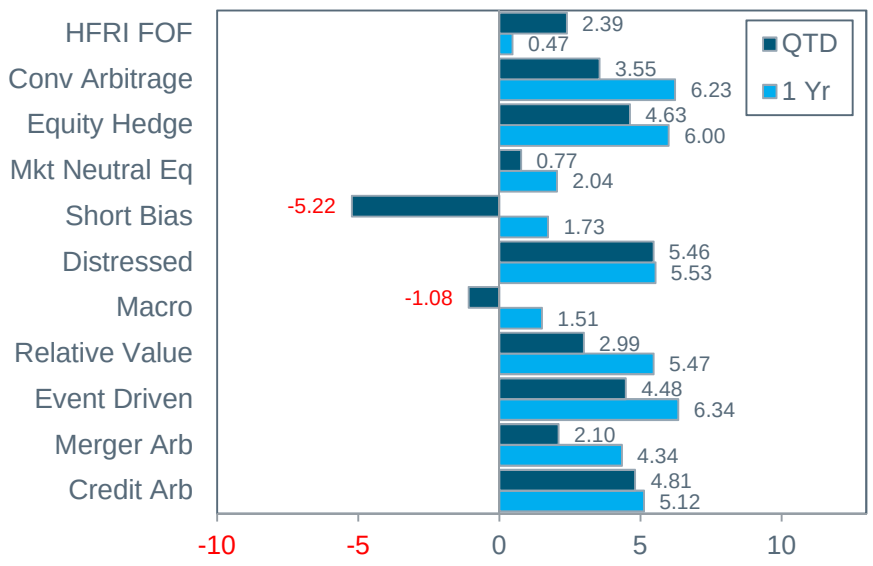
General Market - Diversified Inflation Strategies (DIS)

During the quarter, performance of various inflation-sensitive assets varied and manager performance mirrored this trend. For the second consecutive quarter, managers with larger TIPS allocations tended to lag peers; however, this exposure was not as much of a key differentiator as it had been in previous quarters. Managers that introduced commodity exposure at the expense of natural resource equity, which correlated more heavily with the global equity rally, tended to underperform.

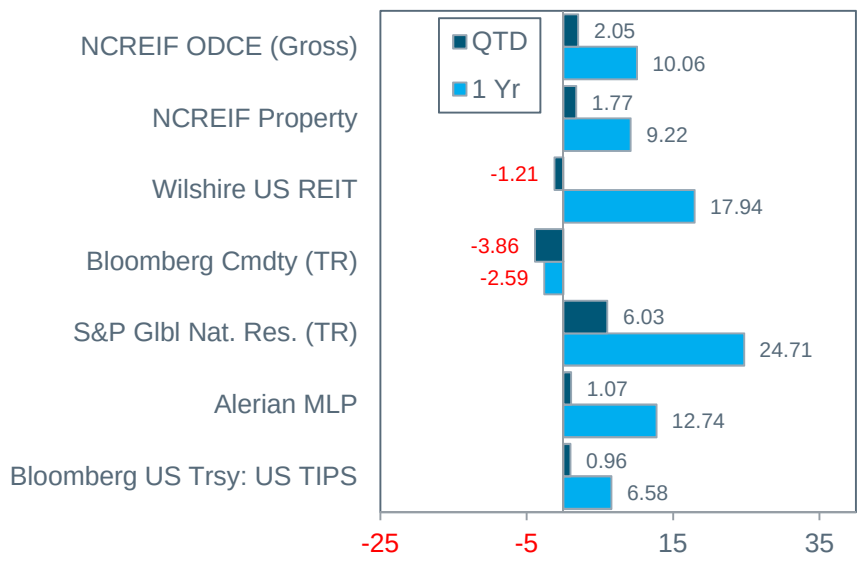
General Market - Real Estate

Core real estate continued a trend of delivering modest, positive returns, with the third quarter seeing a nearly equal mix of income and appreciation driving a 2.1% return for the NCREIF ODCE Index. The public real estate space did not fare as well, as the FTSE NAREIT All REITs Index posted a -1.0% return for the quarter. In general, increasing property valuations coupled with strong fundamentals, such as rental growth and occupancy, fueled solid returns in core real estate.

HFRI Hedge Fund Performance (%)



Real Asset Performance (%)



Annual Asset Class Performance

As of September 30, 2016

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	YTD
Best	25.91	61.34	33.16	34.00	35.97	39.38	8.44	78.51	28.60	22.49	20.00	38.82	31.78	15.02	16.02
	16.56	55.81	31.45	26.19	32.18	16.23	5.24	58.21	26.85	15.99	18.23	32.39	19.31	9.59	15.74
	14.84	47.25	25.55	21.39	26.34	15.97	2.06	46.78	22.04	13.56	17.59	29.30	13.69	4.23	15.11
	10.27	38.59	20.25	21.36	19.31	11.63	-2.35	31.78	18.88	9.24	17.32	22.78	12.50	1.38	11.46
	5.54	36.18	18.33	13.82	18.37	11.17	-10.01	28.60	16.83	7.84	16.35	13.94	5.97	0.55	9.75
	3.58	28.96	13.06	13.54	16.32	10.25	-21.37	27.17	16.36	4.98	16.00	8.96	4.89	0.05	8.85
	1.78	28.68	11.14	7.49	15.79	6.97	-26.16	26.46	15.12	2.11	15.81	7.44	3.64	-0.27	7.84
	1.02	23.93	10.88	5.34	11.86	6.60	-33.79	18.91	15.06	0.10	10.94	1.86	3.37	-0.81	7.27
	-1.37	11.61	9.15	4.91	10.39	5.49	-35.65	11.47	10.16	-4.18	8.78	0.07	2.45	-1.44	6.50
	-6.17	9.28	8.56	4.55	4.85	5.00	-37.00	11.41	7.75	-5.72	6.98	-2.02	0.04	-3.30	5.80
	-7.83	8.39	8.46	3.07	4.34	1.87	-39.20	5.93	6.54	-12.14	4.79	-2.60	-2.19	-4.41	5.19
	-15.94	5.88	6.86	2.84	2.72	1.45	-43.38	1.92	6.31	-13.32	4.21	-8.61	-4.90	-4.47	1.73
	-20.48	4.11	4.34	2.74	2.07	-1.57	-47.01	0.21	5.70	-15.94	0.11	-8.83	-4.95	-14.92	0.24
Worst	-22.10	1.15	1.33	2.43	0.49	-17.55	-53.33	-29.76	0.13	-18.42	-1.06	-9.52	-17.01	-24.66	-0.25
	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	Wilshire US REIT - REITs	HFRI FOF Comp Index - ARS	Bloombrg Cmdty (TR) - Commod.	BofA ML 3 Mo T-Bill - Cash Equiv	

RVK

PORTLAND CHICAGO NEW YORK

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RVK

Montana Board of Investments

Investment Performance Analysis

Period Ended: September 30, 2016

Montana Board of Investments
Comparative Performance
Retirement Plans

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
Public Employees' Retirement - Net	**3.24**	**6.18**	**9.49**	**7.25**	**10.25**	**9.22**	**5.77**	**1.86**	**8.07**	**17.38**	**13.24**	**2.13**
Public Employees' Benchmark	3.25	7.67	10.50	7.98	10.75	9.81	6.06	1.40	9.08	17.94	14.88	1.67
Difference	-0.01	-1.49	-1.01	-0.73	-0.50	-0.59	-0.29	0.46	-1.01	-0.56	-1.64	0.46
Public Employees' Retirement - Gross	**3.34**	**6.52**	**9.96**	**7.75**	**10.78**	**9.78**	**6.29**	**2.31**	**8.61**	**17.96**	**13.83**	**2.68**
All Public Plans > $3B Total Fund Median	3.82	6.91	9.57	6.18	8.96	8.34	5.75	0.34	6.81	14.65	13.08	1.24
Rank	73	60	37	1	3	1	11	8	8	6	32	32
Teachers' Retirement - Net	**3.24**	**6.20**	**9.51**	**7.27**	**10.26**	**9.24**	**5.77**	**1.86**	**8.09**	**17.38**	**13.24**	**2.14**
Teachers' Benchmark	3.25	7.67	10.51	8.00	10.76	9.82	6.06	1.40	9.11	17.94	14.89	1.66
Difference	-0.01	-1.47	-1.00	-0.73	-0.50	-0.58	-0.29	0.46	-1.02	-0.56	-1.65	0.48
Teachers' Retirement - Gross	**3.34**	**6.55**	**9.98**	**7.77**	**10.80**	**9.79**	**6.29**	**2.32**	**8.63**	**17.96**	**13.84**	**2.68**
All Public Plans > $3B Total Fund Median	3.82	6.91	9.57	6.18	8.96	8.34	5.75	0.34	6.81	14.65	13.08	1.24
Rank	73	58	36	1	2	1	11	8	8	6	32	31
Police Retirement - Net	**3.23**	**6.18**	**9.49**	**7.26**	**10.25**	**9.20**	**5.73**	**1.86**	**8.07**	**17.41**	**13.23**	**2.10**
Police Benchmark	3.25	7.66	10.49	7.99	10.74	9.78	6.01	1.41	9.10	17.92	14.80	1.66
Difference	-0.02	-1.48	-1.00	-0.73	-0.49	-0.58	-0.28	0.45	-1.03	-0.51	-1.57	0.44
Police Retirement - Gross	**3.33**	**6.53**	**9.95**	**7.75**	**10.78**	**9.75**	**6.25**	**2.31**	**8.61**	**18.00**	**13.78**	**2.65**
All Public Plans > $3B Total Fund Median	3.82	6.91	9.57	6.18	8.96	8.34	5.75	0.34	6.81	14.65	13.08	1.24
Rank	73	60	37	1	3	1	12	8	8	5	36	34

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 June 30.

RVK

Montana Board of Investments
Comparative Performance
Retirement Plans

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
Firefighters' Retirement - Net	**3.23**	**6.17**	**9.48**	**7.26**	**10.25**	**9.19**	**5.76**	**1.87**	**8.07**	**17.41**	**13.22**	**2.10**
Firefighters' Benchmark	3.25	7.67	10.50	7.99	10.74	9.77	6.03	1.41	9.10	17.92	14.80	1.66
Difference	-0.02	-1.50	-1.02	-0.73	-0.49	-0.58	-0.27	0.46	-1.03	-0.51	-1.58	0.44
Firefighters' Retirement - Gross	**3.33**	**6.52**	**9.95**	**7.75**	**10.78**	**9.75**	**6.27**	**2.32**	**8.61**	**17.99**	**13.81**	**2.64**
All Public Plans > $3B Total Fund Median	3.82	6.91	9.57	6.18	8.96	8.34	5.75	0.34	6.81	14.65	13.08	1.24
Rank	73	61	37	1	3	1	11	8	8	5	34	34
Sheriffs' Retirement - Net	**3.25**	**6.18**	**9.49**	**7.25**	**10.23**	**9.19**	**5.76**	**1.86**	**8.05**	**17.35**	**13.19**	**2.12**
Sherriffs' Benchmark	3.26	7.68	10.51	7.98	10.73	9.78	6.06	1.40	9.07	17.91	14.84	1.65
Difference	-0.01	-1.50	-1.02	-0.73	-0.50	-0.59	-0.30	0.46	-1.02	-0.56	-1.65	0.47
Sheriffs' Retirement - Gross	**3.34**	**6.53**	**9.96**	**7.74**	**10.76**	**9.75**	**6.28**	**2.32**	**8.59**	**17.93**	**13.79**	**2.66**
All Public Plans > $3B Total Fund Median	3.82	6.91	9.57	6.18	8.96	8.34	5.75	0.34	6.81	14.65	13.08	1.24
Rank	73	59	37	1	6	1	11	8	8	6	36	33
Highway Patrol Retirement - Net	**3.25**	**6.17**	**9.49**	**7.26**	**10.25**	**9.23**	**5.77**	**1.87**	**8.08**	**17.38**	**13.24**	**2.12**
Highway Patrol Benchmark	3.26	7.68	10.51	8.00	10.76	9.82	6.07	1.41	9.10	17.94	14.88	1.65
Difference	-0.01	-1.51	-1.02	-0.74	-0.51	-0.59	-0.30	0.46	-1.02	-0.56	-1.64	0.47
Highway Patrol Retirement - Gross	**3.34**	**6.52**	**9.96**	**7.75**	**10.79**	**9.78**	**6.29**	**2.32**	**8.62**	**17.96**	**13.84**	**2.66**
All Public Plans > $3B Total Fund Median	3.82	6.91	9.57	6.18	8.96	8.34	5.75	0.34	6.81	14.65	13.08	1.24
Rank	73	61	37	1	3	1	11	8	8	6	32	33

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 June 30.

RVK

Montana Board of Investments
Comparative Performance
Retirement Plans

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
Game Wardens' Retirement - Net	**3.25**	**6.17**	**9.49**	**7.24**	**10.22**	**9.19**	**5.75**	**1.88**	**8.03**	**17.34**	**13.20**	**2.09**
Game Wardens' Benchmark	3.26	7.69	10.52	7.98	10.74	9.78	6.06	1.41	9.06	17.90	14.85	1.64
Difference	-0.01	-1.52	-1.03	-0.74	-0.52	-0.59	-0.31	0.47	-1.03	-0.56	-1.65	0.45
Game Wardens' Retirement - Gross	**3.35**	**6.52**	**9.95**	**7.73**	**10.76**	**9.74**	**6.27**	**2.33**	**8.57**	**17.92**	**13.79**	**2.63**
All Public Plans > $3B Total Fund Median	3.82	6.91	9.57	6.18	8.96	8.34	5.75	0.34	6.81	14.65	13.08	1.24
Rank	72	61	37	1	6	1	11	8	8	6	35	34
Judges' Retirement - Net	**3.25**	**6.18**	**9.49**	**7.25**	**10.23**	**9.21**	**5.77**	**1.86**	**8.06**	**17.36**	**13.20**	**2.12**
Judges' Benchmark	3.26	7.68	10.51	7.98	10.74	9.80	6.07	1.40	9.08	17.92	14.84	1.64
Difference	-0.01	-1.50	-1.02	-0.73	-0.51	-0.59	-0.30	0.46	-1.02	-0.56	-1.64	0.48
Judges' Retirement - Gross	**3.34**	**6.53**	**9.96**	**7.74**	**10.77**	**9.76**	**6.29**	**2.32**	**8.60**	**17.94**	**13.79**	**2.66**
All Public Plans > $3B Total Fund Median	3.82	6.91	9.57	6.18	8.96	8.34	5.75	0.34	6.81	14.65	13.08	1.24
Rank	73	59	37	1	6	1	11	8	8	6	35	33
Volunteer Firefighters' Retirement - Net	**3.25**	**6.03**	**9.33**	**7.23**	**10.23**	**9.23**	**5.77**	**1.91**	**8.09**	**17.42**	**13.18**	**2.09**
Volunteer Firefighters' Benchmark	3.25	7.66	10.49	8.00	10.75	9.83	6.06	1.42	9.11	17.97	14.79	1.70
Difference	0.00	-1.63	-1.16	-0.77	-0.52	-0.60	-0.29	0.49	-1.02	-0.55	-1.61	0.39
Volunteer Firefighters' Retirement - Gross	**3.34**	**6.37**	**9.79**	**7.73**	**10.76**	**9.79**	**6.28**	**2.36**	**8.63**	**18.00**	**13.77**	**2.63**
All Public Plans > $3B Total Fund Median	3.82	6.91	9.57	6.18	8.96	8.34	5.75	0.34	6.81	14.65	13.08	1.24
Rank	73	69	42	1	6	1	11	8	8	5	36	34

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 June 30.

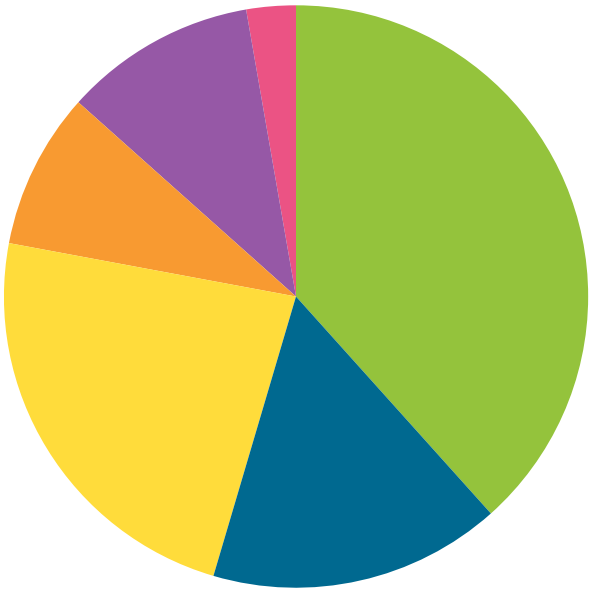
RVK

Montana Board of Investments
Asset Allocation by Segment
Retirement Plans

As of September 30, 2016

	Domestic Equity		International Equity		Domestic Fixed Income		Real Estate		Private Equity		Cash Equivalent		Total Fund	
	($)	%	($)	%	($)	%	($)	%	($)	%	($)	%	($)	%
Public Employees' Retirement	1,974,333,040	38.50	833,300,121	16.25	1,202,108,015	23.44	446,588,701	8.71	547,507,690	10.68	123,893,954	2.42	5,127,731,520	49.88
Teachers' Retirement	1,431,901,463	38.43	604,342,068	16.22	871,838,762	23.40	323,890,532	8.69	397,084,169	10.66	97,407,791	2.61	3,726,464,785	36.25
Police Retirement	129,150,508	36.98	54,509,090	15.61	78,635,598	22.52	29,213,377	8.37	35,815,061	10.26	21,898,271	6.27	349,221,905	3.40
Firefighters' Retirement	132,454,598	37.02	55,904,426	15.62	80,647,353	22.54	29,960,838	8.37	36,731,341	10.27	22,127,822	6.18	357,826,377	3.48
Sheriffs' Retirement	117,862,426	38.53	49,746,750	16.26	71,762,653	23.46	26,660,256	8.72	32,684,772	10.69	7,156,656	2.34	305,873,513	2.98
Highway Patrol Retirement	50,515,398	38.66	21,320,355	16.32	30,757,200	23.54	11,426,392	8.74	14,008,555	10.72	2,643,842	2.02	130,671,743	1.27
Game Wardens' Retirement	61,260,958	38.53	25,857,310	16.26	37,299,831	23.46	13,857,179	8.71	16,988,470	10.68	3,744,799	2.36	159,008,548	1.55
Judges' Retirement	34,520,799	38.51	14,570,398	16.25	21,018,610	23.45	7,808,548	8.71	9,573,068	10.68	2,150,584	2.40	89,642,006	0.87
Volunteer Firefighters' Retirement	13,080,536	38.55	5,520,594	16.27	7,964,311	23.47	2,958,757	8.72	3,627,395	10.69	776,880	2.29	33,928,473	0.33
Retirement Plans Total Fund Composite	**3,945,079,727**	**38.37**	**1,665,071,111**	**16.20**	**2,402,032,332**	**23.37**	**892,364,580**	**8.68**	**1,094,020,521**	**10.64**	**281,800,599**	**2.74**	**10,280,368,870**	**100.00**

September 30, 2016 : $10,280,368,870



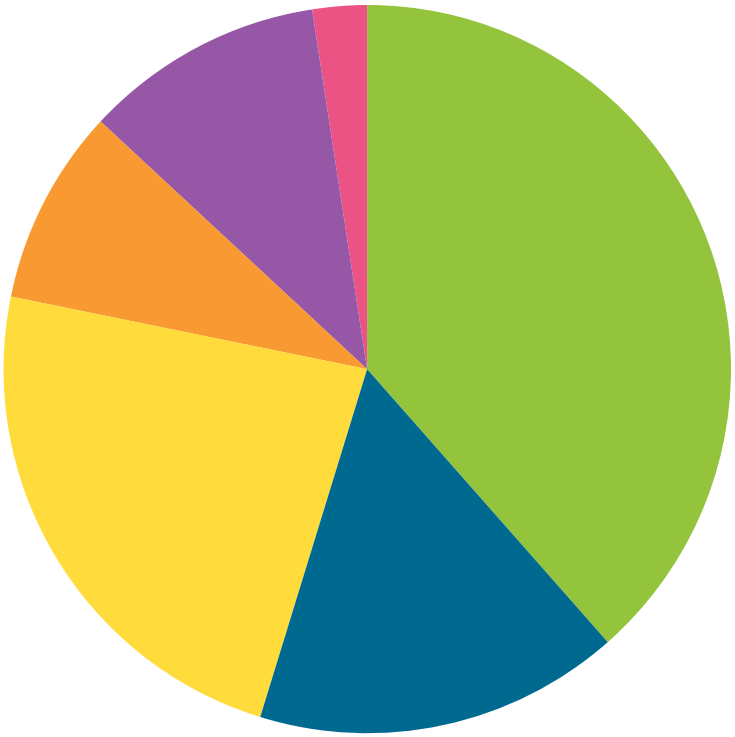
Segments	Market Value ($)	Allocation (%)
Domestic Equity	3,945,079,727	38.37
International Equity	1,665,071,111	16.20
Domestic Fixed Income	2,402,032,332	23.37
Real Estate	892,364,580	8.68
Private Equity	1,094,020,521	10.64
Cash Equivalent	281,800,599	2.74

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

Montana Board of Investments
Public Employees' Retirement
Asset Allocation by Segment

As of September 30, 2016

September 30, 2016 : $5,127,731,520



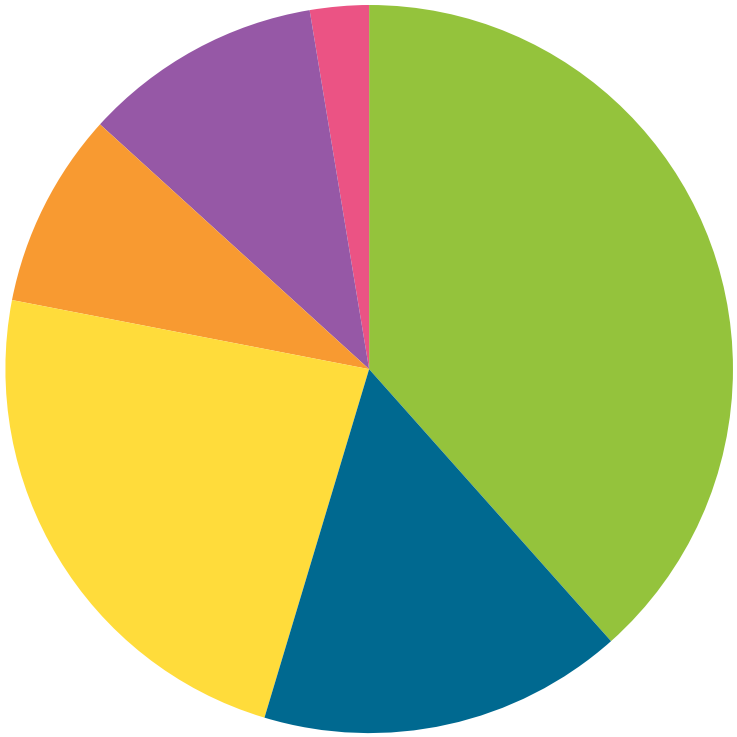
Segments	Market Value ($)	Allocation (%)
Domestic Equity	1,974,333,040	38.50
International Equity	833,300,121	16.25
Domestic Fixed Income	1,202,108,015	23.44
Real Estate	446,588,701	8.71
Private Equity	547,507,690	10.68
Cash Equivalent	123,893,954	2.42

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

Montana Board of Investments
Teachers' Retirement
Asset Allocation by Segment

As of September 30, 2016

September 30, 2016 : $3,726,464,785



Segments	Market Value ($)	Allocation (%)
Domestic Equity	1,431,901,463	38.43
International Equity	604,342,068	16.22
Domestic Fixed Income	871,838,762	23.40
Real Estate	323,890,532	8.69
Private Equity	397,084,169	10.66
Cash Equivalent	97,407,791	2.61

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

Montana Board of Investments
Police Retirement
Asset Allocation by Segment

As of September 30, 2016

September 30, 2016 : $349,221,905

Segments	Market Value ($)	Allocation (%)
Domestic Equity	129,150,508	36.98
International Equity	54,509,090	15.61
Domestic Fixed Income	78,635,598	22.52
Real Estate	29,213,377	8.37
Private Equity	35,815,061	10.26
Cash Equivalent	21,898,271	6.27

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

Montana Board of Investments
Firefighters' Retirement
Asset Allocation by Segment

As of September 30, 2016

September 30, 2016 : $357,826,377

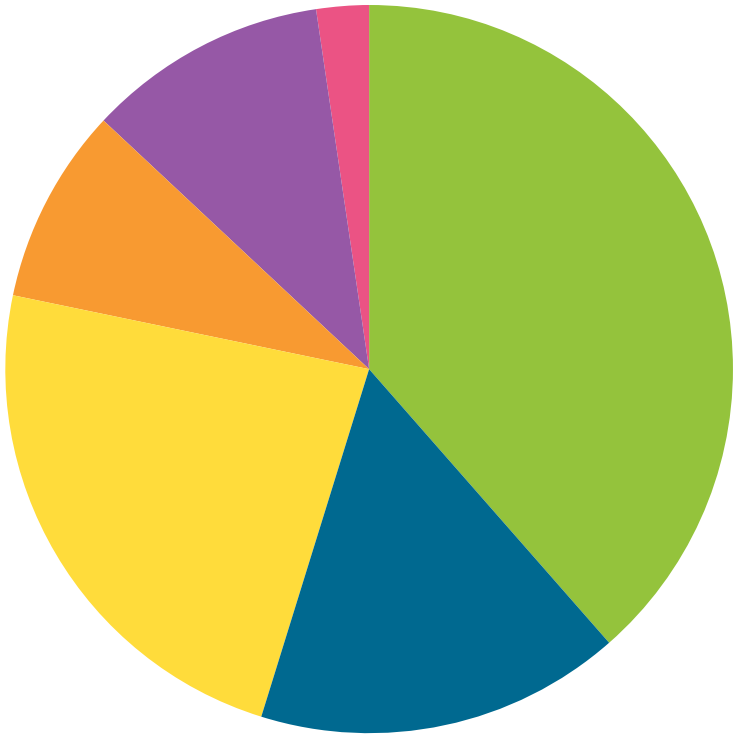
Segments	Market Value ($)	Allocation (%)
Domestic Equity	132,454,598	37.02
International Equity	55,904,426	15.62
Domestic Fixed Income	80,647,353	22.54
Real Estate	29,960,838	8.37
Private Equity	36,731,341	10.27
Cash Equivalent	22,127,822	6.18

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

Montana Board of Investments
Sheriffs' Retirement
Asset Allocation by Segment

As of September 30, 2016

September 30, 2016 : $305,873,513



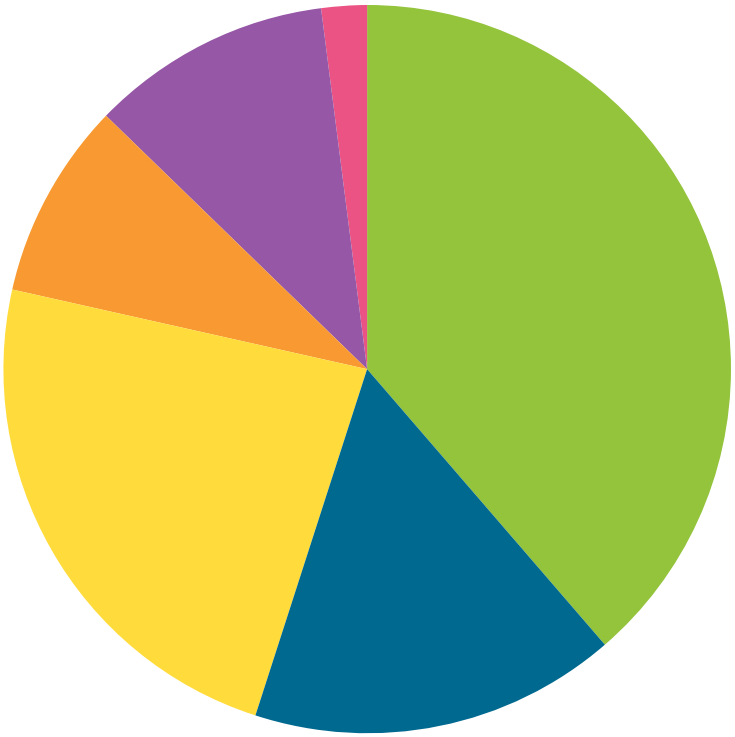
Segments	Market Value ($)	Allocation (%)
Domestic Equity	117,862,426	38.53
International Equity	49,746,750	16.26
Domestic Fixed Income	71,762,653	23.46
Real Estate	26,660,256	8.72
Private Equity	32,684,772	10.69
Cash Equivalent	7,156,656	2.34

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

Montana Board of Investments
Highway Patrol Retirement
Asset Allocation by Segment

As of September 30, 2016

September 30, 2016 : $130,671,743



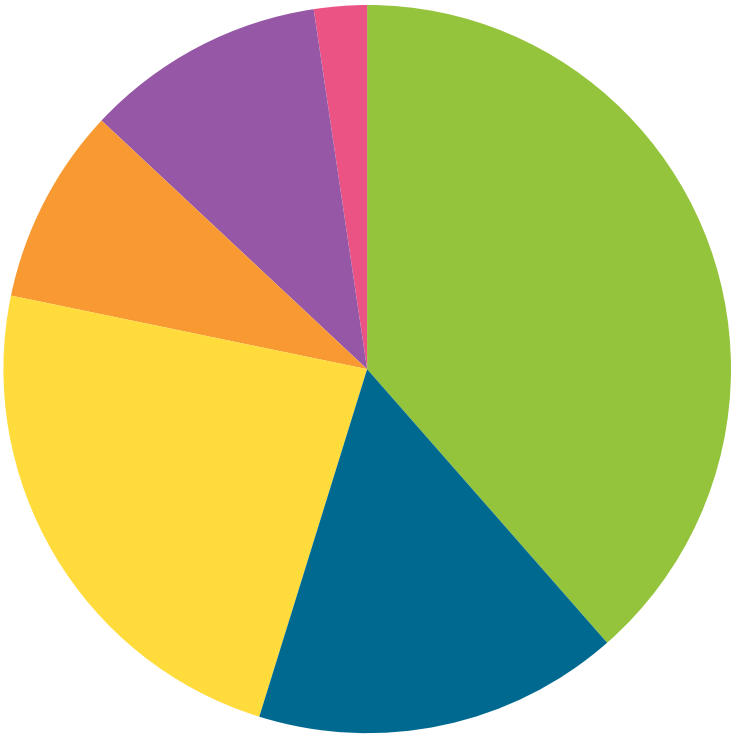
Segments	Market Value ($)	Allocation (%)
Domestic Equity	50,515,398	38.66
International Equity	21,320,355	16.32
Domestic Fixed Income	30,757,200	23.54
Real Estate	11,426,392	8.74
Private Equity	14,008,555	10.72
Cash Equivalent	2,643,842	2.02

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

Montana Board of Investments
Game Wardens' Retirement
Asset Allocation by Segment

As of September 30, 2016

September 30, 2016 : $159,008,548



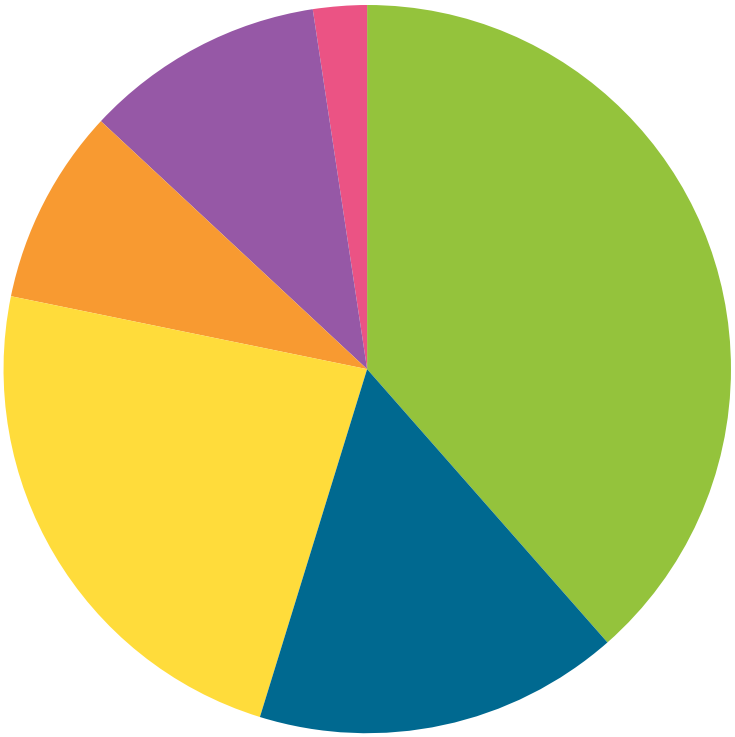
Segments	Market Value ($)	Allocation (%)
Domestic Equity	61,260,958	38.53
International Equity	25,857,310	16.26
Domestic Fixed Income	37,299,831	23.46
Real Estate	13,857,179	8.71
Private Equity	16,988,470	10.68
Cash Equivalent	3,744,799	2.36

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

Montana Board of Investments
Judges' Retirement
Asset Allocation by Segment

As of September 30, 2016

September 30, 2016 : $89,642,006



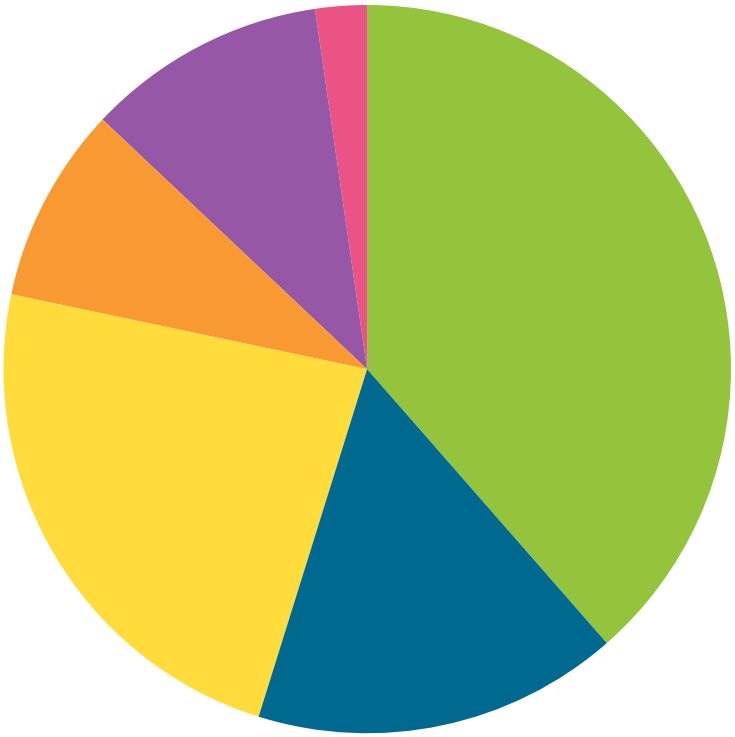
Segments	Market Value ($)	Allocation (%)
Domestic Equity	34,520,799	38.51
International Equity	14,570,398	16.25
Domestic Fixed Income	21,018,610	23.45
Real Estate	7,808,548	8.71
Private Equity	9,573,068	10.68
Cash Equivalent	2,150,584	2.40

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

Montana Board of Investments
Volunteer Firefighters' Retirement
Asset Allocation by Segment

As of September 30, 2016

September 30, 2016 : $33,928,473



Segments	Market Value ($)	Allocation (%)
Domestic Equity	13,080,536	38.55
International Equity	5,520,594	16.27
Domestic Fixed Income	7,964,311	23.47
Real Estate	2,958,757	8.72
Private Equity	3,627,395	10.69
Cash Equivalent	776,880	2.29

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

Montana Board of Investments
Comparative Performance
Investment Pools

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
Montana Domestic Equity Pool	**4.10**	**7.11**	**13.90**	**10.25**	**16.15**	**13.01**	**7.01**	**0.86**	**12.28**	**34.19**	**16.44**	**0.44**
S&P 1500 Comp Index	3.98	8.35	15.49	10.93	16.44	13.29	7.44	1.01	13.08	32.80	16.17	1.75
Difference	0.12	-1.24	-1.59	-0.68	-0.29	-0.28	-0.43	-0.15	-0.80	1.39	0.27	-1.31
Montana International Equity Pool	**6.73**	**5.97**	**9.99**	**0.95**	**6.73**	**4.01**	**1.55**	**-3.57**	**-4.00**	**16.39**	**17.11**	**-14.63**
International Custom Benchmark	7.05	6.08	9.81	0.57	6.33	3.96	2.34	-4.60	-4.03	15.62	16.96	-14.07
Difference	-0.32	-0.11	0.18	0.38	0.40	0.05	-0.79	1.03	0.03	0.77	0.15	-0.56
Retirement Funds Bond Pool	**0.87**	**6.78**	**5.78**	**4.55**	**4.26**	**5.53**	**5.59**	**0.48**	**6.19**	**-0.95**	**7.31**	**7.69**
Bloomberg US Agg Bond Index	0.46	5.80	5.19	4.03	3.08	4.10	4.79	0.55	5.97	-2.02	4.21	7.84
Difference	0.41	0.98	0.59	0.52	1.18	1.43	0.80	-0.07	0.22	1.07	3.10	-0.15
Trust Funds Investment Pool	**0.66**	**6.49**	**5.94**	**5.25**	**4.72**	**5.67**	**5.87**	**1.83**	**6.96**	**-0.25**	**6.99**	**8.20**
Bloomberg US Agg Bond Index	0.46	5.80	5.19	4.03	3.08	4.10	4.79	0.55	5.97	-2.02	4.21	7.84
Difference	0.20	0.69	0.75	1.22	1.64	1.57	1.08	1.28	0.99	1.77	2.78	0.36
Real Estate Pool*	**2.10**	**7.03**	**10.28**	**12.11**	**11.14**	**8.55**	**2.79**	**14.27**	**12.13**	**10.16**	**9.90**	**14.19**
NCREIF ODCE Index (AWA) (Net) (Qtr Lag)	1.91	7.12	10.80	11.97	11.66	9.85	5.19	13.86	11.36	11.97	10.47	17.18
Difference	0.19	-0.09	-0.52	0.14	-0.52	-1.30	-2.40	0.41	0.77	-1.81	-0.57	-2.99
Short Term Investment Pool	**0.16**	**0.42**	**0.51**	**0.26**	**0.26**	**0.27**	**1.19**	**0.22**	**0.10**	**0.19**	**0.30**	**0.28**
ICE 1 Mo LIBOR Index (USD)	0.13	0.34	0.41	0.25	0.24	0.24	1.11	0.20	0.16	0.19	0.24	0.23
Difference	0.03	0.08	0.10	0.01	0.02	0.03	0.08	0.02	-0.06	0.00	0.06	0.05
iMoneynet Money Fund (Gross) Median	0.14	0.41	0.48	0.29	0.28	0.29	1.23	0.25	0.17	0.22	0.30	0.27
Difference	0.02	0.01	0.03	-0.03	-0.02	-0.02	-0.04	-0.03	-0.07	-0.03	0.00	0.01

Performance shown is net of all manager fees and expenses (Net-All). The NCREIF ODCE Index (AWA) (Net) performance is lagged by one quarter.
*Performance is based on prior quarter's fair market value adjusted for cash flows during the most recent quarterly period.
Benchmark returns reflect unmanaged indices which are not impacted by management fees. Fiscal year ends on June 30.

RVK

Montana Board of Investments
Comparative Performance
Investment Pools

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
Private Equity Pool*	**2.38**	**3.87**	**4.09**	**10.23**	**10.52**	**13.11**	**9.13**	**7.20**	**15.47**	**14.52**	**14.28**	**16.11**
S&P 1500+4% (Qtr Lag)	3.60	14.07	7.64	15.52	15.94	19.09	11.53	3.70	22.57	24.43	34.18	4.92
Difference	*-1.22*	*-10.20*	*-3.55*	*-5.29*	*-5.42*	*-5.98*	*-2.40*	*3.50*	*-7.10*	*-9.91*	*-19.90*	*11.19*

Performance shown is net of all manager fees and expenses (Net-All). The S&P 1500+4% performance is lagged by one quarter.
*Performance is based on prior quarter's fair market value adjusted for cash flows during the most recent quarterly period.
Benchmark returns reflect unmanaged indices that are not impacted by management fees. Fiscal year ends on June 30.

RVK

Montana Board of Investments
Comparative Performance
Investment Pools

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
Montana Domestic Equity Pool	**4.17**	**7.33**	**14.20**	**10.55**	**16.48**	**13.38**	**7.36**	**1.14**	**12.59**	**34.61**	**16.77**	**0.85**
All Public Plans-US Equity Segment Median	4.60	8.18	14.24	9.75	16.00	13.12	7.37	0.14	11.42	33.76	16.57	0.84
Rank	65	78	51	22	26	30	54	22	21	41	39	50
Population	88	86	86	80	67	55	34	93	50	48	44	44
Montana International Equity Pool	**6.80**	**6.19**	**10.28**	**1.20**	**7.03**	**4.34**	**1.93**	**-3.35**	**-3.77**	**16.80**	**17.45**	**-14.32**
All Public Plans-Intl. Equity Segment Median	6.88	6.06	10.39	1.83	8.30	5.53	3.37	-2.48	-3.00	18.68	18.94	-12.65
Rank	52	48	52	75	85	91	97	68	75	78	81	90
Population	83	81	80	72	58	50	31	87	47	44	39	39
Retirement Funds Bond Pool	**0.90**	**6.86**	**5.88**	**4.66**	**4.38**	**5.65**	**5.68**	**0.59**	**6.30**	**-0.83**	**7.44**	**7.82**
All Public Plans-US Fixed Income Segment Median	1.20	7.08	6.52	4.30	3.78	4.90	5.12	0.30	6.04	-1.40	7.57	7.93
Rank	65	56	64	38	40	31	23	36	40	37	53	57
Population	85	85	85	79	69	56	36	82	50	50	49	46
Trust Funds Investment Pool	**0.69**	**6.56**	**6.03**	**5.34**	**4.81**	**5.77**	**5.94**	**1.89**	**7.08**	**-0.14**	**7.11**	**8.30**
All Public Plans-US Fixed Income Segment Median	1.20	7.08	6.52	4.30	3.78	4.90	5.12	0.30	6.04	-1.40	7.57	7.93
Rank	75	63	62	21	33	30	22	4	26	26	58	44
Population	85	85	85	79	69	56	36	82	50	50	49	46
Real Estate Pool	**2.26**	**8.24**	**11.70**	**13.53**	**12.62**	**10.23**	**4.20**	**15.68**	**13.51**	**11.73**	**11.44**	**15.96**
All Public Plans-Real Estate Segment Median	2.35	8.01	11.31	12.82	12.81	11.36	N/A	13.42	14.01	13.91	12.36	N/A
Rank	57	41	43	29	56	75	N/A	10	60	69	85	N/A
Population	41	34	32	28	24	17	N/A	34	18	16	13	N/A

Performance shown is gross of fees. Fiscal year ends on June 30.

RVK

Montana Board of Investments
Comparative Performance
Equity Composites

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
Domestic Large Cap Equity - Net	**3.92**	**7.10**	**14.80**	**11.15**	**16.35**	**13.16**	**N/A**	**1.76**	**13.82**	**33.14**	**16.14**	**0.54**
S&P 500 Index (Cap Wtd)	3.85	7.84	15.43	11.16	16.37	13.17	7.24	1.38	13.69	32.39	16.00	2.11
Difference	0.07	-0.74	-0.63	-0.01	-0.02	-0.01	N/A	0.38	0.13	0.75	0.14	-1.57
Domestic Large Cap Equity - Gross	**3.96**	**7.22**	**14.96**	**11.32**	**16.55**	**13.40**	**N/A**	**1.91**	**13.99**	**33.34**	**16.39**	**0.87**
IM U.S. Large Cap Equity (SA+CF) Median	4.33	6.61	13.19	10.36	16.19	13.05	7.49	0.95	12.91	33.53	15.87	1.21
Rank	60	43	31	29	38	38	N/A	40	32	53	42	55
Domestic Large Cap Active - Net	**4.13**	**5.34**	**13.25**	**10.98**	**16.38**	**13.13**	**N/A**	**2.40**	**14.01**	**34.90**	**16.03**	**-0.10**
S&P 500 Index (Cap Wtd)	3.85	7.84	15.43	11.16	16.37	13.17	7.24	1.38	13.69	32.39	16.00	2.11
Difference	0.28	-2.50	-2.18	-0.18	0.01	-0.04	N/A	1.02	0.32	2.51	0.03	-2.21
Domestic Large Cap Active - Gross	**4.25**	**5.72**	**13.78**	**11.51**	**16.92**	**13.66**	**N/A**	**2.88**	**14.56**	**35.55**	**16.56**	**0.35**
IM U.S. Large Cap Equity (SA+CF) Median	4.33	6.61	13.19	10.36	16.19	13.05	7.49	0.95	12.91	33.53	15.87	1.21
Rank	53	59	44	26	29	29	N/A	33	25	33	39	60
Domestic Mid Cap Equity - Net	**4.40**	**8.41**	**11.05**	**6.97**	**15.20**	**12.47**	**7.76**	**-3.31**	**6.45**	**38.18**	**16.27**	**1.28**
Russell Mid Cap Index	4.52	10.26	14.25	9.70	16.67	14.11	8.32	-2.44	13.22	34.76	17.28	-1.55
Difference	-0.12	-1.85	-3.20	-2.73	-1.47	-1.64	-0.56	-0.87	-6.77	3.42	-1.01	2.83
Domestic Mid Cap Equity - Gross	**4.55**	**8.89**	**11.71**	**7.60**	**15.84**	**13.10**	**8.36**	**-2.74**	**7.07**	**38.95**	**16.83**	**1.79**
IM U.S. Mid Cap Equity (SA+CF) Median	4.75	7.70	11.35	8.97	16.36	13.76	9.11	-1.19	9.76	36.37	16.47	-1.06
Rank	57	40	48	68	59	73	70	67	73	34	47	25
Domestic Small Cap Equity - Net	**7.20**	**9.98**	**13.39**	**7.58**	**16.18**	**12.89**	**7.55**	**-1.61**	**5.44**	**40.65**	**15.76**	**-2.50**
Russell 2000 Index	9.05	11.46	15.47	6.71	15.82	12.49	7.07	-4.41	4.89	38.82	16.35	-4.18
Difference	-1.85	-1.48	-2.08	0.87	0.36	0.40	0.48	2.80	0.55	1.83	-0.59	1.68
Domestic Small Cap Equity - Gross	**7.39**	**10.41**	**14.02**	**8.27**	**16.90**	**13.63**	**8.24**	**-0.93**	**6.16**	**41.54**	**16.40**	**-1.64**
IM U.S. Small Cap Equity (SA+CF) Median	7.69	10.89	14.59	7.60	16.83	13.95	8.51	-2.39	5.36	41.31	16.52	-1.86
Rank	56	55	55	42	49	57	55	35	43	49	52	48

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 June 30.

RVK

Montana Board of Investments
Comparative Performance
Equity Composites

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
International Large Cap Passive - Net	**7.00**	**6.30**	**10.80**	**0.70**	**6.34**	**3.84**	**N/A**	**-4.71**	**-3.70**	**14.95**	**16.92**	**-13.55**
MSCI ACW Ex US Index (USD) (Net)	6.91	5.82	9.26	0.18	6.04	3.66	2.16	-5.66	-3.87	15.29	16.83	-13.71
Difference	0.09	0.48	1.54	0.52	0.30	0.18	N/A	0.95	0.17	-0.34	0.09	0.16
International Large Cap Passive - Gross	**7.02**	**6.36**	**10.89**	**0.79**	**6.43**	**3.93**	**N/A**	**-4.63**	**-3.62**	**15.05**	**17.02**	**-13.48**
International Equity Active - Net	**6.72**	**6.05**	**11.39**	**2.34**	**8.17**	**4.92**	**1.84**	**0.41**	**-4.39**	**19.23**	**17.87**	**-15.39**
MSCI ACW Ex US Index (USD) (Net)	6.91	5.82	9.26	0.18	6.04	3.66	2.16	-5.66	-3.87	15.29	16.83	-13.71
Difference	-0.19	0.23	2.13	2.16	2.13	1.26	-0.32	6.07	-0.52	3.94	1.04	-1.68
International Equity Active - Gross	**6.86**	**6.46**	**11.97**	**2.83**	**8.67**	**5.42**	**2.33**	**0.90**	**-3.94**	**19.75**	**18.36**	**-14.98**
IM International Large Cap Core Equity (SA+CF) Median	6.53	3.06	7.66	1.98	8.79	5.73	3.17	0.34	-3.83	23.31	19.45	-12.26
Rank	39	14	11	28	53	60	84	45	51	74	66	82
International Value - Net	**5.89**	**6.68**	**10.53**	**1.47**	**6.67**	**3.51**	**N/A**	**-5.94**	**-1.49**	**17.15**	**15.88**	**-15.46**
MSCI ACW Ex US Val Index (USD) (Net)	7.79	5.45	6.96	-1.91	4.59	2.13	1.14	-10.06	-5.10	15.04	16.97	-13.20
Difference	-1.90	1.23	3.57	3.38	2.08	1.38	N/A	4.12	3.61	2.11	-1.09	-2.26
International Value - Gross	**6.03**	**7.11**	**11.13**	**2.02**	**7.26**	**4.11**	**N/A**	**-5.46**	**-0.94**	**17.82**	**16.55**	**-14.96**
IM International Large Cap Value Equity (SA+CF) Median	7.03	4.11	8.35	1.51	8.10	5.45	3.06	-1.74	-4.25	23.25	17.95	-10.80
Rank	68	21	26	41	72	83	N/A	85	15	78	65	77
International Growth - Net	**6.27**	**6.02**	**13.44**	**1.85**	**8.30**	**5.04**	**N/A**	**1.69**	**-6.15**	**18.55**	**18.37**	**-14.99**
MSCI ACW Ex US Grth Index (USD) (Net)	6.06	6.20	11.50	2.23	7.45	5.16	3.14	-1.25	-2.65	15.49	16.67	-14.21
Difference	0.21	-0.18	1.94	-0.38	0.85	-0.12	N/A	2.94	-3.50	3.06	1.70	-0.78
International Growth - Gross	**6.43**	**6.50**	**14.12**	**2.37**	**8.82**	**5.59**	**N/A**	**2.21**	**-5.72**	**19.09**	**18.89**	**-14.56**
IM International Large Cap Growth Equity (SA+CF) Median	6.55	3.35	9.11	2.85	9.27	6.71	4.28	2.12	-3.37	20.95	19.67	-11.44
Rank	54	25	16	58	61	78	N/A	50	79	70	59	80
International Small Cap - Net	**8.39**	**5.79**	**10.82**	**3.92**	**9.74**	**7.41**	**3.72**	**5.16**	**-4.87**	**25.30**	**18.64**	**-15.36**
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	7.91	7.70	13.38	3.52	8.60	6.78	4.59	2.60	-4.03	19.73	18.52	-18.50
Difference	0.48	-1.91	-2.56	0.40	1.14	0.63	-0.87	2.56	-0.84	5.57	0.12	3.14
International Small Cap - Gross	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
IM International Small Cap Equity (SA+CF) Median	8.05	5.73	12.07	6.06	12.75	10.20	6.30	10.46	-3.25	31.17	23.48	-13.79
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

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), 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 June 30.

RVK

Montana Board of Investments
Comparative Performance
Equity Sub Composites

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
Domestic Large Cap Passive - Net	**3.86**	**7.86**	**14.74**	**10.98**	**16.28**	**13.15**	**7.20**	**0.83**	**13.73**	**32.41**	**16.06**	**2.20**
S&P 500 Index (Cap Wtd)	3.85	7.84	15.43	11.16	16.37	13.17	7.24	1.38	13.69	32.39	16.00	2.11
Difference	0.01	0.02	-0.69	-0.18	-0.09	-0.02	-0.04	-0.55	0.04	0.02	0.06	0.09
Domestic Large Cap Passive - Gross	**3.87**	**7.87**	**14.75**	**10.99**	**16.29**	**13.16**	**7.27**	**0.84**	**13.74**	**32.42**	**16.07**	**2.21**
IM U.S. Large Cap Index Equity (SA+CF) Median	3.99	7.89	15.16	10.88	16.36	13.21	7.34	0.96	13.29	32.56	16.18	1.56
Rank	60	56	81	48	74	67	64	58	18	64	55	22
Domestic Large Cap Enhanced - Net	**3.71**	**6.71**	**14.51**	**11.37**	**16.68**	**13.80**	**6.72**	**3.18**	**13.19**	**32.89**	**16.87**	**1.94**
S&P 500 Index (Cap Wtd)	3.85	7.84	15.43	11.16	16.37	13.17	7.24	1.38	13.69	32.39	16.00	2.11
Difference	-0.14	-1.13	-0.92	0.21	0.31	0.63	-0.52	1.80	-0.50	0.50	0.87	-0.17
Domestic Large Cap Enhanced - Gross	**3.79**	**6.96**	**14.86**	**11.71**	**17.04**	**14.15**	**7.03**	**3.50**	**13.54**	**33.31**	**17.21**	**2.25**
IM U.S. Large Cap Core Equity (SA+CF) Median	4.07	6.65	13.17	10.69	16.24	13.05	7.55	1.26	13.43	32.98	15.72	1.99
Rank	56	47	30	27	27	17	73	23	49	48	31	47
Domestic Large Cap 130/30 - Net	**4.59**	**3.99**	**12.00**	**10.60**	**16.62**	**12.95**	**N/A**	**1.61**	**14.84**	**36.94**	**18.42**	**-1.74**
S&P 500 Index (Cap Wtd)	3.85	7.84	15.43	11.16	16.37	13.17	7.24	1.38	13.69	32.39	16.00	2.11
Difference	0.74	-3.85	-3.43	-0.56	0.25	-0.22	N/A	0.23	1.15	4.55	2.42	-3.85
Domestic Large Cap 130/30 - Gross	**4.75**	**4.48**	**12.71**	**11.31**	**17.38**	**13.69**	**N/A**	**2.26**	**15.59**	**37.83**	**19.18**	**-1.05**
IM U.S. Large Cap Core Equity (SA+CF) Median	4.07	6.65	13.17	10.69	16.24	13.05	7.55	1.26	13.43	32.98	15.72	1.99
Rank	33	80	56	35	22	27	N/A	37	21	13	15	77

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 June 30.

RVK

Montana Board of Investments
Comparative Performance
Domestic Equity Managers

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011	Since Incep.	Inception Date
Domestic Large Cap Equity														
Analytic Investors 130/30 (SA) - Net	**1.03**	**3.35**	**12.81**	**11.50**	**16.22**	**13.37**	**N/A**	**5.94**	**13.33**	**35.22**	**17.38**	**3.13**	**7.47**	**03/01/2008**
S&P 500 Index (Cap Wtd)	3.85	7.84	15.43	11.16	16.37	13.17	7.24	1.38	13.69	32.39	16.00	2.11	8.19	
Difference	-2.82	-4.49	-2.62	0.34	-0.15	0.20	N/A	4.56	-0.36	2.83	1.38	1.02	-0.72	
Analytic Investors 130/30 (SA) - Gross	**1.14**	**3.69**	**13.30**	**12.01**	**16.77**	**13.94**	**N/A**	**6.42**	**13.88**	**35.86**	**17.94**	**3.70**	**8.02**	**03/01/2008**
IM U.S. Large Cap Core Equity (SA+CF) Median	4.07	6.65	13.17	10.69	16.24	13.05	7.55	1.26	13.43	32.98	15.72	1.99	8.30	
Rank	91	86	50	21	36	19	N/A	6	41	25	24	32	63	
BlackRock Equity Idx Fund A (CF) - Net	**3.86**	**7.86**	**15.46**	**11.20**	**16.42**	**13.24**	**7.32**	**1.44**	**13.73**	**32.41**	**16.05**	**2.19**	**4.56**	**05/01/2000**
S&P 500 Index (Cap Wtd)	3.85	7.84	15.43	11.16	16.37	13.17	7.24	1.38	13.69	32.39	16.00	2.11	4.48	
Difference	0.01	0.02	0.03	0.04	0.05	0.07	0.08	0.06	0.04	0.02	0.05	0.08	0.08	
BlackRock Equity Idx Fund A (CF) - Gross	**3.86**	**7.86**	**15.47**	**11.21**	**16.43**	**13.26**	**7.34**	**1.45**	**13.74**	**32.42**	**16.06**	**2.22**	**4.56**	**05/01/2000**
IM U.S. Large Cap Index Equity (SA+CF) Median	3.99	7.89	15.16	10.88	16.36	13.21	7.34	0.96	13.29	32.56	16.18	1.56	4.56	
Rank	60	56	27	23	30	38	52	24	18	64	56	21	49	
Domestic Equity Pool SPIF - Net	**3.78**	**7.70**	**15.28**	**10.65**	**16.24**	**13.06**	**6.93**	**0.78**	**13.13**	**31.85**	**17.26**	**1.81**	**8.10**	**07/01/2003**
S&P 500 Index (Cap Wtd)	3.85	7.84	15.43	11.16	16.37	13.17	7.24	1.38	13.69	32.39	16.00	2.11	8.43	
Difference	-0.07	-0.14	-0.15	-0.51	-0.13	-0.11	-0.31	-0.60	-0.56	-0.54	1.26	-0.30	-0.33	
Domestic Equity Pool STIF - Net	**0.16**	**0.37**	**0.41**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.31**	**04/01/2015**
ICE 1 Mo LIBOR Index (USD)	0.13	0.34	0.41	0.25	0.24	0.24	1.11	0.20	0.16	0.19	0.24	0.23	0.33	
Difference	0.03	0.03	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.02	
INTECH Enhanced Plus (SA) - Net	**2.05**	**5.38**	**11.54**	**11.47**	**16.36**	**13.50**	**7.41**	**2.83**	**14.91**	**32.46**	**14.89**	**4.33**	**7.70**	**06/01/2006**
S&P 500 Index (Cap Wtd)	3.85	7.84	15.43	11.16	16.37	13.17	7.24	1.38	13.69	32.39	16.00	2.11	7.58	
Difference	-1.80	-2.46	-3.89	0.31	-0.01	0.33	0.17	1.45	1.22	0.07	-1.11	2.22	0.12	
INTECH Enhanced Plus (SA) - Gross	**2.14**	**5.65**	**11.92**	**11.86**	**16.76**	**13.89**	**7.79**	**3.18**	**15.31**	**32.92**	**15.28**	**4.68**	**8.07**	**06/01/2006**
IM U.S. Large Cap Core Equity (SA+CF) Median	4.07	6.65	13.17	10.69	16.24	13.05	7.55	1.26	13.43	32.98	15.72	1.99	7.81	
Rank	79	63	63	24	36	21	40	26	25	51	59	20	37	

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

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	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011	Since Incep.	Inception Date
T. Rowe U.S. Structured Research (SA) - Net	**4.43**	**7.29**	**15.72**	**11.36**	**16.67**	**13.16**	**7.74**	**3.30**	**12.58**	**33.23**	**16.42**	**1.67**	**8.05**	**06/01/2006**
S&P 500 Index (Cap Wtd)	3.85	7.84	15.43	11.16	16.37	13.17	7.24	1.38	13.69	32.39	16.00	2.11	7.58	
Difference	0.58	-0.55	0.29	0.20	0.30	-0.01	0.50	1.92	-1.11	0.84	0.42	-0.44	0.47	
T. Rowe U.S. Structured Research (SA) - Gross	**4.51**	**7.53**	**16.06**	**11.70**	**17.02**	**13.50**	**8.08**	**3.61**	**12.92**	**33.63**	**16.77**	**1.98**	**8.38**	**06/01/2006**
IM U.S. Large Cap Core Equity (SA+CF) Median	4.07	6.65	13.17	10.69	16.24	13.05	7.55	1.26	13.43	32.98	15.72	1.99	7.81	
Rank	41	37	17	28	28	34	29	23	59	44	36	51	28	
J.P. Morgan 130/30 (SA) - Net	**6.52**	**4.64**	**12.12**	**10.39**	**16.81**	**12.92**	**N/A**	**0.01**	**15.38**	**37.55**	**18.64**	**-3.38**	**9.29**	**03/01/2008**
S&P 500 Index (Cap Wtd)	3.85	7.84	15.43	11.16	16.37	13.17	7.24	1.38	13.69	32.39	16.00	2.11	8.19	
Difference	2.67	-3.20	-3.31	-0.77	0.44	-0.25	N/A	-1.37	1.69	5.16	2.64	-5.49	1.10	
J.P. Morgan 130/30 (SA) - Gross	**6.72**	**5.21**	**12.92**	**11.18**	**17.65**	**13.74**	**N/A**	**0.72**	**16.21**	**38.53**	**19.48**	**-2.65**	**10.07**	**03/01/2008**
IM U.S. Large Cap Core Equity (SA+CF) Median	4.07	6.65	13.17	10.69	16.24	13.05	7.55	1.26	13.43	32.98	15.72	1.99	8.30	
Rank	8	69	52	37	16	24	N/A	57	15	11	13	86	7	
Domestic Mid Cap Equity														
Artisan Partners (SA) - Net	**4.46**	**14.71**	**14.74**	**4.44**	**13.02**	**11.53**	**N/A**	**-9.68**	**2.12**	**37.20**	**12.02**	**6.93**	**7.39**	**03/01/2007**
Russell Mid Cap Val Index	4.45	13.72	17.26	10.49	17.38	14.27	7.89	-4.78	14.75	33.46	18.51	-1.38	6.92	
Difference	0.01	0.99	-2.52	-6.05	-4.36	-2.74	N/A	-4.90	-12.63	3.74	-6.49	8.31	0.47	
Artisan Partners (SA) - Gross	**4.62**	**15.28**	**15.49**	**5.13**	**13.77**	**12.28**	**N/A**	**-9.09**	**2.79**	**38.11**	**12.79**	**7.69**	**8.15**	**03/01/2007**
IM U.S. Mid Cap Value Equity (SA+CF) Median	5.14	10.69	14.02	9.46	17.20	13.75	8.54	-3.57	11.73	36.06	17.16	-0.98	7.79	
Rank	67	15	42	94	94	84	N/A	88	97	40	88	2	38	
BlackRock Mid Cap Eq Idx A (CF) - Net	**4.14**	**12.39**	**15.33**	**9.34**	**16.49**	**13.96**	**9.15**	**-2.17**	**9.75**	**33.51**	**17.90**	**-1.72**	**9.13**	**01/01/2005**
S&P Mid Cap 400 Index (Cap Wtd)	4.14	12.40	15.33	9.35	16.50	13.95	9.11	-2.18	9.77	33.50	17.88	-1.73	9.08	
Difference	0.00	-0.01	0.00	-0.01	-0.01	0.01	0.04	0.01	-0.02	0.01	0.02	0.01	0.05	
BlackRock Mid Cap Eq Idx A (CF) - Gross	**4.16**	**12.46**	**15.43**	**9.43**	**16.60**	**14.05**	**9.23**	**-2.09**	**9.85**	**33.62**	**18.00**	**-1.65**	**9.20**	**01/01/2005**

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	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011	Since Incep.	Inception Date
Iridian Asset Management (SA) - Net	**7.82**	**4.81**	**11.32**	**9.44**	**N/A**	**N/A**	**N/A**	**-1.62**	**12.84**	**N/A**	**N/A**	**N/A**	**12.07**	**05/01/2013**
Russell Mid Cap Val Index	4.45	13.72	17.26	10.49	17.38	14.27	7.89	-4.78	14.75	33.46	18.51	-1.38	11.17	
Difference	3.37	-8.91	-5.94	-1.05	N/A	N/A	N/A	3.16	-1.91	N/A	N/A	N/A	0.90	
Iridian Asset Management (SA) - Gross	**8.02**	**5.41**	**12.16**	**10.28**	**N/A**	**N/A**	**N/A**	**-0.87**	**13.73**	**N/A**	**N/A**	**N/A**	**12.94**	**05/01/2013**
IM U.S. Mid Cap Value Equity (SA+CF) Median	5.14	10.69	14.02	9.46	17.20	13.75	8.54	-3.57	11.73	36.06	17.16	-0.98	11.09	
Rank	7	91	69	32	N/A	N/A	N/A	18	23	N/A	N/A	N/A	15	
TimesSquare Capital Management (SA) - Net	**4.11**	**7.23**	**10.26**	**8.55**	**16.29**	**12.94**	**N/A**	**0.96**	**5.69**	**37.79**	**19.19**	**-1.37**	**8.37**	**03/01/2007**
Russell Mid Cap Grth Index	4.59	6.84	11.24	8.90	15.85	13.90	8.51	-0.20	11.90	35.74	15.81	-1.65	7.76	
Difference	-0.48	0.39	-0.98	-0.35	0.44	-0.96	N/A	1.16	-6.21	2.05	3.38	0.28	0.61	
TimesSquare Capital Management (SA) - Gross	**4.28**	**7.78**	**11.02**	**9.29**	**17.10**	**13.73**	**N/A**	**1.65**	**6.42**	**38.75**	**20.03**	**-0.64**	**9.15**	**03/01/2007**
IM U.S. Mid Cap Growth Equity (SA+CF) Median	4.70	5.19	8.31	7.70	15.11	13.45	9.05	0.79	8.51	36.35	15.09	-0.95	8.42	
Rank	63	17	30	26	15	40	N/A	42	71	35	15	46	30	

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	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011	Since Incep.	Inception Date
Domestic Small Cap Equity														
Alliance Bernstein (SA) - Net	**7.75**	**4.25**	**9.87**	**3.39**	**N/A**	**N/A**	**N/A**	**-0.84**	**-1.61**	**45.22**	**N/A**	**N/A**	**8.46**	**04/01/2012**
Russell 2000 Grth Index	9.22	7.48	12.12	6.58	16.15	13.32	8.29	-1.38	5.60	43.30	14.59	-2.91	11.36	
Difference	-1.47	-3.23	-2.25	-3.19	N/A	N/A	N/A	0.54	-7.21	1.92	N/A	N/A	-2.90	
Alliance Bernstein (SA) - Gross	**7.99**	**4.97**	**10.87**	**4.33**	**N/A**	**N/A**	**N/A**	**0.05**	**-0.71**	**46.52**	**N/A**	**N/A**	**9.44**	**04/01/2012**
IM U.S. Small Cap Growth Equity (SA+CF) Median	8.09	7.80	11.32	6.81	16.28	14.21	9.06	-0.71	4.01	45.37	14.75	-1.23	11.76	
Rank	51	73	54	77	N/A	N/A	N/A	42	82	45	N/A	N/A	83	
DFA US Small Cap Trust (CF) - Net	**7.28**	**11.20**	**14.36**	**7.78**	**17.05**	**14.09**	**8.12**	**-2.64**	**4.75**	**42.42**	**18.20**	**-2.07**	**12.31**	**03/01/2003**
Russell 2000 Index	9.05	11.46	15.47	6.71	15.82	12.49	7.07	-4.41	4.89	38.82	16.35	-4.18	11.06	
Difference	-1.77	-0.26	-1.11	1.07	1.23	1.60	1.05	1.77	-0.14	3.60	1.85	2.11	1.25	
DFA US Small Cap Trust (CF) - Gross	**7.37**	**11.49**	**14.75**	**8.16**	**17.46**	**14.48**	**8.50**	**-2.29**	**5.12**	**42.90**	**18.59**	**-1.70**	**12.62**	**03/01/2003**
IM U.S. Small Cap Core Equity (SA+CF) Median	7.54	10.53	14.65	8.54	17.18	14.21	8.26	-1.39	6.52	41.26	16.88	-1.39	12.36	
Rank	57	40	50	57	48	43	49	63	62	41	34	54	47	
Voya Investment Management (SA) - Net	**9.45**	**10.15**	**16.21**	**7.07**	**N/A**	**N/A**	**N/A**	**-1.01**	**5.41**	**N/A**	**N/A**	**N/A**	**11.08**	**05/01/2013**
Russell 2000 Grth Index	9.22	7.48	12.12	6.58	16.15	13.32	8.29	-1.38	5.60	43.30	14.59	-2.91	10.95	
Difference	0.23	2.67	4.09	0.49	N/A	N/A	N/A	0.37	-0.19	N/A	N/A	N/A	0.13	
Voya Investment Management (SA) - Gross	**9.69**	**10.88**	**17.23**	**8.01**	**N/A**	**N/A**	**N/A**	**-0.15**	**6.35**	**N/A**	**N/A**	**N/A**	**12.06**	**05/01/2013**
IM U.S. Small Cap Growth Equity (SA+CF) Median	8.09	7.80	11.32	6.81	16.28	14.21	9.06	-0.71	4.01	45.37	14.75	-1.23	11.34	
Rank	32	26	19	32	N/A	N/A	N/A	44	31	N/A	N/A	N/A	41	

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	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011	Since Incep.	Inception Date
Wells Capital Management (SA) - Net	**7.22**	**10.83**	**13.06**	**6.55**	**N/A**	**N/A**	**N/A**	**-5.70**	**7.45**	**N/A**	**N/A**	**N/A**	**9.32**	**05/01/2013**
Russell 2000 Val Index	8.87	15.49	18.81	6.77	15.45	11.60	5.78	-7.47	4.22	34.52	18.05	-5.50	9.02	
Difference	-1.65	-4.66	-5.75	-0.22	N/A	N/A	N/A	1.77	3.23	N/A	N/A	N/A	0.30	
Wells Capital Management (SA) - Gross	**7.46**	**11.58**	**14.07**	**7.51**	**N/A**	**N/A**	**N/A**	**-4.85**	**8.43**	**N/A**	**N/A**	**N/A**	**10.30**	**05/01/2013**
IM U.S. Small Cap Value Equity (SA+CF) Median	7.45	12.60	15.70	7.79	16.90	13.62	8.41	-4.31	5.71	38.07	17.49	-3.15	10.86	
Rank	50	59	65	55	N/A	N/A	N/A	58	20	N/A	N/A	N/A	60	
Vaughan Nelson Management (SA) - Net	**5.98**	**10.24**	**12.11**	**9.58**	**16.77**	**13.59**	**N/A**	**0.16**	**9.09**	**39.30**	**15.36**	**-3.61**	**9.69**	**03/01/2007**
Russell 2000 Val Index	8.87	15.49	18.81	6.77	15.45	11.60	5.78	-7.47	4.22	34.52	18.05	-5.50	5.06	
Difference	-2.89	-5.25	-6.70	2.81	1.32	1.99	N/A	7.63	4.87	4.78	-2.69	1.89	4.63	
Vaughan Nelson Management (SA) - Gross	**6.20**	**10.92**	**13.04**	**10.48**	**17.75**	**14.54**	**N/A**	**0.98**	**10.00**	**40.47**	**16.32**	**-2.77**	**10.63**	**03/01/2007**
IM U.S. Small Cap Value Equity (SA+CF) Median	7.45	12.60	15.70	7.79	16.90	13.62	8.41	-4.31	5.71	38.07	17.49	-3.15	7.59	
Rank	75	68	74	13	30	27	N/A	8	10	36	60	49	5	

Gross of fees performance is not available (N/A) for the following funds: Domestic Equity Pool SPIF and Domestic Equity Pool STIF.
The current annual expense ratios for the Domestic Equity Pool SPIF and the Domestic Equity Pool STIF are 0.15% and 0.12%, 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 June 30.

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International Equity Managers

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	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011	Since Incep.	Inception Date
International Developed Large Cap Equity														
Acadian Asset Non-US Equity (SA) - Net	**7.81**	**9.13**	**12.30**	**2.25**	**7.80**	**5.40**	**N/A**	**-7.75**	**0.00**	**17.60**	**18.66**	**-10.60**	**0.98**	**11/01/2006**
MSCI ACW Ex US Val Index (USD) (Net)	7.79	5.45	6.96	-1.91	4.59	2.13	1.14	-10.06	-5.10	15.04	16.97	-13.20	0.71	
Difference	0.02	3.68	5.34	4.16	3.21	3.27	N/A	2.31	5.10	2.56	1.69	2.60	0.27	
Acadian Asset Non-US Equity (SA) - Gross	**7.95**	**9.57**	**12.89**	**2.79**	**8.39**	**5.98**	**N/A**	**-7.26**	**0.52**	**18.22**	**19.37**	**-10.10**	**1.55**	**11/01/2006**
IM International Large Cap Value Equity (SA+CF) Median	7.03	4.11	8.35	1.51	8.10	5.45	3.06	-1.74	-4.25	23.25	17.95	-10.80	2.72	
Rank	29	13	18	27	42	39	N/A	91	11	77	34	38	87	
Baillie Gifford (SA) - Net	**8.48**	**8.72**	**17.27**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.71**	**06/01/2015**
MSCI ACW Ex US Grth Index (USD) (Net)	6.06	6.20	11.50	2.23	7.45	5.16	3.14	-1.25	-2.65	15.49	16.67	-14.21	-2.34	
Difference	2.42	2.52	5.77	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.05	
Baillie Gifford (SA) - Gross	**8.62**	**9.16**	**17.89**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**1.25**	**06/01/2015**
IM International Large Cap Growth Equity (SA+CF) Median	6.55	3.35	9.11	2.85	9.27	6.71	4.28	2.12	-3.37	20.95	19.67	-11.44	-3.03	
Rank	8	8	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11	
BlackRock ACWI Ex-US SuperFund A (CF) - Net	**6.95**	**6.08**	**9.52**	**0.37**	**6.24**	**3.86**	**N/A**	**-5.49**	**-3.73**	**15.51**	**17.07**	**-13.54**	**6.10**	**06/01/2009**
MSCI ACW Ex US Index (USD) (Net)	6.91	5.82	9.26	0.18	6.04	3.66	2.16	-5.66	-3.87	15.29	16.83	-13.71	5.90	
Difference	0.04	0.26	0.26	0.19	0.20	0.20	N/A	0.17	0.14	0.22	0.24	0.17	0.20	
BlackRock ACWI Ex-US SuperFund A (CF) - Gross	**6.97**	**6.14**	**9.60**	**0.45**	**6.33**	**3.94**	**N/A**	**-5.42**	**-3.65**	**15.61**	**17.17**	**-13.46**	**6.19**	**06/01/2009**
International Equity Pool SPIF - Net	**5.83**	**2.48**	**5.97**	**0.30**	**7.35**	**3.50**	**1.29**	**-1.48**	**-5.66**	**20.79**	**17.97**	**-13.22**	**2.87**	**12/01/2005**
MSCI EAFE Index (USD) (Net)	6.43	1.73	6.52	0.48	7.39	4.24	1.82	-0.81	-4.90	22.78	17.32	-12.14	3.39	
Difference	-0.60	0.75	-0.55	-0.18	-0.04	-0.74	-0.53	-0.67	-0.76	-1.99	0.65	-1.08	-0.52	
International Equity Pool STIF - Net	**0.12**	**0.33**	**0.37**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.28**	**04/01/2015**
ICE 1 Mo LIBOR Index (USD)	0.13	0.34	0.41	0.25	0.24	0.24	1.11	0.20	0.16	0.19	0.24	0.23	0.33	
Difference	-0.01	-0.01	-0.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.05	
Invesco (SA) - Net	**4.54**	**3.90**	**10.30**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**-3.66**	**06/01/2015**
MSCI ACW Ex US Grth Index (USD) (Net)	6.06	6.20	11.50	2.23	7.45	5.16	3.14	-1.25	-2.65	15.49	16.67	-14.21	-2.34	
Difference	-1.52	-2.30	-1.20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-1.32	
Invesco (SA) - Gross	**4.70**	**4.42**	**11.04**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**-3.01**	**06/01/2015**
IM International Large Cap Growth Equity (SA+CF) Median	6.55	3.35	9.11	2.85	9.27	6.71	4.28	2.12	-3.37	20.95	19.67	-11.44	-3.03	
Rank	82	39	29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50	

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

Montana Board of Investments
Comparative Performance
International Equity Managers

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011	Since Incep.	Inception Date
Lazard Asset Management (SA) - Net	**4.32**	**4.84**	**9.45**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**-3.41**	**06/01/2015**
MSCI ACW Ex US Val Index (USD) (Net)	7.79	5.45	6.96	-1.91	4.59	2.13	1.14	-10.06	-5.10	15.04	16.97	-13.20	-7.85	
Difference	-3.47	-0.61	2.49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.44	
Lazard Asset Management (SA) - Gross	**4.46**	**5.27**	**10.05**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**-2.88**	**06/01/2015**
IM International Large Cap Value Equity (SA+CF) Median	7.03	4.11	8.35	1.51	8.10	5.45	3.06	-1.74	-4.25	23.25	17.95	-10.80	-4.53	
Rank	82	38	31	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	33	
International Developed Small Cap Equity														
American Century Investment Mgmt (SA) - Net	**7.77**	**2.86**	**8.92**	**N/A**	**N/A**	**N/A**	**N/A**	**11.32**	**N/A**	**N/A**	**N/A**	**N/A**	**1.13**	**03/01/2014**
MSCI ACW Ex US SCG Index (USD) (Net)	7.00	6.17	13.49	4.41	8.77	7.49	4.49	6.50	-3.59	18.52	16.87	-17.86	2.01	
Difference	0.77	-3.31	-4.57	N/A	N/A	N/A	N/A	4.82	N/A	N/A	N/A	N/A	-0.88	
American Century Investment Mgmt (SA) - Gross	**7.99**	**3.52**	**9.86**	**N/A**	**N/A**	**N/A**	**N/A**	**12.25**	**N/A**	**N/A**	**N/A**	**N/A**	**1.99**	**03/01/2014**
IM International Small Cap Growth Equity (SA+CF) Median	7.89	4.42	12.09	6.15	12.04	9.87	6.80	12.85	-3.62	31.15	23.59	-14.83	2.85	
Rank	43	72	72	N/A	N/A	N/A	N/A	52	N/A	N/A	N/A	N/A	62	
BlackRock ACWI Ex-US Small Cap (CF) - Net	**8.09**	**8.08**	**13.80**	**3.80**	**N/A**	**N/A**	**N/A**	**2.87**	**-3.84**	**19.87**	**N/A**	**N/A**	**7.42**	**02/01/2012**
MSCI ACWI Ex US Sm Cap Index IMI (USD) (Net)	7.91	7.70	13.38	3.52	8.60	6.78	4.59	2.60	-4.03	19.73	18.52	-18.50	7.19	
Difference	0.18	0.38	0.42	0.28	N/A	N/A	N/A	0.27	0.19	0.14	N/A	N/A	0.23	
BlackRock ACWI Ex-US Small Cap (CF) - Gross	**8.13**	**8.22**	**14.00**	**3.98**	**N/A**	**N/A**	**N/A**	**3.04**	**-3.67**	**20.08**	**N/A**	**N/A**	**7.61**	**02/01/2012**
DFA Intl Sm Co;I (DFISX) - Net	**8.83**	**8.00**	**13.66**	**4.58**	**10.42**	**7.96**	**4.90**	**5.89**	**-6.29**	**27.49**	**18.75**	**-15.36**	**7.81**	**11/01/2004**
MSCI Wrld Ex US Sm Cap Index (USD) (Net)	8.00	7.26	13.50	4.15	9.72	7.54	4.11	5.46	-5.35	25.55	17.48	-15.81	7.09	
Difference	0.83	0.74	0.16	0.43	0.70	0.42	0.79	0.43	-0.94	1.94	1.27	0.45	0.72	

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 June 30.

RVK

Montana Board of Investments
Comparative Performance
International Equity Managers

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011	Since Incep.	Inception Date
Templeton Investment Counsel (SA) - Net	**8.23**	**2.73**	**5.59**	**N/A**	**N/A**	**N/A**	**N/A**	**1.81**	**N/A**	**N/A**	**N/A**	**N/A**	**0.12**	**03/01/2014**
MSCI ACW Ex US Sm Cap Val Index (USD) (Net)	8.83	9.27	13.22	2.61	8.40	6.06	4.66	-1.25	-4.49	20.92	20.15	-19.12	-0.03	
Difference	-0.60	-6.54	-7.63	N/A	N/A	N/A	N/A	3.06	N/A	N/A	N/A	N/A	0.15	
Templeton Investment Counsel (SA) - Gross	**8.46**	**3.43**	**6.55**	**N/A**	**N/A**	**N/A**	**N/A**	**2.73**	**N/A**	**N/A**	**N/A**	**N/A**	**1.03**	**03/01/2014**
IM International Small Cap Value Equity (SA+CF) Median	8.67	6.47	11.85	5.02	12.45	10.00	6.48	5.35	-4.20	30.63	23.58	-13.53	2.00	
Rank	59	84	98	N/A	N/A	N/A	N/A	74	N/A	N/A	N/A	N/A	70	
International Emerging Equity														
BlackRock Emerging Mkts (CF) - Net	**8.97**	**15.76**	**16.50**	**-0.81**	**N/A**	**N/A**	**N/A**	**-15.15**	**-2.49**	**-2.79**	**N/A**	**N/A**	**-0.29**	**02/01/2012**
MSCI Emg Mkts Index (USD) (Net)	9.03	16.02	16.78	-0.56	3.03	2.27	3.94	-14.92	-2.19	-2.60	18.23	-18.42	-0.03	
Difference	-0.06	-0.26	-0.28	-0.25	N/A	N/A	N/A	-0.23	-0.30	-0.19	N/A	N/A	-0.26	
BlackRock Emerging Mkts (CF) - Gross	**9.02**	**15.94**	**16.70**	**-0.62**	**N/A**	**N/A**	**N/A**	**-14.99**	**-2.30**	**-2.57**	**N/A**	**N/A**	**-0.09**	**02/01/2012**

Gross of fees performance is not available (N/A) for the following funds: International Equity Pool SPIF, International Equity Pool STIF, and DFA Intl Sm Co;I (DFISX).
The current annual expense ratios for the International Equity Pool SPIF, International Equity Pool STIF, and the DFA Intl Sm Co;I (DFISX) are 0.18%, 0.12% and 0.54%, 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 June 30.

RVK

Montana Board of Investments
Comparative Performance
Fixed Income Managers

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011	Since Incep.	Inception Date
Core Internal Bond Portfolio	**0.53**	**6.29**	**5.35**	**4.59**	**3.80**	**5.27**	**5.41**	**0.83**	**6.82**	**-2.02**	**6.07**	**8.20**	**6.66**	**04/01/1995**
Bloomberg US Agg Bond Index	0.46	5.80	5.19	4.03	3.08	4.10	4.79	0.55	5.97	-2.02	4.21	7.84	5.82	
Difference	0.07	0.49	0.16	0.56	0.72	1.17	0.62	0.28	0.85	0.00	1.86	0.36	0.84	
Core Internal Bond Portfolio	**0.53**	**6.29**	**5.35**	**4.59**	**3.80**	**5.27**	**5.41**	**0.83**	**6.82**	**-2.02**	**6.07**	**8.20**	**6.66**	**04/01/1995**
IM U.S. Broad Market Core FI (SA+CF) Median	0.68	6.13	5.62	4.31	3.66	4.73	5.22	0.81	6.14	-1.56	5.84	7.83	6.15	
Rank	67	40	68	31	40	20	35	48	23	74	47	24	7	
Trust Funds Bond Portfolio	**0.44**	**6.39**	**5.51**	**4.78**	**4.04**	**5.14**	**5.47**	**1.03**	**6.79**	**-1.43**	**6.15**	**8.16**	**6.35**	**10/01/1995**
Bloomberg US Agg Bond Index	0.46	5.80	5.19	4.03	3.08	4.10	4.79	0.55	5.97	-2.02	4.21	7.84	5.57	
Difference	-0.02	0.59	0.32	0.75	0.96	1.04	0.68	0.48	0.82	0.59	1.94	0.32	0.78	
Trust Funds Bond Portfolio	**0.44**	**6.39**	**5.51**	**4.78**	**4.04**	**5.14**	**5.47**	**1.03**	**6.79**	**-1.43**	**6.15**	**8.16**	**6.35**	**10/01/1995**
IM U.S. Broad Market Core FI (SA+CF) Median	0.68	6.13	5.62	4.31	3.66	4.73	5.22	0.81	6.14	-1.56	5.84	7.83	5.91	
Rank	81	36	61	23	26	23	33	28	24	42	43	25	9	
Neuberger Berman High Yield (SA) - Net	**5.36**	**13.85**	**12.12**	**4.84**	**8.24**	**N/A**	**N/A**	**-4.32**	**1.93**	**7.78**	**15.90**	**4.07**	**7.97**	**01/01/2010**
Bloomberg US Hi Yld - 2% Issuer Cap Index	5.55	15.11	12.74	5.30	8.34	8.72	7.80	-4.43	2.46	7.44	15.78	4.96	8.10	
Difference	-0.19	-1.26	-0.62	-0.46	-0.10	N/A	N/A	0.11	-0.53	0.34	0.12	-0.89	-0.13	
Neuberger Berman High Yield (SA) - Gross	**5.48**	**14.23**	**12.62**	**5.31**	**8.72**	**N/A**	**N/A**	**-3.89**	**2.38**	**8.26**	**16.42**	**4.54**	**8.46**	**01/01/2010**
IM U.S. High Yield Bonds (SA+CF) Median	4.90	12.20	10.42	5.09	8.13	8.65	7.53	-2.23	2.70	7.57	15.35	5.26	8.08	
Rank	25	18	11	42	29	N/A	N/A	74	56	32	29	65	31	

Net performance shown is net of all manager fees and expenses (Net-All). Gross returns are compared to median performance of similar managers. Fiscal year ends on June 30.

RVK

Montana Board of Investments
Comparative Performance
Fixed Income Managers

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011	Since Incep.	Inception Date
Reams Asset Core Plus (SA) - Net	**0.46**	**7.20**	**5.70**	**3.93**	**4.25**	**5.33**	**N/A**	**0.07**	**4.47**	**-0.85**	**8.64**	**7.54**	**6.59**	**10/01/2008**
Bloomberg US Unv Bond Index	0.96	6.69	6.11	4.27	3.62	4.53	5.00	0.43	5.56	-1.35	5.53	7.40	5.30	
Difference	-0.50	0.51	-0.41	-0.34	0.63	0.80	N/A	-0.36	-1.09	0.50	3.11	0.14	1.29	
Reams Asset Core Plus (SA) - Gross	**0.51**	**7.34**	**5.88**	**4.11**	**4.43**	**5.51**	**N/A**	**0.24**	**4.65**	**-0.68**	**8.83**	**7.72**	**6.77**	**10/01/2008**
IM U.S. Broad Market Core+ FI (SA+CF) Median	1.34	7.11	6.49	4.66	4.58	5.65	5.73	0.27	6.20	-0.55	8.09	7.47	6.61	
Rank	98	43	72	87	59	57	N/A	52	90	56	42	40	44	
Post High Yield Plus (SA) - Net	**3.96**	**8.58**	**8.45**	**5.85**	**9.11**	**8.99**	**N/A**	**0.82**	**4.99**	**10.19**	**16.97**	**2.60**	**10.13**	**06/01/2009**
Bloomberg US Hi Yld - 2% Issuer Cap Index	5.55	15.11	12.74	5.30	8.34	8.72	7.80	-4.43	2.46	7.44	15.78	4.96	10.73	
Difference	-1.59	-6.53	-4.29	0.55	0.77	0.27	N/A	5.25	2.53	2.75	1.19	-2.36	-0.60	
Post High Yield Plus (SA) - Gross	**4.11**	**9.04**	**9.08**	**6.47**	**9.76**	**9.64**	**N/A**	**1.43**	**5.62**	**10.85**	**17.67**	**3.22**	**10.80**	**06/01/2009**
IM U.S. High Yield Bonds (SA+CF) Median	4.90	12.20	10.42	5.09	8.13	8.65	7.53	-2.23	2.70	7.57	15.35	5.26	10.35	
Rank	75	82	71	9	6	9	N/A	8	3	11	14	82	31	
Post Trad'l High Yield LP (CF) - Gross	**3.94**	**9.28**	**9.24**	**6.59**	**9.90**	**9.52**	**N/A**	**1.42**	**6.01**	**9.98**	**18.62**	**3.08**	**10.04**	**09/01/2009**
IM U.S. High Yield Bonds (SA+CF) Median	4.90	12.20	10.42	5.09	8.13	8.65	7.53	-2.23	2.70	7.57	15.35	5.26	9.27	
Rank	80	80	70	7	5	11	N/A	8	3	14	10	83	16	

Trust Funds Bond Portfolio and Post Trad'l High Yield LP (CF) are part of the Trust Fund 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 June 30.

RVK

Montana Board of Investments
Comparative Performance
Trust Accounts

As of September 30, 2016

	QTD/ FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
Abandoned Mine Trust	0.09	1.06	0.93	1.22	1.46	1.83	2.77	0.90	1.49	0.63	2.82	1.49
Big Sky Economic Development Fund	0.66	6.39	5.86	5.15	4.59	5.58	5.74	1.82	6.77	-0.22	6.72	8.13
Butte Area One Restoration	0.45	4.10	3.77	3.05	2.67	3.27	N/A	1.20	3.57	-0.08	3.68	4.61
Clark Fork River Restoration	0.45	4.14	3.78	3.36	2.99	3.70	N/A	1.37	4.26	-0.12	4.36	5.33
Coal Tax Cultural Trust Fund	0.66	6.36	5.83	5.13	4.58	5.57	5.74	1.79	6.79	-0.23	6.76	8.09
Coal Tax Park Acquisition	0.66	6.33	5.81	5.07	4.55	5.55	5.72	1.78	6.66	-0.25	6.78	8.10
East Helena Compensation Fund	0.41	3.20	3.02	2.45	N/A	N/A	N/A	0.91	3.01	-0.13	N/A	N/A
Endowment for Children	0.65	5.97	5.48	4.92	4.44	5.43	N/A	1.70	6.66	-0.28	6.69	8.00
FWP License Account	0.11	0.98	1.03	0.76	0.90	1.08	2.14	0.61	0.59	0.42	1.64	1.08
FWP Mitigation Trust Fund	0.10	1.10	1.07	1.19	1.44	1.79	2.64	0.87	1.37	0.61	2.85	1.46
FWP Real Property Trust	0.64	6.13	5.62	4.91	4.40	5.34	5.53	1.73	6.47	-0.24	6.51	7.76
Group Benefits	0.06	1.45	1.25	1.29	1.30	1.65	2.71	1.06	1.17	0.32	2.22	1.43
Harold Hamm Endowment	0.16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Montana Pole	0.56	5.09	4.72	4.16	3.73	4.58	4.92	1.56	5.44	-0.17	5.50	6.61
Montana Tech-UM Agency Funds	0.18	0.63	0.69	0.44	0.43	0.51	1.42	0.27	0.35	0.17	0.57	0.66
Montana State University	0.23	1.00	1.02	0.77	0.74	0.90	1.76	0.39	0.85	0.12	1.07	1.23
MT BOI - Clark Fork Site	0.58	5.76	5.27	4.35	3.79	4.51	N/A	1.56	5.37	-0.09	5.23	6.23
MT BOI UOFM Other	0.37	3.12	2.74	2.35	1.96	2.08	2.74	1.13	2.57	-0.12	2.54	2.21
MUS Group Insurance	0.05	1.40	1.25	1.37	1.17	N/A	N/A	1.26	1.30	0.17	1.56	N/A
MUS Workers Compensation	0.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Older Montanans Trust	0.65	6.19	5.68	4.97	4.28	5.09	N/A	1.72	6.57	-0.23	6.01	5.85
Permanent Coal Trust Excl Crp	0.66	5.19	5.01	4.72	4.45	5.18	5.35	2.23	6.14	0.99	6.29	7.16
PERS Defined Cont Disability	2.92	2.93	3.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Potter Trust Fund	0.66	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Resource Indemnity Trust	0.67	6.47	5.93	5.23	4.66	5.59	5.76	1.82	6.94	-0.27	6.86	8.18
Smelter Hill Up Restorative	0.27	2.42	2.21	2.02	1.77	2.04	N/A	0.92	2.49	0.01	2.47	2.83
State Fund Insurance	0.79	4.72	5.36	4.44	4.86	5.34	5.26	2.21	5.00	3.11	7.25	5.26
Streamside Tailings Operable Unit	0.60	5.66	5.20	4.67	4.17	4.99	5.31	1.69	6.22	-0.21	6.14	7.20
Tobacco Trust Fund	0.66	6.45	5.90	5.20	4.63	5.61	5.78	1.82	6.89	-0.27	6.77	8.12
Treasurers	0.15	0.52	0.52	0.34	0.32	0.32	1.26	0.27	0.19	0.23	0.31	0.31
Treasure State Endowment	0.67	6.41	5.88	5.18	4.62	5.61	5.77	1.82	6.84	-0.21	6.76	8.14
Treasure State Reg. Water System	0.66	6.39	5.86	5.15	4.60	5.59	5.74	1.82	6.80	-0.22	6.73	8.13
Trust and Legacy Account	0.67	6.47	5.93	5.22	4.63	5.60	5.76	1.82	6.92	-0.26	6.78	8.04
UCFRB Assess/Litig Cost Rec	0.64	6.11	5.61	4.87	4.31	5.09	5.53	1.65	6.40	-0.24	6.45	6.87
UCFRB Restoration Fund	0.58	5.61	5.12	4.67	4.24	5.24	5.45	1.70	6.28	-0.20	6.43	7.66
Upper Blackfoot Response	0.28	2.36	2.15	1.65	1.38	N/A	N/A	0.84	1.59	0.13	1.60	2.30
Weed Control Trust	0.67	6.48	5.93	5.23	4.63	5.41	5.49	1.82	6.94	-0.23	6.69	7.42
Wildlife Habitat Trust	0.64	6.11	5.61	4.92	4.39	5.33	5.53	1.73	6.49	-0.24	6.46	7.74
Zortman/Landusky LT H20	0.14	1.22	0.74	1.31	2.00	4.32	5.53	0.84	1.78	-0.51	5.47	11.21
Z/L Long Term H20 Trust Fund	0.12	1.27	0.85	1.37	1.68	3.93	5.03	1.15	1.76	-0.96	3.91	11.64

Performance shown is gross of fees. Fiscal year ends on June 30.

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Performance Notes

- All gross and net performance data is provided by State Street Analytics (SSA). Reported gross returns for the retirement plans prior to July 1, 2002 are net of all fees.
- Gross performance for the retirement plans is calculated with fee accruals provided by Montana's Accounting department.
- Retirement plan custom benchmarks are provided by State Street Bank and are calculated daily using actual allocations.
- Gross of fees performance is not available (N/A) for the following funds. The current annual expense ratios are as listed below.

Index Notes

- The Montana International Custom Benchmark consists of 100% MSCI EAFE Index (USD) (Net) through 10/31/2006, 100% MSCI ACW Ex US Index (USD) (Net) through 6/30/2007, 92.5% MSCI ACW Ex US Index (USD) (Net) and 7.5% MSCI ACW Ex US SC IM Index (USD) (Net) through 2/28/2014, and 100% MSCI ACW Ex-US IM Index thereafter.

Trust Accounts Comments

- The Potter Trust Fund and the Harold Hamm Endowment were added in June 2016.
- MUS Workers Compensation was added in April 2016.

Manager Transition Comments

- Nicholas Investment Partners was liquidated in July 2016.
- Effective July 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 January 2016.
- Effective May 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 June 30.

Expense Ratios

- Domestic Equity Pool SPIF: 0.15%
- Domestic Equity Pool STIF: 0.12%
- DFA Intl Sm Co;I (DFISX): 0.54%
- International Equity Pool SPIF: 0.18%
- International Equity Pool STIF: 0.12%

PORTLAND CHICAGO NEW YORK

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RVK

Short Term Investment Pool (STIP)

John Romasko, CFA, Investment Officer
November 16, 2016

Environment

Money market yields increased slightly on the quarter with one month LIBOR rates ending up 6 basis points due to an increase in credit spreads.

Characteristics

The STIP portfolio is currently well diversified.

Short Term Investment Pool (STIP) Guidelines 9/30/16

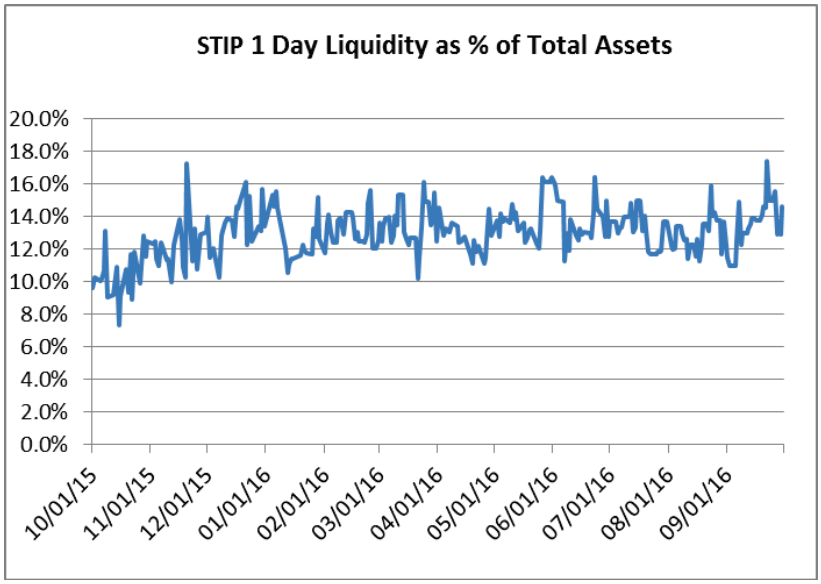
Quantitative Guidelines

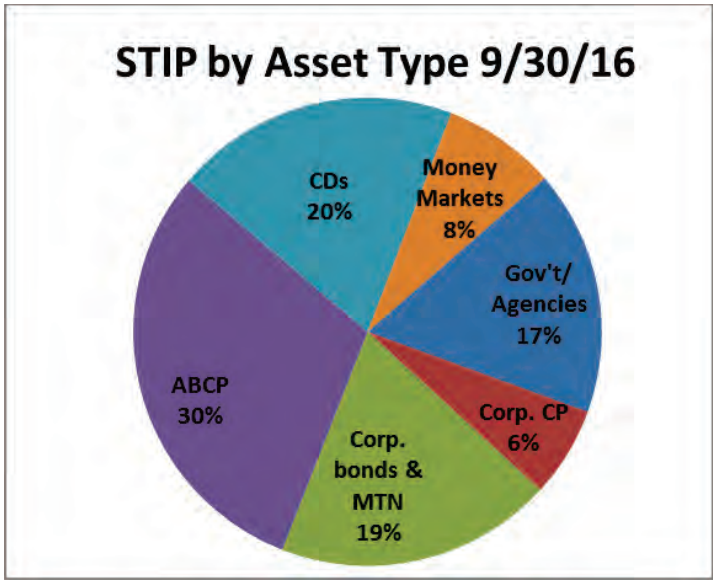
	STIP	Policy Range
U.S. Agency Securities	13%	65% Maximum
Largest Agency Issuer	7%	25% Maximum
U.S. Treasury Securities	4%	100% Maximum
Weighted Average Maturity	41 Days	Maximum 60 Days
Corporate CP, bonds, notes	26%	40% Maximum
Corporate bonds, notes	19%	25% Maximum
Corporate CP	6%	40% Maximum
ABS and ABCP	30%	40% Maximum
ABS Rated A-/A3/A- or Lower	0%	5% Maximum
ABS Collateral Concentration	0%	10% Maximum
ABCP Rated A2/P2/F2 or Lower	0%	5% Maximum
ABCP Maximum Maturity	66 Days	90 Days Maximum
ABCP Maturity > 60 Days	1%	10% Maximum
ABS/ABCP Single Sponser	8%	10% Maximum
Certificates of Deposit	20%	30% Maximum
CDs Rated A2/P2/F2 or lower	0%	5% Maximum
Repurchase Agreements	0%	10% Maximum
Repo Issuer Concentration	0%	5% Maximum
Repo Maturity	0%	30 Days Maximum
Reverse Repo Maturity	0%	90 Days Maximum
Reverse Repo Securities Pledged	0%	10% Maximum
Gov't Money Market Funds	7%	15% Maximum
Largest Issuer Concentration	3%	5% Maximum
Maximum Maturity Fixed Rate	231 Days	Maximum 397 Days
Maximum Maturity Variable Rate	600 Days	Maximum 2yrs
Non-Gov't Maturities > 397 Days	8%	Maximum 25%
Largest Non-Gov't Issuer	3%	3% Maximum
Minimum one-day liquidity	15%	Minimum 10%
Minimum one-week liquidity	18%	Minimum 15%
Maximum Illiquid Assets	0%	10% Maximum

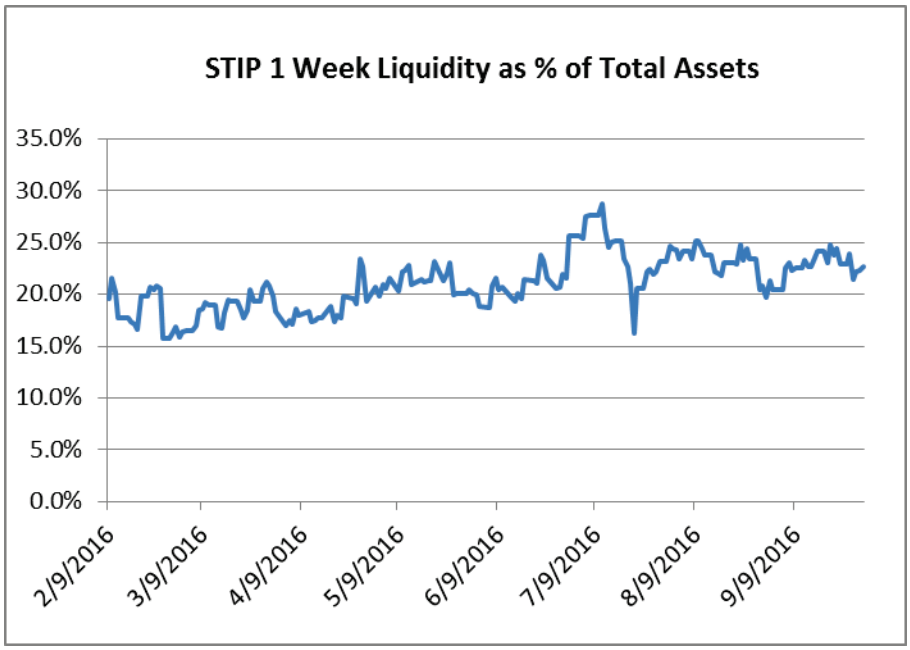
Qualitative Guidelines

	Compliant
Time of Purchase Guidelines	
Non-Gov't Securities rated by at least 2 of the rating agencies - S&P, Moody's or Fitch	YES
CP not rated lower than A1/P1/F1	YES
Corporate bonds, Notes or MTN not rated lower than A/A2/A	YES
ABS not rated lower than A/A2/A	YES
ABCP not rated lower than A-1/P-1/F1	YES
BAs and CDs not rated lower than A-1/P-1/F1	YES
Other Guidelines	
Repo collateral U.S. Treasuries at 102%	NA
Floating rate securities rate tied to LIBOR, Fed Funds, T-bills, or Commercial Paper Indices	YES

There was little change in asset mix on the quarter. During the quarter, securities lending was discontinued in the STIP portfolio. The policy allows lending of STIP securities. Staff has decided to not lend securities because the modest income did not justify the potential liquidity reduction.







State entities made up 71% of STIP. Local Governments made up 29%.

STIP BALANCES 9/30/2016

Account Name	% Total	Total Shares	STIP as a % of Client Holdings
TREASURE ST. OF MT	21%	584,796,436	84%
MT STATE UNIVERSITY	6%	176,474,848	100%
MISSOULA CNTY TREAS	5%	142,216,956	100%
PUBLIC EMPLOYEES RET	4%	123,813,525	3%
TEACHERS RETIREMENT	3%	97,342,485	3%
GALLATIN CO. TREAS	3%	94,434,344	100%
TRUST FUND INVS POOL	3%	86,469,051	4%
FIRE SUPPRESSION FU	3%	76,576,270	100%
YELLOWSTONE CO TREAS	2%	66,342,478	100%
BUTTE SILVER BOW TRE	2%	63,431,558	100%
FLATHEAD CO. TREAS	2%	55,000,000	100%
LEWIS & CLARK CO TRE	2%	52,444,716	100%
MSU BLGS STIP CLEAR	1%	35,822,713	100%
CITY OF HELENA/FINAN	1%	35,407,134	100%
AGENCY INSURANCE	1%	33,998,457	100%
MONTANA STATE FUND	1%	33,241,438	2%
CITY OF BILLINGS	1%	33,114,265	100%
LONG RANGE BUILDING	1%	31,955,421	100%
ROOSEVELT CNTY TRES	1%	31,880,480	100%
UNIVERSITY OF MONT	1%	28,929,254	28%
TREASURE ST ENDW INC	1%	22,360,046	100%
	68%	1,906,051,876	
OTHER STATE ENTITIES	21%	586,074,812	
OTHER LOCAL GOVERNMENTS	11%	295,185,316	
	100%	2,787,312,004	
STATE ENTITIES	71%	1,970,299,472	
LOCAL GOVERNMENTS	29%	817,012,532	
	100%	2,787,312,004	

Local Governments

Performance

The STIP yield increased .14% from the previous quarter end. The increase in yield was largely due to floating rate securities tied to 3 month LIBOR resetting. Three month LIBOR increased 20 basis points on the quarter. The net daily yield on STIP finished the quarter at 0.70% as compared to the quarter end one-month LIBOR rate of 0.47%. The current fed funds target rate is 0.25%-0.50%.

STIP Performance (9/30/16)

	1 Year	3 Year	5 Year	10 Year
STIP Net of Fees/Reserve	0.51%	0.26%	0.26%	1.19%
Libor 1 Month Index	0.43%	0.25%	0.24%	1.11%
iMoneynet First Tier Instit. (Gross)	0.48%	0.29%	0.28%	1.23%

The STIP net yield subtracts the reserve and administrative expenses from the gross yield. The amounts subtracted are a set dollar amount. The percentage reduction in yield is a function of the dollar reduction divided by the size of the portfolio. The quarter end impact is shown below.

STIP Portfolio Size, Yield and Reserve Impact

	3Q16	2Q16
Avg STIP Portfolio	$2.79B	$2.76B
STIP Quarter End	$2.79B	$2.82B
Total Reserve	$ 15,672,485	$ 13,143,469
Daily Reserve ($)	$ 8,000	$ 8,000
Daily Administrative Expense	$ 2,410	$ 2,410
Gross Yield Quarter End	0.83%	0.69%
Reserve Yield Impact	-0.10%	-0.10%
Administrative Yield Impact	-0.03%	-0.03%
Net Yield Quarter End	0.70%	0.56%

Treasurer's Fund

John Romasko, CFA

November 16, 2016

The primary investment objectives of the Treasurer's Fund are to provide safety of principal and a high degree of liquidity, and to a lesser degree, the maximization of book income return.

Investments shall be made solely in fixed income instruments subject to the limitations and constraints outlined below.

Treasurer's Fund Securities 9/30/2016		
	9/30/2016	Policy Limit
STIP	86%	No limit
Deposits - U.S. Bank	0%	No limit
U.S. Treasuries	9%	100% of Allowed
U.S. Government Agencies	7%	100% of Allowed
Tri-party Repurchase Obligations	0%	100% of Allowed
Credit Enhancement - Res. 219	0%	100% of Allowed
MCHA Loan	0%	100% of Allowed
Longest Maturity	1.7 years	3yr Maximum

The fund totaled $695 million at quarter end, consisting of approximately 35% general fund monies and the balance in various other state operating accounts. There were no security purchases in the quarter. Current securities holdings total $110 million.

The investment policy for the fund limits security holdings to 50% of the projected General Fund FYE balance of the current period. The projected General Fund FYE balance was $346 million.

Treasurer's Fund Limits 09/30/2016		
	9/30/2016	Policy Range
Total Fund	$ 695,075,526	
Projected General Fund FYE Balance (PGFB)	$ 345,900,000	
Allowable Securities	$ 172,950,000	50% of PGFB
Securities Held	$ 110,279,090	
Quarter end Securities % Allowable	64%	

Pension Plans
Investment Activities and Performance
September 30, 2016

1) Asset Allocation Summary - 3rd Quarter Calendar 2016

- The Asset Allocation market value percentages for each asset pool are consistent across retirement plans. All allocations are within defined policy ranges except for STIP relating to Firefighters and Police Retirement plans due to large annual contributions that occur in September.

- During the quarter the largest reductions occurred in Private Equity and Private Real Estate due to scheduled asset sales and redemptions.

- As of September 30, 2016, the cash position of the overall pension plan was 2.7% and in total 5.2% when cash at each of the pools is included.

- During the quarter, total pension assets, net of distributions, increased by approximately 2.6% or $259 million due to strong appreciation in the public equity markets.

- During the quarter, the plans made net distributions totaling approximately -$64 million. The net cash need was funded with $35 million of Dividend and Interest Distributed and total asset sales of $28 million. Sizable distributions occurred in the Private Equity Pool and Private Real Estate Pool due to a secondary sale of private equity funds, and a partial redemption of a core real estate fund. Total Dollar Value Add was approximately +$323 million.

2) Performance Summary

- The Public Employees' Retirement Plan had a positive return of (+3.24%) for the third quarter. All six underlying investment pools had positive returns for the quarter with the strongest returns from the International Equity Pool (+6.73%) and the Domestic Equity Pool (+4.10%).

- The largest contributor (combination of pool return and the average weight of the pool) to the overall pension return was the Domestic Equity Pool (+1.55%) while the Domestic and International Public Equity Pools combined drove about 80% of the 3.24% quarterly return.

- Domestic Equity was the best performing asset class (+13.9%) for the trailing one year, followed by Real Estate (+10.28%) and International Equity (+9.99%). The largest contributor to the overall one year return was Domestic Equity (+5.22) as 38% of the pension portfolio is allocated to Domestic Equity.

9/30/2016
Q2 2016 - Q3 2016

Plan Asset Allocation

	MDEP	MTIP	MPEP	MTRP	RFBP	STIP	Total
Public Employees Retirement	38.5%	16.3%	10.7%	8.7%	23.4%	2.4%	5,126,791,872
Teachers Retirement	38.4%	16.2%	10.6%	8.7%	23.4%	2.6%	3,725,776,324
Firefighters Retirement	37.0%	15.6%	10.3%	8.4%	22.5%	6.2%	357,763,048
Police Retirement	37.0%	15.6%	10.2%	8.4%	22.5%	6.3%	349,159,961
Sheriffs Retirement	38.5%	16.3%	10.7%	8.7%	23.5%	2.3%	305,817,656
Game Wardens Retirement	38.5%	16.3%	10.7%	8.7%	23.5%	2.4%	158,979,736
Highway Patrol Retirement	38.7%	16.3%	10.7%	8.7%	23.5%	2.0%	130,647,801
Judges Retirement	38.5%	16.3%	10.7%	8.7%	23.5%	2.4%	89,625,666
Vol. Firefighters Retirement	38.6%	16.3%	10.7%	8.7%	23.5%	2.3%	33,922,208
09/30/2016	**38.4%**	**16.2%**	**10.6%**	**8.7%**	**23.4%**	**2.7%**	**10,278,484,273**
Approved Ranges	**28 - 44%**	**14 - 22%**	**9 - 15%**	**6-10%**	**22 - 30%**	**1 - 5%**	

Allocation Changes from Last Period

	MDEP	MTIP	MPEP	MTRP	RFBP	STIP	Total
Public Employees Retirement	0.8%	0.8%	(0.5%)	(0.6%)	(0.2%)	(0.4%)	102,065,039
Teachers Retirement	0.7%	0.8%	(0.5%)	(0.6%)	(0.3%)	(0.1%)	101,031,000
Firefighters Retirement	(0.7%)	0.2%	(0.9%)	(0.9%)	(1.1%)	3.3%	20,437,584
Police Retirement	(0.7%)	0.2%	(0.9%)	(0.9%)	(1.1%)	3.3%	19,631,974
Sheriffs Retirement	0.8%	0.8%	(0.5%)	(0.6%)	(0.2%)	(0.4%)	7,179,198
Game Wardens Retirement	0.9%	0.9%	(0.4%)	(0.5%)	(0.1%)	(0.7%)	4,568,217
Highway Patrol Retirement	1.1%	0.9%	(0.4%)	(0.5%)	(0.0%)	(1.1%)	2,075,801
Judges Retirement	0.8%	0.8%	(0.5%)	(0.5%)	(0.2%)	(0.5%)	2,173,999
Vol. Firefighters Retirement	2.8%	1.6%	0.1%	(0.1%)	1.1%	(5.5%)	299,933
Increase (Decrease) From Q2	**0.7%**	**0.8%**	**(0.5%)**	**(0.6%)**	**(0.3%)**	**(0.1%)**	**259,462,745**

Pension and Pool Cash Exposure

	MDEP	MTIP	MPEP	MTRP	RFBP	STIP	Total
As Percent of Pool	3.9%	2.6%	1.8%	2.0%	0.7%	100%	
As Percent of Pension	1.5%	0.4%	0.2%	0.2%	0.2%	2.7%	5.2%
In Dollars	153,974,200	42,928,591	19,146,157	17,692,540	16,928,088	281,632,878	532,302,454
9/30/2016	**3,945,048,313**	**1,665,069,342**	**1,092,435,808**	**892,357,773**	**2,401,940,158**	**281,632,878**	**10,278,484,273**

Net Plan Contributions (Distributions)

	MDEP	MTIP	MPEP	MTRP	RFBP	STIP	Total
Public Employees Retirement	2,673,632	5,417,722	(25,067,454)	(28,222,017)	3,948,384	(18,559,636)	(59,809,369)
Teachers Retirement	6,921,129	5,907,809	(16,641,616)	(19,202,405)	6,107,491	7,593	(16,900,000)
Firefighters Retirement	104,250	332,591	(1,704,994)	(1,912,444)	216,441	12,545,421	9,581,266
Police Retirement	(24,550)	270,931	(1,697,582)	(1,894,024)	137,114	12,236,569	9,028,458
Sheriffs Retirement	539,058	480,890	(1,388,351)	(1,594,689)	464,598	(956,609)	(2,455,103)
Game Wardens Retirement	799,396	463,242	(569,845)	(702,862)	562,347	(978,975)	(426,697)
Highway Patrol Retirement	194,461	189,240	(604,600)	(691,399)	179,775	(1,335,443)	(2,067,966)
Judges Retirement	215,078	164,315	(389,772)	(453,063)	171,756	(355,674)	(647,360)
Vol. Firefighters Retirement	538,556	248,342	(10,877)	(58,170)	355,082	(1,854,591)	(781,659)
6/30/2016 - 09/30/2016	**11,961,009**	**13,475,082**	**(48,075,090)**	**(54,731,074)**	**12,142,988**	**748,655**	**(64,478,430)**

Pool Changes from Last Period

	MDEP	MTIP	MPEP	MTRP	RFBP	STIP	Total
6/30/2016	**3,777,649,896**	**1,546,568,510**	**1,116,978,237**	**928,406,582**	**2,369,007,508**	**280,410,795**	**10,019,021,528**
Dollar Value Added	155,437,408	105,025,750	23,532,661	18,682,264	20,789,662	473,429	323,941,175
Dividend and Interest Distributed	(4,038,991)	(2,524,918)	(1,075,090)	(9,731,074)	(17,857,012)	(473,429)	(35,700,513)
Pools Bought (Sold)	16,000,000	16,000,000	(47,000,000)	(45,000,000)	30,000,000	1,222,083	(28,777,917)
9/30/2016	**3,945,048,313**	**1,665,069,342**	**1,092,435,808**	**892,357,773**	**2,401,940,158**	**281,632,878**	**10,278,484,273**
$ Change From 06/30/2016	**167,398,417**	**118,500,832**	**(24,542,429)**	**(36,048,810)**	**32,932,651**	**1,222,083**	**259,462,745**
% Change From 06/30/2016	**4.4%**	**7.7%**	**(2.2%)**	**(3.9%)**	**1.4%**	**0.4%**	**2.6%**

Pension Performance
9/30/2016

	Cumulative		Annualized					Annual				
	QTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
Public Employees' Retirement	**3.24**	**3.24**	**9.49**	**7.25**	**10.25**	**9.22**	**5.77**	**2.07**	**4.58**	**17.16**	**13.04**	**2.41**
Montana Domestic Equity Pool	4.10	4.10	13.90	10.25	16.15	13.01	7.01	1.66	7.35	25.18	22.01	3.01
Retirement Funds Bond Pool	0.87	0.87	5.78	4.55	4.26	5.53	5.59	5.97	2.30	5.22	1.62	8.07
Montana International Equity Pool	6.73	6.73	9.99	0.95	6.73	4.01	1.55	(8.90)	(4.21)	21.67	14.40	(15.45)
Private Equity Pool	2.38	2.38	4.09	10.23	10.52	13.11	9.13	5.77	8.44	16.51	12.55	11.05
Real Estate Pool	2.10	2.10	10.28	12.11	11.14	8.55	2.79	12.11	13.12	11.67	8.55	11.51
Short Term Investment Pool	0.16	0.16	0.51	0.26	0.26	0.27	1.19	0.41	0.12	0.14	0.25	0.30
MDEP - Average Monthly Weight	38.17	38.17	38.09	38.68	38.02	37.41	38.09	39.64	38.75	37.61	37.05	36.11
RFBP - Average Monthly Weight	23.58	23.58	23.17	22.53	23.13	23.99	24.70	22.49	22.09	22.38	24.58	25.20
MTIP - Average Monthly Weight	15.83	15.83	15.70	16.59	16.59	16.99	17.29	16.30	17.32	17.18	16.32	18.03
MPEP - Average Monthly Weight	10.59	10.59	11.13	10.97	11.65	11.78	11.12	10.71	10.94	12.20	12.82	12.29
MTRP - Average Monthly Weight	8.79	8.79	9.28	8.94	8.65	7.83	6.56	8.90	8.71	8.87	7.94	6.71
STIP - Average Monthly Weight	3.05	3.05	2.63	2.28	1.95	1.88	1.88	1.97	2.20	1.77	1.29	1.51
Approximate **MDEP - Contribution to Return**	1.55	1.55	5.22	3.91	6.03	4.94	2.78	0.60	2.78	9.34	8.06	1.06
Approximate **RFBP - Contribution to Return**	0.20	0.20	1.32	1.01	0.97	1.35	1.44	1.23	0.49	1.15	0.39	1.99
Approximate **MTIP - Contribution to Return**	1.05	1.05	1.55	0.16	1.10	0.69	0.28	(1.33)	(0.71)	3.67	2.32	(2.72)
Approximate **MPEP - Contribution to Return**	0.25	0.25	0.45	1.11	1.20	1.57	1.06	0.57	0.90	1.98	1.59	1.33
Approximate **MTRP - Contribution to Return**	0.18	0.18	0.94	1.07	0.95	0.68	0.19	0.99	1.11	1.02	0.67	0.75
Approximate **STIP - Contribution to Return**	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00

Public Employees' Benchmark	**3.26**	**3.26**	**10.50**	**7.98**	**10.75**	**9.81**	**6.06**	**1.40**	**9.08**	**17.94**	**14.88**	**1.67**
S&P 1500 Composite Index	3.98	3.98	15.49	10.93	16.44	13.29	7.39	1.01	13.08	32.80	16.17	1.75
Barclays US Agg Bond Index	0.46	0.46	5.19	4.03	3.08	4.10	4.79	0.55	5.97	(2.02)	4.21	7.84
International Custom Benchmark	7.05	7.05	9.81	0.57	6.33	3.96	2.37	(4.60)	(4.03)	15.62	16.96	(14.07)
S&P 1500 + 4% (Qtr Lag)	3.60	3.60	7.64	15.52	15.94	19.09	11.56	3.70	22.57	24.43	34.18	4.92
NCREIF ODCE Index (Net) (Qtr Lag)	1.91	1.91	10.80	11.97	11.66	9.85	5.19	13.86	11.36	11.97	10.47	17.18
1 Month LIBOR Index	0.13	0.13	0.43	0.25	0.24	0.24	1.11	0.21	0.16	0.19	0.23	0.23
MDEP - Relative Return	0.12	0.12	(1.59)	(0.68)	(0.29)	(0.28)	(0.38)	0.64	(5.73)	(7.61)	5.85	1.26
RFBP - Relative Return	0.41	0.41	0.58	0.52	1.18	1.43	0.80	5.42	(3.67)	7.24	(2.59)	0.23
MTIP - Relative Return	(0.32)	(0.32)	0.18	0.38	0.41	0.05	(0.82)	(4.30)	(0.18)	6.05	(2.56)	(1.38)
MPEP - Relative Return	(1.22)	(1.22)	(3.55)	(5.29)	(5.42)	(5.98)	(2.43)	2.07	(14.13)	(7.92)	(21.63)	6.13
MTRP - Relative Return	0.19	0.19	(0.52)	0.14	(0.52)	(1.30)	(2.41)	(1.76)	1.76	(0.30)	(1.92)	(5.67)
STIP - Relative Return	0.03	0.03	0.08	0.00	0.02	0.03	0.08	0.20	(0.04)	(0.04)	0.02	0.07
Approximate **MDEP - Value Added**	0.04	0.04	(0.57)	(0.25)	(0.10)	(0.10)	(0.14)	(0.10)	(1.29)	0.52	0.10	(0.76)
Approximate **RFBP - Value Added**	0.09	0.09	0.14	0.12	0.27	0.33	0.17	(0.03)	0.20	0.34	0.87	(0.10)
Approximate **MTIP - Value Added**	(0.05)	(0.05)	0.02	0.06	0.06	0.01	(0.11)	0.26	0.01	0.15	0.03	(0.16)
Approximate **MPEP - Value Added**	(0.12)	(0.12)	(0.55)	(0.66)	(0.68)	(0.73)	(0.09)	0.56	(3.69)	(1.56)	(2.77)	2.17
Approximate **MTRP - Value Added**	0.01	0.01	(0.06)	(0.01)	(0.06)	(0.10)	(0.11)	(0.02)	0.27	(0.23)	(0.07)	(0.41)
Approximate **STIP - Value Added**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.01)	0.00	0.00	0.00
Difference from Benchmark	**(0.02)**	**(0.02)**	**(1.01)**	**(0.73)**	**(0.51)**	**(0.59)**	**(0.29)**	**0.67**	**(4.51)**	**(0.78)**	**(1.84)**	**0.75**

Investment Pool and PERS
Periodic Table of Returns
September 30, 2016

FY12	FY13	FY14	FY15	FY16
MTRP 11.5%	MDEP 22%	MDEP 25.2%	MTRP 13.1%	MTRP 12.1%
MPEP 11.1%	MTIP 14.4%	MTIP 21.7%	MPEP 8.4%	RFBP 6%
RFBP 8.1%	PERS 13%	PERS 17.2%	MDEP 7.3%	MPEP 5.8%
MDEP 3%	MPEP 12.6%	MPEP 16.5%	PERS 4.6%	PERS 2.1%
PERS 2.4%	MTRP 8.5%	MTRP 11.7%	RFBP 2.3%	MDEP 1.7%
STIP 0.3%	RFBP 1.6%	RFBP 5.2%	STIP 0.1%	STIP 0.4%
MTIP -15.5%	STIP 0.2%	STIP 0.1%	MTIP -4.2%	MTIP -8.9%

1 YR	3 YR	5 YR	7 YR	10 YR
MDEP 13.9%	MTRP 12.1%	MDEP 16.1%	MPEP 13.1%	MPEP 9.1%
MTRP 10.3%	MDEP 10.3%	MTRP 11.1%	MDEP 13%	MDEP 7%
MTIP 10%	MPEP 10.2%	MPEP 10.5%	PERS 9.2%	PERS 5.8%
PERS 9.5%	PERS 7.3%	PERS 10.2%	MTRP 8.5%	RFBP 5.6%
RFBP 5.8%	RFBP 4.5%	MTIP 6.7%	RFBP 5.5%	MTRP 2.8%
MPEP 4.1%	MTIP 1.0%	RFBP 4.3%	MTIP 4%	MTIP 1.6%
STIP 0.5%	STIP 0.3%	STIP 0.3%	STIP 0.3%	STIP 1.2%

- Domestic Equity and Real Estate have been the top 2 performing asset classes recently
- Longer term, Domestic Equity and Private Equity have been the top performing asset classes
- International Equity has consistently been the under-performing asset class, but strong in the most recent one year time horizon.

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

To: Members of the Board

From: Ethan Hurley, Director of Private Investments

Date: November 15, 2016

Subject: Montana Private Equity Pool (MPEP)

Following this memo are the items listed below:

i. **New Commitments:**
There have been no new commitments since the Board last met.

ii. **Divestments** – None

iii. **Montana Private Equity Pool Review:**
Comprehensive overview of the private equity portfolio for the quarter ended June 30th.
- The portfolio was net cash flow positive for the quarter ending 3Q16 with contributions and distributions of $43.1M and $52.2M, respectively.
- There have been no significant changes or shifts in diversification to the portfolio since 1Q16.

Market Observations – 2Q16

- Prices for US LBOs continue to hover at all-time highs as the average purchase price multiple for all US LBOs year-to-date 2016 came in at 10.52x (S&P Global Market Intelligence)

- 3Q16 US IPO issuance was the strongest thus far in 2016. In 3Q16, there were 40 IPOs raising $6.6B compared to 45 IPOs raising $7.3B in 3Q15 (PWC Q3 2016 IPO Watch)

- Total M&A activity for 3Q16 amounted to $1.7T, amounting to a roughly 10% increase over the same period last year. However, relative to 2Q16, global M&A was down over 50% on a deal count basis (Pitchbook)

- Year to date as of October 7, 2016 US institutional leveraged loan issuance now totals $366B, up slightly from the pace set last year while U.S. high yield bond issuance volume totals $184B, down nearly 20% from this point in 2015 (S&P Global Market Intelligence)

- $32.4B has been raised for US VC so far during this year, putting 2016 on pace to raise the largest amount of any year since the dot-com era—$43B. 3Q16 saw $9B raised across 56 funds, declines of 33% and 27% respectively; however, those dips are relative, as 2Q16 saw the highest amount of VC raised ($13.4B) for any quarter since 2008 (Pitchbook)

- Global private equity fundraising decreased more then 38% from the prior quarter to $62B, down from $101B (Preqin)

Montana Board of Investments

Private Equity Board Report

Q2 2016

Due to, among other things, the lack of a valuation standard in the private equity industry, differences in the pace of investment across funds and the understatement of returns in the early years of a fund's life, the internal rate of return information may not accurately reflect current or expected future returns, and the internal rates of return and all other disclosures with respect to the Partnerships have not been prepared, reviewed or approved by the Partnerships, the General Partners, or any other affiliates.

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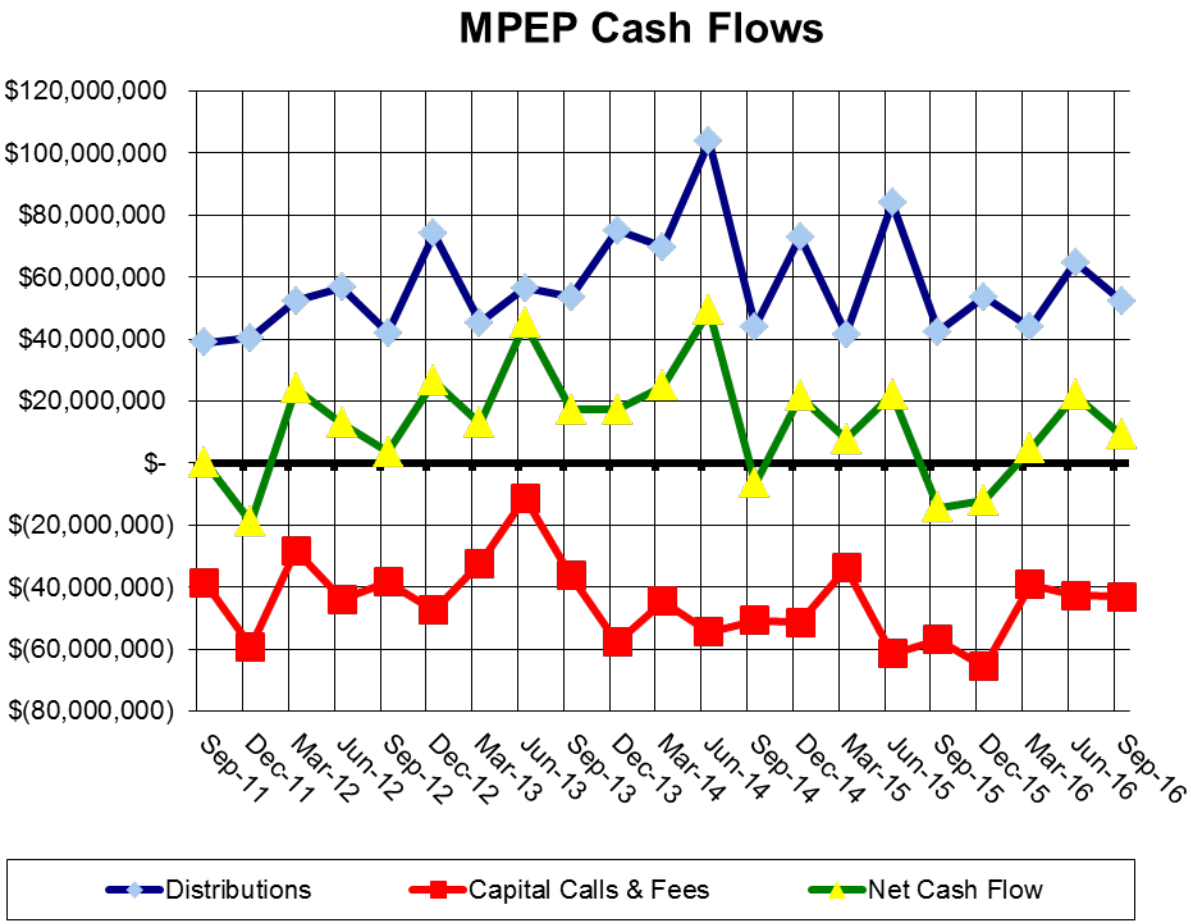
- Strategy – Total Exposure Chart
- Industry – Market Value Exposure Chart
- Geography – Total Exposure Chart
- Investment Vehicle – Total Exposure Chart
- Periodic Return Comparison
- LPs by Family of Funds Table

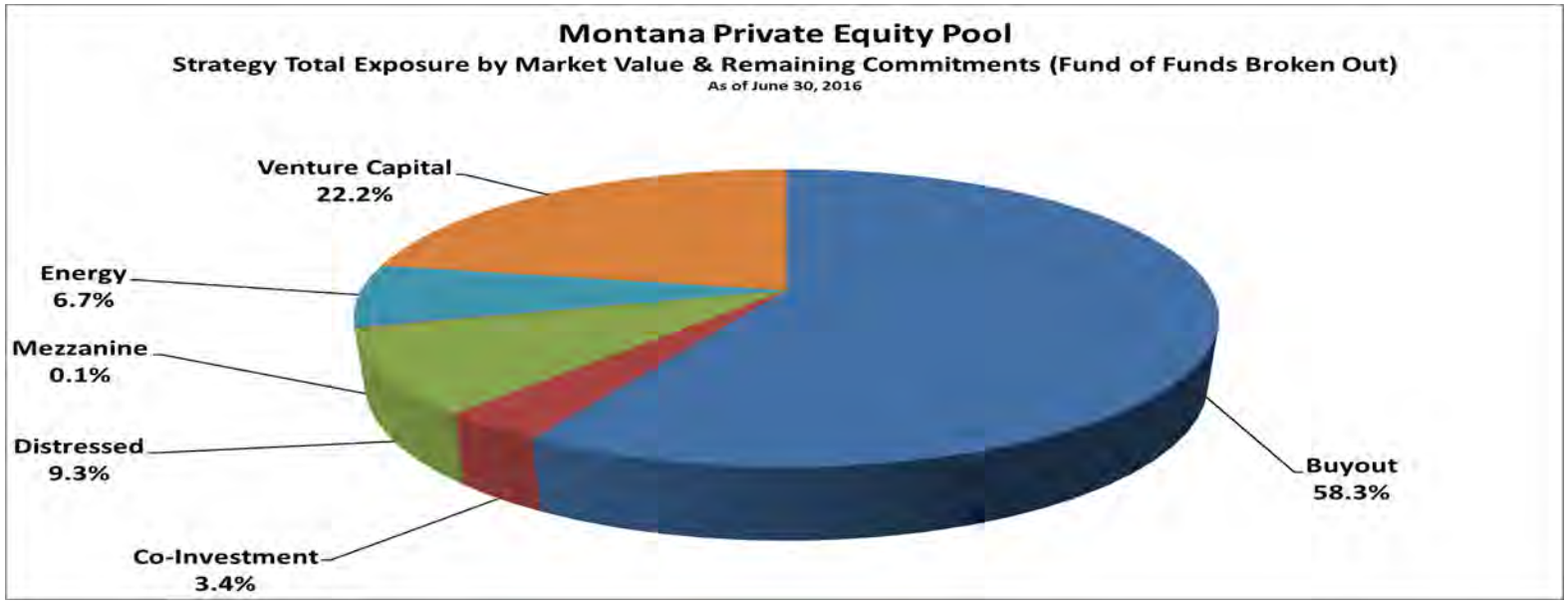
MPEP Quarterly Cash Flow
September 30, 2011 through September 30, 2016



Net cash flow for the quarter ending 9/30/16 was positive. Broadly speaking relative to 2Q16, the total number of US leveraged buyout transactions for the period ending 3Q16 increased slightly from 27 to 28, with absolute dollars transacted decreasing from $54B to approximately $46B. 3Q16 US IPO issuance was the strongest thus far in 2016. In 3Q16, there were 40 IPOs raising $6.6 billion compared to 45 IPOs raising $7.3 billion in 3Q15.

Q2 2016 Strategy – Total Exposure

(Since inception through June 30, 2016)

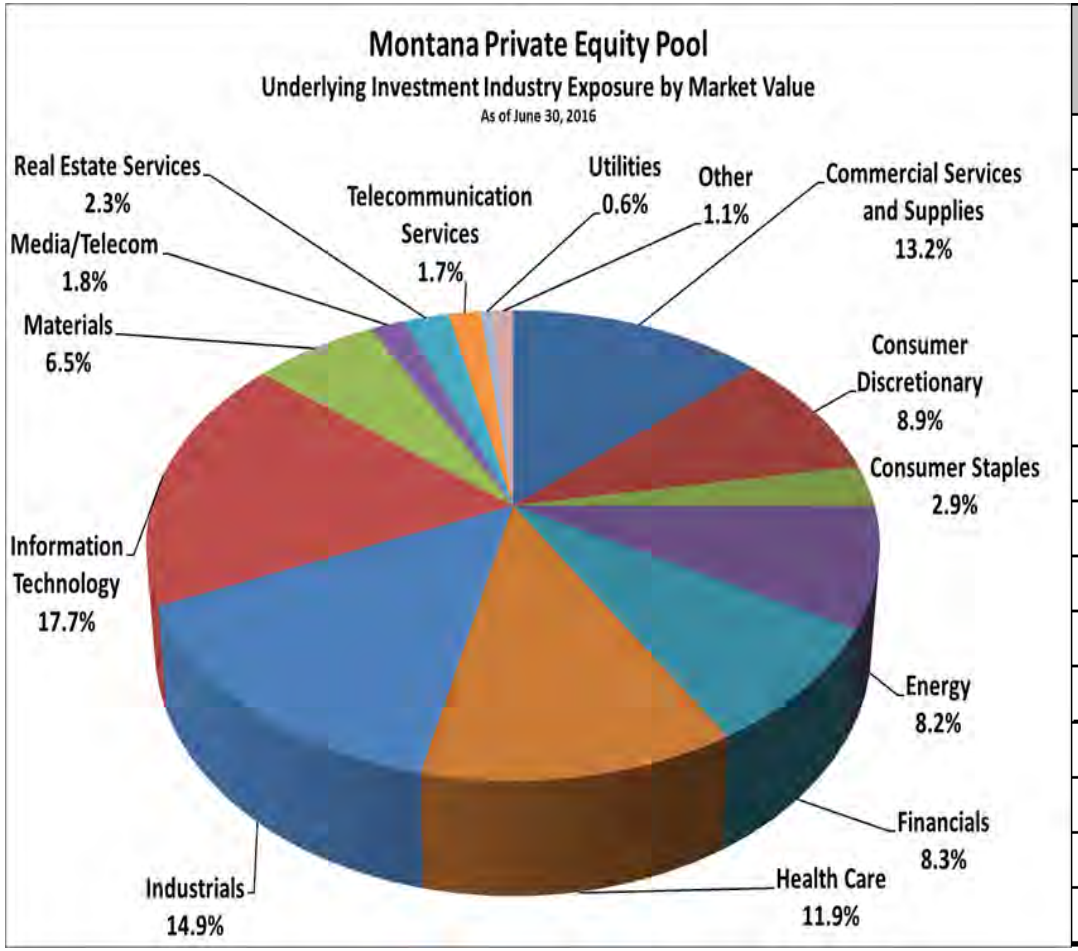


Strategy	Remaining Commitments	Percentage	Market Value	Percentage	Total Exposure	Percentage
Buyout	$458,714,154	65.4%	$582,774,339	53.8%	$1,041,488,493	58.3%
Co-Investment	$24,508,833	3.5%	$35,963,387	3.3%	$60,472,220	3.4%
Distressed	$61,072,305	8.7%	$104,283,529	9.6%	$165,355,834	9.3%
Mezzanine	$40,607	0.0%	$2,537,150	0.2%	$2,577,758	0.1%
Energy	$47,192,733	6.7%	$72,429,532	6.7%	$119,622,265	6.7%
Venture Capital	$109,958,882	15.7%	$285,451,786	26.3%	$395,410,669	22.2%
Total	$701,487,515	100.0%	$1,083,439,723	100.0%	$1,784,927,238	100.0%

The portfolio is well diversified by strategy, with the most significant strategy weight consisting of Buyout at approximately 58% of total exposure. When combined with Co-Investment and Energy (fka Special Situations), the overall exposure to Buyout is 68%. Given that the timing of investments and realizations are controlled by the fund manager, it is not possible to precisely predict the future direction of the portfolio's exposure to any given strategy. Staff intends to continue to allocate commitments across strategies in every vintage year, subject to the availability of quality managers. Commitments to Distressed and other private equity strategies will be made on a more opportunistic basis and thus should continue to account for a less significant portion of the total portfolio exposure.

Q2 2016 Industry – Market Value Exposure

(Since inception through June 30, 2016)

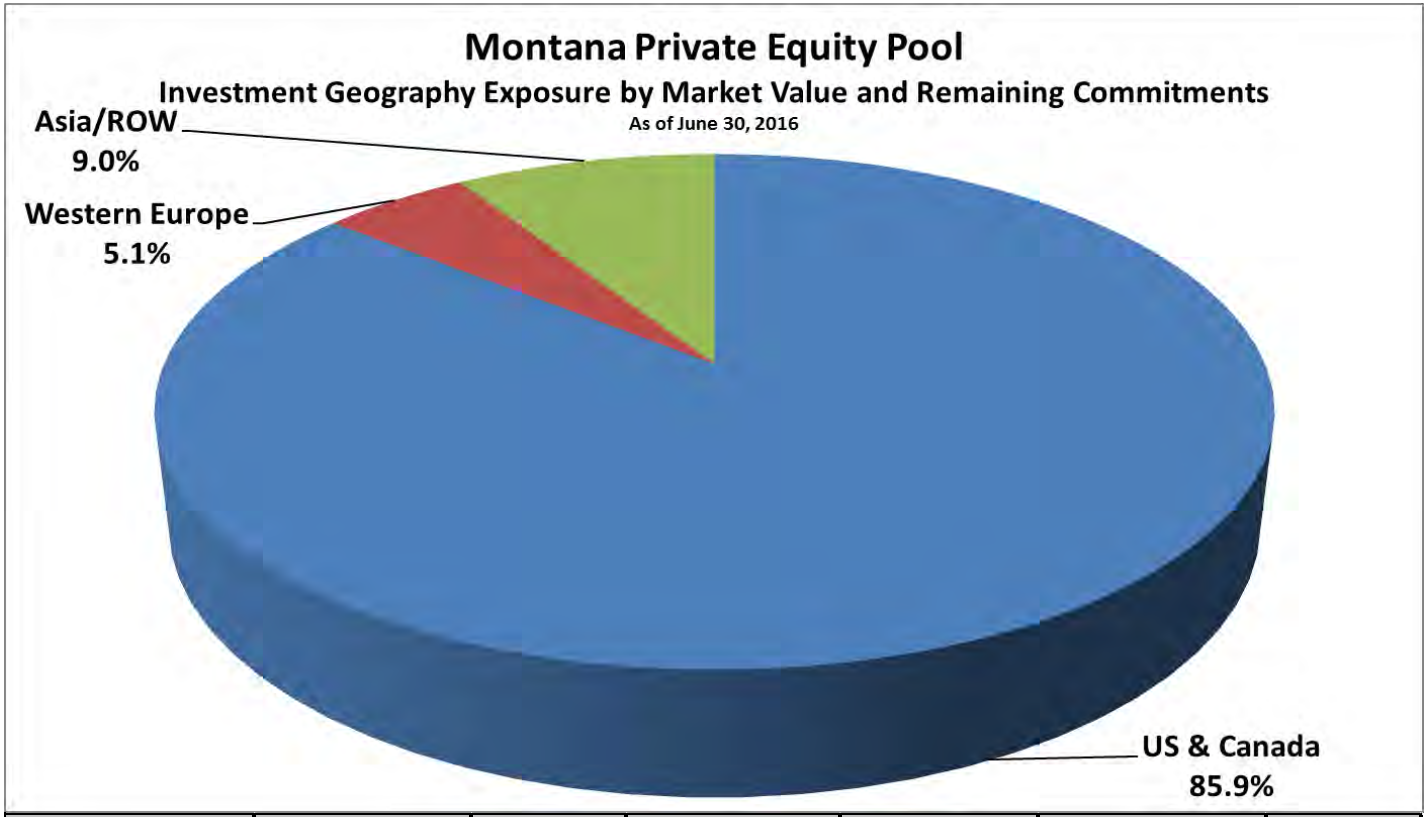


Industry	Investments, At Market Value	Percentage
Information Technology	190,821,134	17.7%
Industrials	159,884,403	14.9%
Commercial Services and Supplies	142,268,833	13.2%
Health Care	127,671,309	11.9%
Consumer Discretionary	96,179,236	8.9%
Financials	89,017,820	8.3%
Energy	88,727,107	8.2%
Materials	69,738,389	6.5%
Consumer Staples	30,771,067	2.9%
Real Estate Services	25,208,199	2.3%
Media/Telecom	19,292,146	1.8%
Telecommunication Services	17,940,033	1.7%
Other	11,530,396	1.1%
Utilities	6,594,547	0.6%
Total	1,075,644,621	100%

The portfolio is broadly diversified by industry with the information technology, industrials, commercial services and supplies, healthcare and consumer discretionary sectors representing the five largest industry exposures at approximately 67% of total assets. With the exception of energy and the information technology-related industries, the portfolio's underlying managers tend to be multi-sector investors. Therefore, composition of the portfolio by industry is and will continue to primarily be a function of a manager's industry expertise and success in sourcing deals rather than a function of staff's desire to over or underweight a specific industry.

Q2 2016 Geography – Total Exposure

(Since inception through June 30, 2016)



Geography	Remaining Commitments (1)	Percentage	Market Value (2)	Percentage	Total Exposure	Percentage
US & Canada	$ 640,355,312	91.3%	$ 886,315,965	82.4%	$ 1,526,671,277	85.9%
Western Europe	$ 9,613,419	1.4%	$ 80,999,146	7.5%	$ 90,612,564	5.1%
Asia/ROW	$ 51,518,785	7.3%	$ 108,329,510	10.1%	$ 159,848,295	9.0%
Total	$ 701,487,515	100.0%	$ 1,075,644,621	100.0%	$ 1,777,132,136	100.0%

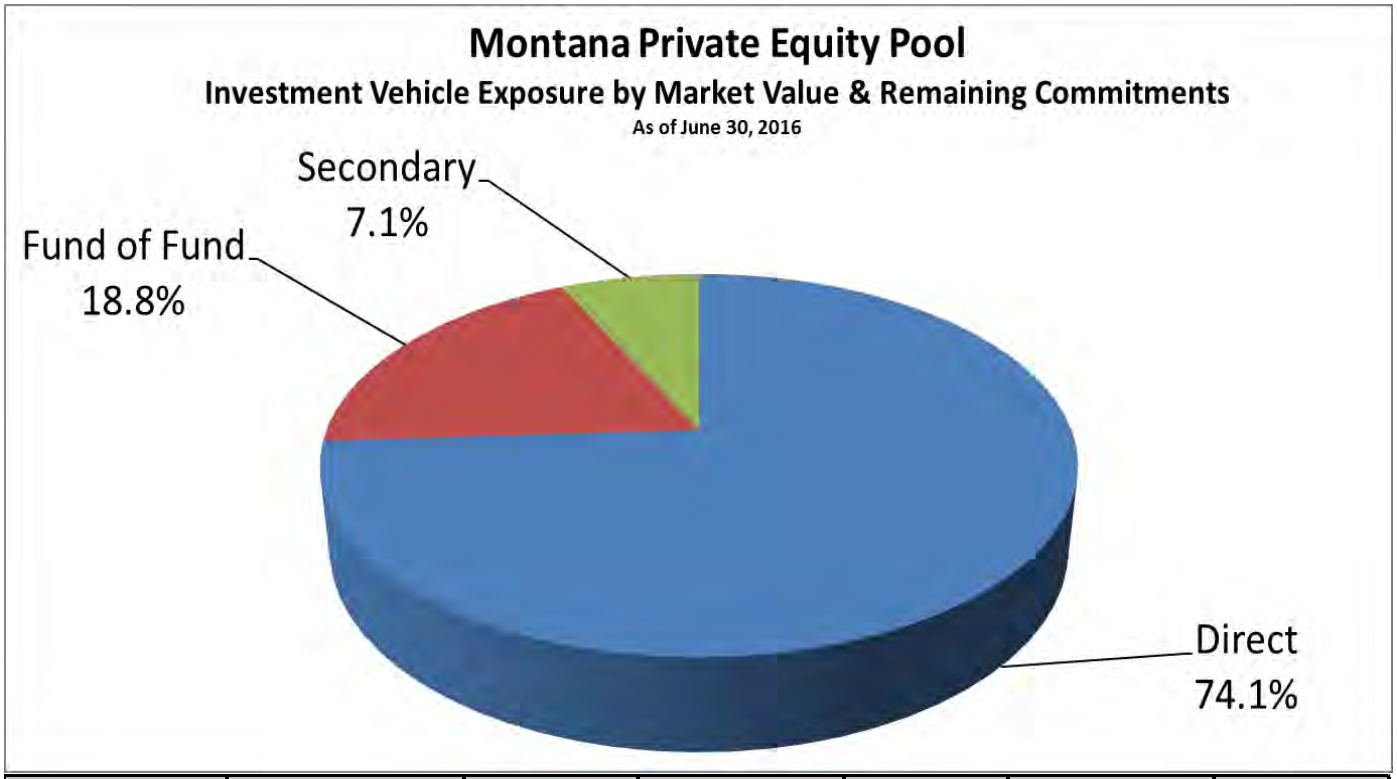
(1) Remaining commitments are based upon the investment location of the partnerships.

(2) Market Value represents the agrregate market values of the underlying investment companies of the partnerships.

The portfolio's predominate geographic exposure is to developed North America, representing 85.9% of the market value and uncalled capital domiciled in or targeted for the US and Canada. No significant divergence from this is expected in the near-term. International investments will continue to be targeted both on a one-off opportunistic basis as well as through fund-of-funds.

Q2 2016 Investment Vehicle – Total Exposure

(Since inception through June 30, 2016)



The portfolio is invested primarily through direct private equity commitments. To the extent the quality of managers invested with directly is comparable to the quality of managers available through a fund-of-funds, a direct strategy should outperform fund-of-funds due to a reduced fee burden. In the medium-term, the portfolio is likely to continue to depend upon fund-of-funds managers for its targeted international investments. Longer term it is the intention of staff to leverage fund-of-funds relationships to slowly move away from this model in order to access more of these specialized managers directly and to reduce overall costs.

Investment Vehicle	Remaining Commitments	Percentage	Market Value	Percentage	Total Exposure	Percentage
Direct	$ 576,666,806	82.2%	$ 745,362,593	68.8%	$ 1,322,029,399	74.1%
Fund of Fund	$ 82,721,767	11.8%	$ 253,655,168	23.4%	$ 336,376,936	18.8%
Secondary	$ 42,098,942	6.0%	$ 84,421,962	7.8%	$ 126,520,904	7.1%
Total	$ 701,487,515	100.0%	$ 1,083,439,723	100.0%	$ 1,784,927,238	100.0%

Q2 2016 1 – 3 – 5 – 7 – 10 Year Periodic Return Comparison

	Total Investments	Ending Market Value	Investment Multiple	ITD IRR	1 Year IRR	3 Year IRR	5 Year IRR	7 Year IRR	10 Year IRR
Montana Private Equity Portfolio	174	1,083,439,723.03	1.47	12.18	3.89	10.41	10.31	13.42	9.10
Adams Street Funds	34	73,578,308.00	1.63	11.96	(0.18)	10.15	8.18	12.56	8.07
Buyout	57	446,741,749.00	1.57	12.64	9.92	14.78	14.75	17.09	12.35
Co-Investment	4	35,963,387.00	1.44	9.60	2.00	14.38	10.71	16.28	0.00
Distressed	12	104,090,934.00	1.38	24.96	(5.08)	1.47	7.39	13.98	9.26
Energy	11	76,583,905.00	1.14	4.66	(2.63)	(1.94)	0.30	5.57	4.55
Mezzanine	4	2,319,712.00	1.36	7.41	5.71	6.68	5.53	2.94	4.89
Non-US Private Equity	12	117,284,219.95	1.19	5.50	2.10	7.63	6.36	9.30	2.11
Secondary	9	79,012,165.00	1.48	12.59	1.22	10.71	10.99	13.49	9.94
Venture Capital	31	147,865,343.08	1.47	14.38	1.95	12.65	10.22	11.23	8.23

1.) Due to, among other things, the lack of a valuation standard in the private equity industry, differences in the pace of investment across funds and the understatement of returns in the early years of a fund's life, the internal rate of return information does not accurately reflect current or expected future returns, and the internal rates of return and all other disclosures with respect to the Partnerships have not been prepared, reviewed or approved by the Partnerships, the General Partners, or any other affiliates.

As of 6/30/16, the portfolio's since inception net investment multiple and net IRR results were relatively flat: 1.46x and 12.18% respectively compared to 1.49x and 12.28% last quarter. As of quarter end, all strategy categories performed approximately in-line relative to last quarter's performance.

Q2 2016 LPs by Family of Funds

Investments	Vintage Year	Commitments	Contributions	Management Fees	Distributions	Remaining Commitment	Market Value	Exposure	Total Gain/Loss	Investment Multiple	ITD IRR
Fund Total		**3,041,840,842.23**	**2,460,202,991.50**	**182,707,609.08**	**2,522,486,396.97**	**701,487,515.31**	**1,083,439,723.03**	**1,784,927,238.35**	**1,145,723,128.50**	**1.47**	**12.18**
Active		**2,595,689,752.76**	**2,022,681,806.32**	**158,452,466.00**	**1,768,248,177.02**	**701,487,515.31**	**1,083,439,723.03**	**1,784,927,238.35**	**829,006,093.73**	**1.41**	**10.10**
Adams Street Partners, LLC		**295,356,964.00**	**295,033,599.30**	**30,390,535.31**	**380,048,349.00**	**12,482,960.00**	**73,578,308.00**	**86,061,268.00**	**158,593,057.70**	**1.54**	**7.62**
Adams Street Partners Fund - U.S.		94,000,000.00	89,355,500.00	7,861,810.20	104,407,426.00	4,644,500.00	33,762,687.00	38,407,187.00	48,814,613.00	1.55	7.86
Adams Street - 2002 U.S. Fund	2002	34,000,000.00	32,368,000.00	2,933,996.20	43,249,559.00	1,632,000.00	9,322,147.00	10,954,147.00	20,203,706.00	1.62	8.72
Adams Street - 2003 U.S. Fund	2003	20,000,000.00	19,000,000.00	1,620,000.00	22,843,537.00	1,000,000.00	6,905,964.00	7,905,964.00	10,749,501.00	1.57	8.04
Adams Street - 2004 U.S. Fund	2004	15,000,000.00	14,250,000.00	1,259,063.00	15,696,685.00	750,000.00	5,478,734.00	6,228,734.00	6,925,419.00	1.49	7.08
Adams Street - 2005 U.S. Fund	2005	25,000,000.00	23,737,500.00	2,048,751.00	22,617,645.00	1,262,500.00	12,055,842.00	13,318,342.00	10,935,987.00	1.46	6.80
Adams Street Partners Fund - Non-U.S.		19,156,819.00	18,816,190.86	1,730,172.86	23,584,812.00	716,000.00	5,295,737.00	6,011,737.00	10,064,358.14	1.53	8.97
Adams Street - 2002 Non-U.S. Fund	2002	6,000,000.00	5,766,000.00	519,286.00	8,842,506.00	234,000.00	1,153,648.00	1,387,648.00	4,230,154.00	1.73	12.00
Adams Street - 2004 Non-U.S. Fund	2004	5,000,000.00	4,765,500.00	423,014.00	5,038,747.00	234,500.00	1,566,952.00	1,801,452.00	1,840,199.00	1.39	6.17
Adams Street - 2005 Non-U.S. Fund	2005	5,000,000.00	4,752,500.00	412,501.00	4,056,703.00	247,500.00	2,214,594.00	2,462,094.00	1,518,797.00	1.32	4.85
Brinson Non-U.S. Trust-2000 Primary Fund	2000	1,815,207.00	2,031,050.00	215,843.00	3,201,008.00	0.00	293,456.00	293,456.00	1,463,414.00	1.72	11.70
Brinson Non-U.S. Trust-2001 Primary Fund	2001	1,341,612.00	1,501,140.86	159,528.86	2,445,848.00	0.00	67,087.00	67,087.00	1,011,794.14	1.67	11.70
Brinson Partnership Trust - Non-U.S		6,652,664.00	7,293,040.15	791,054.15	11,938,515.00	231,648.00	954,061.00	1,185,709.00	5,599,535.85	1.77	13.24
Brinson Non-U.S. Trust-1999 Primary Fund	1999	1,524,853.00	1,690,978.42	181,317.42	2,642,351.00	96,162.00	152,759.00	248,921.00	1,104,131.58	1.65	10.69
Brinson Non-U.S. Trust-2002 Primary Fund	2002	1,696,452.00	1,898,173.24	201,721.24	2,680,157.00	0.00	379,954.00	379,954.00	1,161,937.76	1.61	8.79
Brinson Non-U.S. Trust-2002 Secondary	2002	637,308.00	713,088.88	75,780.88	1,517,617.00	0.00	21,221.00	21,221.00	825,749.12	2.16	25.97
Brinson Non-U.S. Trust-2003 Primary Fund	2003	1,896,438.00	2,028,364.65	225,501.65	3,870,421.00	93,575.00	232,404.00	325,979.00	2,074,460.35	2.02	20.08
Brinson Non-U.S. Trust-2004 Primary Fund	2004	897,613.00	962,434.96	106,732.96	1,227,969.00	41,911.00	167,723.00	209,634.00	433,257.04	1.45	7.62
Brinson Partnership Trust - U.S.		175,547,481.00	179,568,868.29	20,007,498.10	240,117,596.00	6,890,812.00	33,565,823.00	40,456,635.00	94,114,550.71	1.52	7.24
Adams Street Global Oppty Secondary Fund	2004	25,000,000.00	22,125,000.00	1,754,468.00	28,855,925.00	2,875,000.00	4,896,181.00	7,771,181.00	11,627,106.00	1.53	10.98
Adams Street V	2003	40,000,000.00	40,120,000.00	5,466,088.00	46,402,537.00	0.00	14,200,489.00	14,200,489.00	20,483,026.00	1.51	5.94
Brinson Partners - 1998 Primary Fund	1998	7,161,019.00	7,962,392.41	840,141.41	10,819,769.00	38,768.00	180,870.00	219,638.00	3,038,246.59	1.38	6.43
Brinson Partners - 1999 Primary Fund	1999	8,346,761.00	8,987,486.53	988,669.53	10,097,598.00	347,944.00	300,795.00	648,739.00	1,410,906.47	1.16	2.47
Brinson Partners - 2000 Primary Fund	2000	20,064,960.00	21,435,378.34	2,346,783.34	28,381,167.00	985,390.00	1,091,302.00	2,076,692.00	8,037,090.66	1.37	5.63
Brinson Partners - 2001 Primary Fund	2001	15,496,322.00	16,695,516.51	1,676,055.51	21,141,167.00	666,114.00	2,429,116.00	3,095,230.00	6,874,766.49	1.41	5.64
Brinson Partners - 2002 Primary Fund	2002	16,297,079.00	17,543,713.81	1,759,792.81	26,746,574.00	513,158.00	2,275,216.00	2,788,374.00	11,478,076.19	1.65	11.15
Brinson Partners - 2002 Secondary Fund	2002	2,608,820.00	2,822,830.95	277,515.95	4,531,266.00	110,228.00	353,038.00	463,266.00	2,061,473.05	1.73	12.47
Brinson Partners - 2003 Primary Fund	2003	15,589,100.00	16,444,164.87	1,659,732.87	22,487,988.00	804,668.00	2,981,098.00	3,785,766.00	9,024,921.13	1.55	9.32
Brinson Partners - 2003 Secondary Fund	2003	1,151,151.00	1,209,891.10	115,134.10	2,563,678.00	56,394.00	139,357.00	195,751.00	1,493,143.90	2.23	22.65
Brinson Partners - 2004 Primary Fund	2004	8,832,269.00	9,222,493.77	883,372.77	12,193,595.00	493,148.00	2,459,549.00	2,952,697.00	5,430,650.23	1.59	8.20
BVCF IV, L.P.	1999	15,000,000.00	15,000,000.00	2,239,743.81	25,896,332.00	0.00	2,258,812.00	2,258,812.00	13,155,144.00	1.88	7.65

Q2 2016 LPs by Family of Funds – Continued

Investments	Vintage Year	Commitments	Contributions	Management Fees	Distributions	Remaining Commitment	Market Value	Exposure	Total Gain/Loss	Investment Multiple	ITD IRR
Affinity Ventures		**35,000,000.00**	**23,591,369.51**	**3,333,990.55**	**21,946,965.48**	**14,006,059.07**	**12,360,844.00**	**26,366,903.07**	**10,716,439.97**	**1.45**	**12.95**
Montana Board of Investments		35,000,000.00	23,591,369.51	3,333,990.55	21,946,965.48	14,006,059.07	12,360,844.00	26,366,903.07	10,716,439.97	1.45	12.95
Affinity Asia Pacific Fund III, L.P.	2006	15,000,000.00	14,879,310.58	2,179,520.49	17,960,195.13	1,015,775.39	4,229,216.00	5,244,991.39	7,310,100.55	1.49	11.16
Affinity Asia Pacific Fund IV L.P.	2013	20,000,000.00	8,712,058.93	1,154,470.06	3,986,770.35	12,990,283.68	8,131,628.00	21,121,911.68	3,406,339.42	1.39	26.54
American Securities		**55,000,000.00**	**37,093,899.00**	**1,987,131.00**	**11,460,460.03**	**25,875,302.00**	**40,544,397.00**	**66,419,699.00**	**14,910,958.03**	**1.40**	**18.49**
Montana Board of Investments		55,000,000.00	37,093,899.00	1,987,131.00	11,460,460.03	25,875,302.00	40,544,397.00	66,419,699.00	14,910,958.03	1.40	18.49
American Securities Partners VI, L.P.	2011	35,000,000.00	37,093,899.00	1,987,131.00	11,460,460.03	5,875,302.00	40,667,986.00	46,543,288.00	15,034,547.03	1.41	18.62
American Securities Partners VII, L.P.	2016	20,000,000.00	0.00	0.00	0.00	20,000,000.00	(123,589.00)	19,876,411.00	(123,589.00)	0.00	N/A
Angeles Equity Partners		**15,000,000.00**	**2,532,027.00**	**135,326.00**	**0.00**	**12,467,973.00**	**2,135,385.00**	**14,603,358.00**	**(396,642.00)**	**0.84**	**(15.28)**
Montana Board of Investments		15,000,000.00	2,532,027.00	135,326.00	0.00	12,467,973.00	2,135,385.00	14,603,358.00	(396,642.00)	0.84	(15.28)
Angeles Equity Partners I, L.P.	2015	15,000,000.00	2,532,027.00	135,326.00	0.00	12,467,973.00	2,135,385.00	14,603,358.00	(396,642.00)	0.84	(15.28)
Arclight		**90,000,000.00**	**70,789,659.91**	**4,871,965.53**	**79,018,879.83**	**19,432,287.38**	**17,508,905.00**	**36,941,192.38**	**25,738,124.92**	**1.36**	**10.75**
Montana Board of Investments		90,000,000.00	70,789,659.91	4,871,965.53	79,018,879.83	19,432,287.38	17,508,905.00	36,941,192.38	25,738,124.92	1.36	10.75
ArcLight Energy Partners Fund II, L.P.	2004	25,000,000.00	21,694,561.86	1,428,792.00	34,991,048.79	0.00	46,668.00	46,668.00	13,343,154.93	1.62	16.91
ArcLight Energy Partners Fund III, L.P.	2006	25,000,000.00	21,676,162.05	1,887,433.53	33,702,553.04	3,396,322.00	756,744.00	4,153,066.00	12,783,134.99	1.59	8.61
ArcLight Energy Partners Fund V, L.P.	2011	20,000,000.00	20,274,824.00	1,033,427.00	10,038,668.00	2,981,455.01	9,948,977.00	12,930,432.01	(287,179.00)	0.99	(0.84)
ArcLight Energy Partners Fund VI, L.P.	2015	20,000,000.00	7,144,112.00	522,313.00	286,610.00	13,054,510.37	6,756,516.00	19,811,026.37	(100,986.00)	0.99	(2.08)
Audax Group		**45,000,000.00**	**25,576,754.75**	**147,831.28**	**5,738,472.84**	**19,423,245.25**	**26,961,123.00**	**46,384,368.25**	**7,122,841.09**	**1.28**	**17.40**
Montana Board of Investments		45,000,000.00	25,576,754.75	147,831.28	5,738,472.84	19,423,245.25	26,961,123.00	46,384,368.25	7,122,841.09	1.28	17.40
Audax Private Equity Fund IV, L.P.	2012	25,000,000.00	25,000,000.00	132,094.05	5,738,472.84	0.00	26,261,663.00	26,261,663.00	7,000,135.84	1.28	17.22
Audax Private Equity Fund V, L.P.	2016	20,000,000.00	576,754.75	15,737.23	0.00	19,423,245.25	699,460.00	20,122,705.25	122,705.25	1.21	21.42
Avenue Capital Partners		**35,000,000.00**	**35,209,897.00**	**2,086,886.00**	**46,063,536.00**	**0.00**	**271,444.00**	**271,444.00**	**11,125,083.00**	**1.32**	**10.92**
Montana Board of Investments		35,000,000.00	35,209,897.00	2,086,886.00	46,063,536.00	0.00	271,444.00	271,444.00	11,125,083.00	1.32	10.92
Avenue Special Situations Fund V, LP	2007	35,000,000.00	35,209,897.00	2,086,886.00	46,063,536.00	0.00	271,444.00	271,444.00	11,125,083.00	1.32	10.92
Axiom Asia		**75,000,000.00**	**37,544,209.00**	**2,841,110.00**	**7,793,976.00**	**37,512,726.00**	**44,519,287.00**	**82,032,013.00**	**14,769,054.00**	**1.39**	**12.75**
Montana Board of Investments		75,000,000.00	37,544,209.00	2,841,110.00	7,793,976.00	37,512,726.00	44,519,287.00	82,032,013.00	14,769,054.00	1.39	12.75
Axiom Asia Private Capital II, LP	2009	25,000,000.00	22,221,137.00	1,835,616.00	7,793,961.00	2,828,213.00	25,010,711.00	27,838,924.00	10,583,535.00	1.48	11.94
Axiom Asia Private Capital III, LP	2012	25,000,000.00	14,213,035.00	903,035.00	15.00	10,786,972.00	18,563,250.00	29,350,222.00	4,350,230.00	1.31	16.66
Axiom Asia Private Capital IV, LP	2016	25,000,000.00	1,110,037.00	102,459.00	0.00	23,897,541.00	945,326.00	24,842,867.00	(164,711.00)	0.85	(15.01)
Black Diamond		**25,000,000.00**	**31,830,639.00**	**1,982,541.00**	**11,360,351.44**	**2,174,225.76**	**25,983,496.00**	**28,157,721.76**	**5,513,208.44**	**1.17**	**7.97**
Montana Board of Investments		25,000,000.00	31,830,639.00	1,982,541.00	11,360,351.44	2,174,225.76	25,983,496.00	28,157,721.76	5,513,208.44	1.17	7.97
BDCM Opportunity Fund III, L.P.	2011	25,000,000.00	31,830,639.00	1,982,541.00	11,360,351.44	2,174,225.76	25,983,496.00	28,157,721.76	5,513,208.44	1.17	7.97
CCMP Associates		**55,000,000.00**	**43,481,448.00**	**3,602,487.00**	**38,403,597.00**	**14,716,967.00**	**29,997,258.00**	**44,714,225.00**	**24,919,407.00**	**1.57**	**13.12**
Montana Board of Investments		55,000,000.00	43,481,448.00	3,602,487.00	38,403,597.00	14,716,967.00	29,997,258.00	44,714,225.00	24,919,407.00	1.57	13.12
CCMP Capital Investors II, L.P.	2006	30,000,000.00	31,169,142.00	2,630,347.00	38,085,462.00	2,069,300.00	15,309,649.00	17,378,949.00	22,225,969.00	1.71	13.22
CCMP Capital Investors III, L.P.	2013	25,000,000.00	12,312,306.00	972,140.00	318,135.00	12,647,667.00	14,687,609.00	27,335,276.00	2,693,438.00	1.22	11.93
CIVC Partners		**25,000,000.00**	**24,867,681.37**	**2,918,685.87**	**22,665,064.86**	**882,072.43**	**20,149,311.00**	**21,031,383.43**	**17,946,694.49**	**1.72**	**33.26**
Montana Board of Investments		25,000,000.00	24,867,681.37	2,918,685.87	22,665,064.86	882,072.43	20,149,311.00	21,031,383.43	17,946,694.49	1.72	33.26
CIVC Partners Fund IV, L.P.	2010	25,000,000.00	24,867,681.37	2,918,685.87	22,665,064.86	882,072.43	20,149,311.00	21,031,383.43	17,946,694.49	1.72	33.26
Carlyle Group		**60,000,000.00**	**60,437,146.00**	**5,596,322.00**	**99,791,723.14**	**5,472,075.00**	**6,578,221.00**	**12,050,296.00**	**45,932,798.14**	**1.76**	**11.57**
Montana Board of Investments		60,000,000.00	60,437,146.00	5,596,322.00	99,791,723.14	5,472,075.00	6,578,221.00	12,050,296.00	45,932,798.14	1.76	11.57
Carlyle Partners IV, L.P.	2005	35,000,000.00	34,930,717.00	1,701,010.00	67,780,370.14	2,801,627.00	2,984,683.00	5,786,310.00	35,834,336.14	2.03	13.40
Carlyle U.S. Growth Fund III, L.P.	2006	25,000,000.00	25,506,429.00	3,895,312.00	32,011,353.00	2,670,448.00	3,593,538.00	6,263,986.00	10,098,462.00	1.40	7.44

Q2 2016 LPs by Family of Funds – Continued

Investments	Vintage Year	Commitments	Contributions	Management Fees	Distributions	Remaining Commitment	Market Value	Exposure	Total Gain/Loss	Investment Multiple	ITD IRR
Catalyst Investments		**30,000,000.00**	**24,269,895.01**	**1,567,884.00**	**3,367,881.06**	**7,518,039.51**	**24,675,851.00**	**32,193,890.51**	**3,773,837.05**	**1.16**	**11.33**
Montana Board of Investments		30,000,000.00	24,269,895.01	1,567,884.00	3,367,881.06	7,518,039.51	24,675,851.00	32,193,890.51	3,773,837.05	1.16	11.33
Catalyst Fund IV Parallel, L.P.	2014	15,000,000.00	9,375,010.95	381,375.00	434,437.68	5,625,000.00	9,844,888.00	15,469,888.00	904,314.73	1.10	9.97
Catalyst Fund Limited Partnership IV	2012	15,000,000.00	14,894,884.06	1,186,509.00	2,933,443.38	1,893,039.51	14,830,963.00	16,724,002.51	2,869,522.32	1.19	11.79
Centerbridge		**112,500,000.00**	**73,811,799.00**	**3,320,327.00**	**38,601,188.00**	**56,412,775.00**	**43,792,949.00**	**100,205,724.00**	**8,582,338.00**	**1.12**	**5.03**
Montana Board of Investments		112,500,000.00	73,811,799.00	3,320,327.00	38,601,188.00	56,412,775.00	43,792,949.00	100,205,724.00	8,582,338.00	1.12	5.03
Centerbridge Capital Partners II, LP	2011	25,000,000.00	34,125,537.00	1,814,100.00	13,343,800.00	3,702,500.00	22,638,862.00	26,341,362.00	1,857,125.00	1.05	2.61
Centerbridge Capital Partners III, L.P.	2016	20,000,000.00	5,342,271.00	348,583.00	227,546.00	14,885,275.00	5,610,517.00	20,495,792.00	495,792.00	1.09	12.32
Centerbridge Special Credit Partners II, L.P.	2012	20,000,000.00	18,126,570.00	876,764.00	5,929,543.00	2,000,000.00	12,730,781.00	14,730,781.00	533,754.00	1.03	1.03
Centerbridge Special Credit Partners III, L.P.	2016	35,000,000.00	1,050,000.00	0.00	0.00	33,950,000.00	1,050,000.00	35,000,000.00	0.00	1.00	N/A
Centerbridge Special Credit Partners, LP	2009	12,500,000.00	15,167,421.00	280,880.00	19,100,299.00	1,875,000.00	1,762,789.00	3,637,789.00	5,695,667.00	1.38	11.12
DFW Capital Partners		**20,000,000.00**	**244,895.19**	**177,011.58**	**0.00**	**19,755,104.81**	**(31,757.00)**	**19,723,347.81**	**(276,652.19)**	**(0.13)**	**N/A**
Montana Board of Investments		20,000,000.00	244,895.19	177,011.58	0.00	19,755,104.81	(31,757.00)	19,723,347.81	(276,652.19)	(0.13)	N/A
DFW Capital Partners V, L.P.	2016	20,000,000.00	244,895.19	177,011.58	0.00	19,755,104.81	(31,757.00)	19,723,347.81	(276,652.19)	(0.13)	N/A
Energy Investors Fund		**25,000,000.00**	**20,872,519.04**	**2,490,236.00**	**5,592,260.69**	**7,598,400.55**	**20,899,979.00**	**28,498,379.55**	**5,619,720.65**	**1.27**	**11.28**
Montana Board of Investments		25,000,000.00	20,872,519.04	2,490,236.00	5,592,260.69	7,598,400.55	20,899,979.00	28,498,379.55	5,619,720.65	1.27	11.28
EIF US Power Fund IV, L.P.	2011	25,000,000.00	20,872,519.04	2,490,236.00	5,592,260.69	7,598,400.55	20,899,979.00	28,498,379.55	5,619,720.65	1.27	11.28
Eureka Funds Management		**20,000,000.00**	**7,064,180.00**	**1,486,286.00**	**6,887,885.00**	**14,186,158.00**	**6,851,774.00**	**21,037,932.00**	**6,675,479.00**	**1.94**	**115.21**
Montana Board of Investments		20,000,000.00	7,064,180.00	1,486,286.00	6,887,885.00	14,186,158.00	6,851,774.00	21,037,932.00	6,675,479.00	1.94	115.21
Eureka III, L.P.	2012	20,000,000.00	7,064,180.00	1,486,286.00	6,887,885.00	14,186,158.00	6,851,774.00	21,037,932.00	6,675,479.00	1.94	115.21
Gi Partners		**20,000,000.00**	**9,550,579.00**	**605,486.00**	**48,021.00**	**10,466,142.00**	**11,177,145.00**	**21,643,287.00**	**1,674,587.00**	**1.18**	**12.81**
Montana Board of Investments		20,000,000.00	9,550,579.00	605,486.00	48,021.00	10,466,142.00	11,177,145.00	21,643,287.00	1,674,587.00	1.18	12.81
GI Partners IV	2014	20,000,000.00	9,550,579.00	605,486.00	48,021.00	10,466,142.00	11,177,145.00	21,643,287.00	1,674,587.00	1.18	12.81
Gridiron Capital LLC		**35,000,000.00**	**18,308,403.68**	**921,200.00**	**4,419,293.15**	**17,421,635.32**	**20,928,997.00**	**38,350,632.32**	**7,039,886.47**	**1.38**	**15.12**
Montana Board of Investments		35,000,000.00	18,308,403.68	921,200.00	4,419,293.15	17,421,635.32	20,928,997.00	38,350,632.32	7,039,886.47	1.38	15.12
Gridiron Capital Fund II	2011	15,000,000.00	14,311,615.68	921,200.00	4,419,293.15	1,227,924.32	16,061,910.00	17,289,834.32	6,169,587.47	1.43	14.09
Gridiron Capital Fund III, L.P.	2016	20,000,000.00	3,996,788.00	0.00	0.00	16,193,711.00	4,867,087.00	21,060,798.00	870,299.00	1.22	21.90
Guardian Capital		**20,000,000.00**	**6,707,715.00**	**730,541.41**	**42,230.00**	**13,400,000.00**	**6,107,973.00**	**19,507,973.00**	**(557,512.00)**	**0.92**	**(7.93)**
Montana Board of Investments		20,000,000.00	6,707,715.00	730,541.41	42,230.00	13,400,000.00	6,107,973.00	19,507,973.00	(557,512.00)	0.92	(7.93)
Guardian Capital Partners Fund II, L.P.	2014	20,000,000.00	6,707,715.00	730,541.41	42,230.00	13,400,000.00	6,107,973.00	19,507,973.00	(557,512.00)	0.92	(7.93)
HKW Capital Partners		**20,000,000.00**	**13,214,260.00**	**684,920.00**	**1,075,995.00**	**6,910,680.00**	**15,367,755.00**	**22,278,435.00**	**3,229,490.00**	**1.24**	**16.99**
Montana Board of Investments		20,000,000.00	13,214,260.00	684,920.00	1,075,995.00	6,910,680.00	15,367,755.00	22,278,435.00	3,229,490.00	1.24	16.99
HKW Capital Partners IV, L.P.	2012	20,000,000.00	13,214,260.00	684,920.00	1,075,995.00	6,910,680.00	15,367,755.00	22,278,435.00	3,229,490.00	1.24	16.99
HarbourVest Partners, LLC		**104,280,588.20**	**73,077,278.84**	**3,748,459.64**	**52,409,528.21**	**31,522,684.92**	**51,034,173.24**	**82,556,858.16**	**30,366,422.61**	**1.42**	**11.20**
Montana Board of Investments		104,280,588.20	73,077,278.84	3,748,459.64	52,409,528.21	31,522,684.92	51,034,173.24	82,556,858.16	30,366,422.61	1.42	11.20
Dover Street IX L.P.	2016	20,000,000.00	0.00	0.00	0.00	20,000,000.00	0.00	20,000,000.00	0.00	0.00	N/A
Dover Street VII L.P.	2008	20,000,000.00	19,163,525.00	1,595,717.00	21,159,484.00	850,000.00	7,252,155.00	8,102,155.00	9,248,114.00	1.48	10.98
Dover Street VIII LP	2012	25,000,000.00	19,381,206.00	657,449.00	9,207,108.00	5,624,999.00	17,277,774.00	22,902,773.00	7,103,676.00	1.37	26.49
HarbourVest Direct 2007 Fund	2007	20,000,000.00	19,400,000.00	984,720.00	18,653,948.00	600,000.00	11,996,028.00	12,596,028.00	11,249,976.00	1.58	9.78
HarbourVest Intl Private Equity Fund VI	2008	19,280,588.20	15,132,547.84	510,573.64	3,388,988.21	4,447,685.92	14,508,216.24	18,955,902.16	2,764,656.61	1.18	7.19
Highway 12 Ventures		**10,000,000.00**	**10,292,472.68**	**2,100,974.83**	**3,681,825.35**	**0.00**	**9,765,471.08**	**9,765,471.08**	**3,154,823.75**	**1.31**	**4.70**
Montana Board of Investments		10,000,000.00	10,292,472.68	2,100,974.83	3,681,825.35	0.00	9,765,471.08	9,765,471.08	3,154,823.75	1.31	4.70
Highway 12 Venture Fund II, L.P.	2006	10,000,000.00	10,292,472.68	2,100,974.83	3,681,825.35	0.00	9,765,471.08	9,765,471.08	3,154,823.75	1.31	4.70

Q2 2016 LPs by Family of Funds - Continued

Investments	Vintage Year	Commitments	Contributions	Management Fees	Distributions	Remaining Commitment	Market Value	Exposure	Total Gain/Loss	Investment Multiple	ITD IRR
Industry Ventures		**10,000,000.00**	**10,139,136.44**	**930,806.32**	**11,100,674.72**	**265,001.00**	**1,585,823.00**	**1,850,824.00**	**2,547,361.28**	**1.25**	**4.77**
Montana Board of Investments		10,000,000.00	10,139,136.44	930,806.32	11,100,674.72	265,001.00	1,585,823.00	1,850,824.00	2,547,361.28	1.25	4.77
Industry Ventures Fund IV, L.P.	2005	10,000,000.00	10,139,136.44	930,806.32	11,100,674.72	265,001.00	1,585,823.00	1,850,824.00	2,547,361.28	1.25	4.77
J.C. Flowers & Co. LLC		**25,000,000.00**	**26,175,875.00**	**1,439,336.00**	**4,608,815.00**	**747,517.00**	**4,818,227.00**	**5,565,744.00**	**(16,748,833.00)**	**0.36**	**(13.98)**
Montana Board of Investments		25,000,000.00	26,175,875.00	1,439,336.00	4,608,815.00	747,517.00	4,818,227.00	5,565,744.00	(16,748,833.00)	0.36	(13.98)
J.C. Flowers II, L.P.	2006	25,000,000.00	26,175,875.00	1,439,336.00	4,608,815.00	747,517.00	4,818,227.00	5,565,744.00	(16,748,833.00)	0.36	(13.98)
JLL Partners		**50,000,000.00**	**30,976,326.00**	**1,996,700.00**	**30,385,808.00**	**20,205,680.00**	**16,203,294.00**	**36,408,974.00**	**15,612,776.00**	**1.50**	**10.22**
Montana Board of Investments		50,000,000.00	30,976,326.00	1,996,700.00	30,385,808.00	20,205,680.00	16,203,294.00	36,408,974.00	15,612,776.00	1.50	10.22
JLL Partners Fund V, L.P.	2005	25,000,000.00	25,596,805.00	1,443,710.00	30,385,808.00	578,547.00	10,923,392.00	11,501,939.00	15,712,395.00	1.61	10.47
JLL Partners Fund VII, LP	2015	25,000,000.00	5,379,521.00	552,990.00	0.00	19,627,133.00	5,279,902.00	24,907,035.00	(99,619.00)	0.98	(1.52)
Kinderhook		**55,000,000.00**	**9,008,347.78**	**464,347.82**	**0.00**	**45,991,652.22**	**8,983,226.00**	**54,974,878.22**	**(25,121.78)**	**1.00**	**(0.37)**
Montana Board of Investments		55,000,000.00	9,008,347.78	464,347.82	0.00	45,991,652.22	8,983,226.00	54,974,878.22	(25,121.78)	1.00	(0.37)
Kinderhook Capital Fund IV, L.P.	2014	20,000,000.00	9,008,347.78	464,347.82	0.00	10,991,652.22	8,983,226.00	19,974,878.22	(25,121.78)	1.00	(0.37)
Kinderhook Capital Fund V, L.P.	2016	35,000,000.00	0.00	0.00	0.00	35,000,000.00	0.00	35,000,000.00	0.00	0.00	N/A
Lexington Partners, Inc.		**155,000,000.00**	**148,744,977.00**	**8,923,945.98**	**176,878,896.72**	**10,957,142.00**	**46,152,668.00**	**57,109,810.00**	**74,286,587.72**	**1.50**	**12.99**
Montana Board of Investments		155,000,000.00	148,744,977.00	8,923,945.98	176,878,896.72	10,957,142.00	46,152,668.00	57,109,810.00	74,286,587.72	1.50	12.99
Lexington Capital Partners V, L.P.	2001	50,000,000.00	49,756,618.00	2,759,052.98	80,373,762.97	243,382.00	3,302,887.00	3,546,269.00	33,920,031.97	1.68	18.20
Lexington Capital Partners VI-B, L.P.	2005	50,000,000.00	50,742,413.00	3,314,763.00	54,119,036.75	817,356.00	14,162,525.00	14,979,881.00	17,539,148.75	1.35	6.48
Lexington Capital Partners VII, L.P.	2009	45,000,000.00	38,472,225.00	2,409,433.00	34,566,738.00	9,670,125.00	22,350,089.00	32,020,214.00	18,444,602.00	1.48	15.74
Lexington Middle Market Investors II, LP	2008	10,000,000.00	9,773,721.00	440,697.00	7,819,359.00	226,279.00	6,337,167.00	6,563,446.00	4,382,805.00	1.45	13.89
MHR Institutional Partners		**25,000,000.00**	**26,000,000.00**	**3,103,825.00**	**24,983,761.00**	**8,717,993.00**	**10,063,695.00**	**18,781,688.00**	**9,047,456.00**	**1.35**	**6.53**
Montana Board of Investments		25,000,000.00	26,000,000.00	3,103,825.00	24,983,761.00	8,717,993.00	10,063,695.00	18,781,688.00	9,047,456.00	1.35	6.53
MHR Institutional Partners III L.P.	2006	25,000,000.00	26,000,000.00	3,103,825.00	24,983,761.00	8,717,993.00	10,063,695.00	18,781,688.00	9,047,456.00	1.35	6.53
MatlinPatterson Partners		**30,000,000.00**	**36,720,759.00**	**2,964,653.00**	**23,536,454.72**	**1,301,078.90**	**20,229,129.00**	**21,530,207.90**	**7,044,824.72**	**1.19**	**4.47**
Montana Board of Investments		30,000,000.00	36,720,759.00	2,964,653.00	23,536,454.72	1,301,078.90	20,229,129.00	21,530,207.90	7,044,824.72	1.19	4.47
MatlinPatterson Global Opps. Ptnrs. III	2007	30,000,000.00	36,720,759.00	2,964,653.00	23,536,454.72	1,301,078.90	20,229,129.00	21,530,207.90	7,044,824.72	1.19	4.47
McCarthy Capital		**25,000,000.00**	**0.00**	**0.00**	**0.00**	**25,000,000.00**	**0.00**	**25,000,000.00**	**0.00**	**0.00**	**N/A**
Montana Board of Investments		25,000,000.00	0.00	0.00	0.00	25,000,000.00	0.00	25,000,000.00	0.00	0.00	N/A
McCarthy Capital Fund VI, L.P.	2016	25,000,000.00	0.00	0.00	0.00	25,000,000.00	0.00	25,000,000.00	0.00	0.00	N/A
Montlake Capital		**15,000,000.00**	**14,327,260.22**	**2,644,259.14**	**8,478,494.98**	**750,000.00**	**9,999,698.19**	**10,749,698.19**	**4,150,932.95**	**1.29**	**5.05**
Montana Board of Investments		15,000,000.00	14,327,260.22	2,644,259.14	8,478,494.98	750,000.00	9,999,698.19	10,749,698.19	4,150,932.95	1.29	5.05
Montlake Capital II, L.P.	2007	15,000,000.00	14,327,260.22	2,644,259.14	8,478,494.98	750,000.00	9,999,698.19	10,749,698.19	4,150,932.95	1.29	5.05

Q2 2016 LPs by Family of Funds - Continued

Investments	Vintage Year	Commitments	Contributions	Management Fees	Distributions	Remaining Commitment	Market Value	Exposure	Total Gain/Loss	Investment Multiple	ITD IRR
Neuberger Berman LLC		**75,000,000.00**	**53,862,392.70**	**3,192,127.45**	**50,935,659.58**	**23,908,833.18**	**23,967,359.00**	**47,876,192.18**	**21,040,625.88**	**1.39**	**9.51**
Montana Board of Investments		75,000,000.00	53,862,392.70	3,192,127.45	50,935,659.58	23,908,833.18	23,967,359.00	47,876,192.18	21,040,625.88	1.39	9.51
NB Co-Investment Partners LP	2006	35,000,000.00	33,530,804.09	2,273,081.95	44,308,584.77	3,241,865.39	3,926,642.00	7,168,507.39	14,704,422.68	1.44	8.28
NB Strategic Co - Invest II, LP	2012	20,000,000.00	18,354,744.71	869,318.72	6,627,074.81	2,643,811.69	18,195,357.00	20,839,168.69	6,467,687.10	1.35	19.63
NB Strategic Co-Investment Partners III, LP	2015	20,000,000.00	1,976,843.90	49,726.78	0.00	18,023,156.10	1,845,360.00	19,868,516.10	(131,483.90)	0.93	(10.02)
Northgate Capital		**45,000,000.00**	**35,700,000.00**	**1,350,000.00**	**8,438,895.57**	**9,300,000.00**	**45,071,448.00**	**54,371,448.00**	**17,810,343.57**	**1.50**	**16.53**
Montana Board of Investments		45,000,000.00	35,700,000.00	1,350,000.00	8,438,895.57	9,300,000.00	45,071,448.00	54,371,448.00	17,810,343.57	1.50	16.53
Northgate V, L.P.	2010	30,000,000.00	25,200,000.00	900,000.00	8,438,895.57	4,800,000.00	33,108,670.00	37,908,670.00	16,347,565.57	1.65	17.99
Northgate Venture Partners VI, L.P.	2012	15,000,000.00	10,500,000.00	450,000.00	0.00	4,500,000.00	11,962,778.00	16,462,778.00	1,462,778.00	1.14	8.12
Oak Hill Capital Management, Inc.		**45,000,000.00**	**49,231,329.94**	**5,276,469.79**	**62,360,642.64**	**1,599,550.47**	**14,714,091.00**	**16,313,641.47**	**27,843,403.70**	**1.57**	**9.94**
Montana Board of Investments		45,000,000.00	49,231,329.94	5,276,469.79	62,360,642.64	1,599,550.47	14,714,091.00	16,313,641.47	27,843,403.70	1.57	9.94
Oak Hill Capital Partners II, L.P.	2005	25,000,000.00	26,124,388.31	2,453,518.13	40,981,261.20	108,007.78	1,719,327.00	1,827,334.78	16,576,199.89	1.63	9.85
Oak Hill Capital Partners III, L.P.	2008	20,000,000.00	23,106,941.63	2,822,951.66	21,379,381.44	1,491,542.69	12,994,764.00	14,486,306.69	11,267,203.81	1.49	10.12
Oaktree Capital Management, LLC		**120,000,000.00**	**116,929,111.31**	**5,244,028.00**	**182,092,587.42**	**3,500,000.00**	**7,323,749.00**	**10,823,749.00**	**72,487,225.11**	**1.62**	**41.54**
Montana Board of Investments		120,000,000.00	116,929,111.31	5,244,028.00	182,092,587.42	3,500,000.00	7,323,749.00	10,823,749.00	72,487,225.11	1.62	41.54
Oaktree Opportunities Fund VIII, L.P.	2009	10,000,000.00	10,292,198.64	735,964.00	9,876,291.11	0.00	3,828,225.00	3,828,225.00	3,412,317.47	1.33	7.94
OCM Opportunities Fund IV b, L.P.	2002	75,000,000.00	75,000,000.00	1,913,775.00	121,581,315.00	0.00	192,549.00	192,549.00	46,773,864.00	1.62	44.89
OCM Opportunities Fund VIIb, L.P.	2008	35,000,000.00	31,636,912.67	2,594,289.00	50,634,981.31	3,500,000.00	3,302,975.00	6,802,975.00	22,301,043.64	1.70	16.61
Odyssey Investment Partners		**70,000,000.00**	**44,185,447.46**	**4,981,410.19**	**73,409,718.00**	**29,566,338.68**	**23,067,001.00**	**52,633,339.68**	**52,291,271.54**	**2.18**	**25.41**
Montana Board of Investments		70,000,000.00	44,185,447.46	4,981,410.19	73,409,718.00	29,566,338.68	23,067,001.00	52,633,339.68	52,291,271.54	2.18	25.41
Odyssey Investment Partners Fund III, LP	2004	25,000,000.00	23,493,035.52	2,049,629.01	44,803,490.26	2,611,826.18	7,868,838.00	10,480,664.18	29,179,292.74	2.24	24.21
Odyssey Investment Partners Fund IV, LP	2008	20,000,000.00	16,386,758.88	1,936,852.19	28,606,227.74	6,260,256.00	12,031,451.00	18,291,707.00	24,250,919.86	2.48	30.78
Odyssey Investment Partners Fund V, LP	2014	25,000,000.00	4,305,653.06	994,928.99	0.00	20,694,256.50	3,166,712.00	23,860,968.50	(1,138,941.06)	0.74	(31.82)
Opus Capital		**10,000,000.00**	**5,075,085.15**	**1,250,000.00**	**349,473.26**	**4,924,914.85**	**3,623,391.81**	**8,548,306.66**	**(1,102,220.08)**	**0.78**	**(8.80)**
Montana Board of Investments		10,000,000.00	5,075,085.15	1,250,000.00	349,473.26	4,924,914.85	3,623,391.81	8,548,306.66	(1,102,220.08)	0.78	(8.80)
Opus Capital Venture Partners VI, LP	2011	10,000,000.00	5,075,085.15	1,250,000.00	349,473.26	4,924,914.85	3,623,391.81	8,548,306.66	(1,102,220.08)	0.78	(8.80)
Pangaea Ventures Limited		**20,000,000.00**	**13,771,833.00**	**1,612,175.00**	**2,424,111.00**	**7,783,869.00**	**12,348,300.00**	**20,132,169.00**	**1,000,578.00**	**1.07**	**3.58**
Montana Board of Investments		20,000,000.00	13,771,833.00	1,612,175.00	2,424,111.00	7,783,869.00	12,348,300.00	20,132,169.00	1,000,578.00	1.07	3.58
Pangaea Two, LP	2012	20,000,000.00	13,771,833.00	1,612,175.00	2,424,111.00	7,783,869.00	12,348,300.00	20,132,169.00	1,000,578.00	1.07	3.58
Performance Venture Capital		**25,000,000.00**	**26,385,908.10**	**2,021,839.85**	**11,724,662.58**	**2,093,759.44**	**29,697,589.00**	**31,791,348.44**	**15,036,343.48**	**1.57**	**14.14**
Montana Board of Investments		25,000,000.00	26,385,908.10	2,021,839.85	11,724,662.58	2,093,759.44	29,697,589.00	31,791,348.44	15,036,343.48	1.57	14.14
Performance Venture Capital II	2008	25,000,000.00	26,385,908.10	2,021,839.85	11,724,662.58	2,093,759.44	29,697,589.00	31,791,348.44	15,036,343.48	1.57	14.14
Pine Brook		**25,000,000.00**	**16,518,359.00**	**1,495,952.00**	**589,846.00**	**9,080,530.00**	**16,035,314.00**	**25,115,844.00**	**106,801.00**	**1.01**	**0.45**
Montana Board of Investments		25,000,000.00	16,518,359.00	1,495,952.00	589,846.00	9,080,530.00	16,035,314.00	25,115,844.00	106,801.00	1.01	0.45
Pine Brook Fund II, L.P.	2013	25,000,000.00	16,518,359.00	1,495,952.00	589,846.00	9,080,530.00	16,035,314.00	25,115,844.00	106,801.00	1.01	0.45

Q2 2016 LPs by Family of Funds - Continued

Investments	Vintage Year	Commitments	Contributions	Management Fees	Distributions	Remaining Commitment	Market Value	Exposure	Total Gain/Loss	Investment Multiple	ITD IRR
Portfolio Advisors LLC		**70,000,000.00**	**56,011,198.00**	**4,110,069.00**	**46,155,655.48**	**14,411,436.00**	**41,328,480.00**	**55,739,916.00**	**31,472,937.48**	**1.56**	**8.08**
Montana Board of Investments		70,000,000.00	56,011,198.00	4,110,069.00	46,155,655.48	14,411,436.00	41,328,480.00	55,739,916.00	31,472,937.48	1.56	8.08
Port. Advisors Fund IV (B), L.P.	2006	30,000,000.00	23,124,209.00	1,735,866.00	17,803,173.48	6,875,791.00	19,748,612.00	26,624,403.00	14,427,576.48	1.62	7.15
Port. Advisors Fund IV (E), L.P.	2006	15,000,000.00	11,793,589.00	975,156.00	8,263,511.00	3,382,194.00	7,233,914.00	10,616,108.00	3,703,836.00	1.31	4.57
Port. Advisors Fund V (B), L.P.	2008	10,000,000.00	7,323,474.00	678,125.00	5,580,724.00	2,793,273.00	7,602,209.00	10,395,482.00	5,859,459.00	1.80	11.73
Portfolio Advisors Secondary Fund, L.P.	2008	15,000,000.00	13,769,926.00	720,922.00	14,508,247.00	1,360,178.00	6,743,745.00	8,103,923.00	7,482,066.00	1.54	14.32
Quintana Energy Partners		**15,000,000.00**	**16,756,722.35**	**1,888,416.38**	**8,979,708.77**	**340,408.00**	**4,154,315.00**	**4,494,723.00**	**(3,622,698.58)**	**0.78**	**(5.22)**
Montana Board of Investments		15,000,000.00	16,756,722.35	1,888,416.38	8,979,708.77	340,408.00	4,154,315.00	4,494,723.00	(3,622,698.58)	0.78	(5.22)
Quintana Energy Partners Fund I, L.P.	2006	15,000,000.00	16,756,722.35	1,888,416.38	8,979,708.77	340,408.00	4,154,315.00	4,494,723.00	(3,622,698.58)	0.78	(5.22)
Siguler Guff & Company, LLC		**50,000,000.00**	**43,618,577.17**	**2,003,292.66**	**30,757,301.04**	**6,875,000.00**	**33,564,683.00**	**40,439,683.00**	**20,703,406.87**	**1.47**	**10.77**
Montana Board of Investments		50,000,000.00	43,618,577.17	2,003,292.66	30,757,301.04	6,875,000.00	33,564,683.00	40,439,683.00	20,703,406.87	1.47	10.77
Siguler Guff Small Buyout Opportunities	2007	25,000,000.00	24,243,577.17	1,564,078.68	27,213,165.17	1,250,000.00	13,044,665.00	14,294,665.00	16,014,253.00	1.66	11.19
Siguler Guff Small Buyout Opps Fund II	2011	25,000,000.00	19,375,000.00	439,213.98	3,544,135.87	5,625,000.00	20,520,018.00	26,145,018.00	4,689,153.87	1.24	9.28
Southern Capital Group Pte. Limited		**15,000,000.00**	**14,027,900.66**	**1,143,698.63**	**2,689,520.71**	**3,662,290.02**	**10,677,136.22**	**14,339,426.24**	**(661,243.73)**	**0.95**	**(3.11)**
Montana Board of Investments		15,000,000.00	14,027,900.66	1,143,698.63	2,689,520.71	3,662,290.02	10,677,136.22	14,339,426.24	(661,243.73)	0.95	(3.11)
Southern Capital Fund III L.P.	2013	15,000,000.00	14,027,900.66	1,143,698.63	2,689,520.71	3,662,290.02	10,677,136.22	14,339,426.24	(661,243.73)	0.95	(3.11)
Spire Capital		**15,000,000.00**	**5,529,113.00**	**1,007,595.00**	**0.00**	**9,473,500.00**	**4,226,840.00**	**13,700,340.00**	**(1,302,273.00)**	**0.76**	**(19.01)**
Montana Board of Investments		15,000,000.00	5,529,113.00	1,007,595.00	0.00	9,473,500.00	4,226,840.00	13,700,340.00	(1,302,273.00)	0.76	(19.01)
Spire Capital Partners III	2016	15,000,000.00	5,529,113.00	1,007,595.00	0.00	9,473,500.00	4,226,840.00	13,700,340.00	(1,302,273.00)	0.76	(19.01)
Sterling Partners		**20,000,000.00**	**15,930,927.00**	**1,346,757.00**	**3,859,432.00**	**5,679,558.40**	**13,862,858.00**	**19,542,416.40**	**1,791,363.00**	**1.11**	**7.67**
Montana Board of Investments		20,000,000.00	15,930,927.00	1,346,757.00	3,859,432.00	5,679,558.40	13,862,858.00	19,542,416.40	1,791,363.00	1.11	7.67
Sterling Capital Partners IV	2012	20,000,000.00	15,930,927.00	1,346,757.00	3,859,432.00	5,679,558.40	13,862,858.00	19,542,416.40	1,791,363.00	1.11	7.67
Tenaya Capital LLC		**35,000,000.00**	**19,436,069.38**	**1,483,110.34**	**0.00**	**15,563,930.62**	**18,763,386.00**	**34,327,316.62**	**(672,683.38)**	**0.97**	**(1.62)**
Montana Board of Investments		35,000,000.00	19,436,069.38	1,483,110.34	0.00	15,563,930.62	18,763,386.00	34,327,316.62	(672,683.38)	0.97	(1.62)
Tenaya Capital VI, L.P.	2012	20,000,000.00	16,118,320.99	1,189,777.01	0.00	3,881,679.01	15,753,871.00	19,635,550.01	(364,449.99)	0.98	(0.92)
Tenaya Capital VII, L.P.	2014	15,000,000.00	3,317,748.39	293,333.33	0.00	11,682,251.61	3,009,515.00	14,691,766.61	(308,233.39)	0.91	(12.12)
Tenex		**55,000,000.00**	**21,150,567.63**	**1,449,132.79**	**7,522,897.11**	**34,756,169.08**	**23,389,986.00**	**58,146,155.08**	**9,762,315.48**	**1.46**	**19.19**
Montana Board of Investments		55,000,000.00	21,150,567.63	1,449,132.79	7,522,897.11	34,756,169.08	23,389,986.00	58,146,155.08	9,762,315.48	1.46	19.19
Tenex Capital Partners II, L.P.	2016	35,000,000.00	2,643,153.79	255,350.05	0.00	32,359,672.48	2,337,935.00	34,697,607.48	(305,218.79)	0.88	(12.09)
Tenex Capital Partners SG, L.P.	2012	20,000,000.00	18,507,413.84	1,193,782.74	7,522,897.11	2,396,496.60	21,052,051.00	23,448,547.60	10,067,534.27	1.54	19.89
Terra Firma		**27,453,849.41**	**27,753,604.30**	**3,554,414.48**	**2,801,687.58**	**88,373.80**	**10,818,295.49**	**10,906,669.30**	**(14,133,621.23)**	**0.49**	**(10.90)**
Montana Board of Investments		27,453,849.41	27,753,604.30	3,554,414.48	2,801,687.58	88,373.80	10,818,295.49	10,906,669.30	(14,133,621.23)	0.49	(10.90)
Terra Firma Capital Partners III, L.P.	2007	27,453,849.41	27,753,604.30	3,554,414.48	2,801,687.58	88,373.80	10,818,295.49	10,906,669.30	(14,133,621.23)	0.49	(10.90)

Q2 2016 LPs by Family of Funds - Continued

Investments	Vintage Year	Commitments	Contributions	Management Fees	Distributions	Remaining Commitment	Market Value	Exposure	Total Gain/Loss	Investment Multiple	ITD IRR
Thayer Capital Partners		**45,000,000.00**	**34,433,198.00**	**3,259,444.00**	**12,124,009.00**	**11,240,704.00**	**36,142,284.00**	**47,382,988.00**	**13,833,095.00**	**1.40**	**13.81**
Montana Board of Investments		45,000,000.00	34,433,198.00	3,259,444.00	12,124,009.00	11,240,704.00	36,142,284.00	47,382,988.00	13,833,095.00	1.40	13.81
HCI Equity Partners III, LP	2008	20,000,000.00	20,204,904.00	1,934,413.00	12,124,009.00	468,998.00	16,487,881.00	16,956,879.00	8,406,986.00	1.42	10.72
HCI Equity Partners IV, LP	2013	25,000,000.00	14,228,294.00	1,325,031.00	0.00	10,771,706.00	19,654,403.00	30,426,109.00	5,426,109.00	1.38	31.14
Trilantic		**51,098,351.15**	**32,322,863.45**	**2,773,282.00**	**15,489,754.06**	**20,076,672.65**	**23,698,356.00**	**43,775,028.65**	**6,865,246.61**	**1.21**	**10.14**
Montana Board of Investments		51,098,351.15	32,322,863.45	2,773,282.00	15,489,754.06	20,076,672.65	23,698,356.00	43,775,028.65	6,865,246.61	1.21	10.14
Trilantic Capital Partners IV L.P.	2007	11,098,351.15	11,240,733.36	1,187,225.47	15,370,877.77	1,229,719.64	2,139,851.00	3,369,570.64	6,269,995.41	1.56	13.63
Trilantic Capital Partners V L.P.	2013	20,000,000.00	11,401,878.44	1,347,762.75	118,876.29	8,641,485.84	10,595,645.00	19,237,130.84	(687,357.15)	0.94	(3.81)
Trilantic Energy Partners (North America), L.P.	2014	20,000,000.00	9,680,251.65	238,293.78	0.00	10,205,467.17	10,962,860.00	21,168,327.17	1,282,608.35	1.13	14.31
Veritas Capital		**45,000,000.00**	**41,345,022.00**	**572,099.00**	**17,295,969.00**	**8,945,372.00**	**42,689,910.00**	**51,635,282.00**	**18,640,857.00**	**1.45**	**15.77**
Montana Board of Investments		45,000,000.00	41,345,022.00	572,099.00	17,295,969.00	8,945,372.00	42,689,910.00	51,635,282.00	18,640,857.00	1.45	15.77
The Veritas Capital Fund IV, L.P.	2010	25,000,000.00	27,750,467.00	450,046.00	17,295,969.00	2,539,927.00	29,181,748.00	31,721,675.00	18,727,250.00	1.67	16.85
Veritas Capital Fund V	2014	20,000,000.00	13,594,555.00	122,053.00	0.00	6,405,445.00	13,508,162.00	19,913,607.00	(86,393.00)	0.99	(0.92)
Welsh, Carson, Anderson & Stowe		**75,000,000.00**	**74,432,339.00**	**5,554,840.18**	**107,784,301.00**	**750,000.00**	**8,058,369.00**	**8,808,369.00**	**41,410,331.00**	**1.56**	**8.81**
Montana Board of Investments		75,000,000.00	74,432,339.00	5,554,840.18	107,784,301.00	750,000.00	8,058,369.00	8,808,369.00	41,410,331.00	1.56	8.81
WCAS Capital Partners IV, L.P.	2004	25,000,000.00	25,000,000.00	1,898,636.18	30,383,234.00	0.00	2,319,712.00	2,319,712.00	7,702,946.00	1.31	5.51
Welsh, Carson, Anderson & Stowe IX, L.P.	2000	25,000,000.00	24,750,000.00	2,045,495.00	42,057,142.00	250,000.00	14,177.00	264,177.00	17,321,319.00	1.70	11.91
Welsh, Carson, Anderson & Stowe X, L.P.	2005	25,000,000.00	24,682,339.00	1,610,709.00	35,343,925.00	500,000.00	5,724,480.00	6,224,480.00	16,386,066.00	1.66	8.02
White Deer Energy		**25,000,000.00**	**10,779,229.00**	**1,686,301.00**	**71,957.00**	**14,292,728.00**	**7,022,532.00**	**21,315,260.00**	**(3,684,740.00)**	**0.66**	**(23.65)**
Montana Board of Investments		25,000,000.00	10,779,229.00	1,686,301.00	71,957.00	14,292,728.00	7,022,532.00	21,315,260.00	(3,684,740.00)	0.66	(23.65)
White Deer Energy II LP	2013	25,000,000.00	10,779,229.00	1,686,301.00	71,957.00	14,292,728.00	7,022,532.00	21,315,260.00	(3,684,740.00)	0.66	(23.65)
Exited		**446,151,089.47**	**437,521,185.18**	**24,255,143.08**	**754,238,219.95**	**0.00**	**0.00**	**0.00**	**316,717,034.77**	**1.72**	**14.78**

1.) Due to, among other things, the lack of a valuation standard in the private equity industry, differences in the pace of investment across funds and the understatement of returns in the early years of a fund' the internal rate of return information does not accurately reflect current or expected future returns, and the internal rates of return and all other disclosures with respect to the Partnerships have not been pre reviewed or approved by the Partnerships, the General Partners, or any other affiliates.

Axiom Asia Private Capital IV, Dover Street IX, Kinderhook V and McCarthy Capital Fund VI are now being reported. KKR European Fund, LP, a vintage 1999 fund, has finally liquidated and is now being aggregated with the other exited funds.

MPEP Holdings Report as of September 30, 2016

Fund Name	Commitment Summary				Market Value Summary	
	Total Commitment	Funded Capital	Unfunded Commitment	% Unfunded	Beginning Market Value	Ending Market Value
Total	**2,700,734,477.41**	**2,086,906,405.97**	**715,786,567.34**	**26.50**	**1,067,370,442.30**	**1,073,612,079.65**
ASP Fund of Funds	185,787,510.00	177,293,820.00	8,493,690.00	4.57	43,053,232.00	42,188,425.00
Buyout	996,098,351.15	668,978,792.21	370,515,606.78	37.20	428,942,323.14	435,436,587.72
Co-Investments	95,000,000.00	72,036,835.42	24,373,153.94	25.66	34,159,664.69	32,759,936.86
Distressed	332,500,000.00	305,187,213.99	59,536,337.17	17.91	103,469,969.00	103,992,314.00
Energy	220,000,000.00	158,523,246.69	69,752,531.27	31.71	86,337,521.88	90,741,634.58
Mezzanine Debt	25,000,000.00	25,000,000.00	0.00	0.00	1,839,050.00	1,839,050.00
Non-US Private Equity	311,951,337.26	219,536,724.79	99,001,817.84	31.74	124,177,207.25	125,406,133.21
Secondary	274,397,279.00	238,175,910.45	40,921,165.00	14.91	81,568,144.80	80,471,881.80
Venture Capital	260,000,000.00	222,173,862.42	43,192,265.34	16.61	163,823,329.54	160,776,116.48

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

To: Members of the Board

From: Ethan Hurley, Director of Private Investments

Date: November 15, 2016

Subject: Private Equity and Private Real Estate Partnership Focus Lists – Quarterly update

The Partnership Focus Lists (PFL) for private equity (MPEP) and private real estate (MTRP) are shown below. Net Asset Values shown are as of 6/30/2016. No new funds have been added since the last Board meeting.

MPEP Partnership Focus List
November 2016

Partnership	Strategy	Reason	Net Asset Value	Inclusion Date
J.C. Flowers II, L.P.	Buyout	Performance	$4,818,227	August 2010
Terra Firma Capital Partners III, L.P.	Buyout	Performance, Risk Management	$10,906,669	August 2010

MTRP Partnership Focus List
November 2016

Partnership	Strategy	Reason	Net Asset Value	Inclusion Date
ARC (GP1) Ltd. (fka Liquid Realty Partners IV, L.P.)	Opportunistic	Staff Turnover	$1,641,270	August 2010
Morgan Stanley Real Estate Fund VI International-TE, L.P.	Opportunistic	Performance, Risk Management, Staff Turnover	$3,432,307	August 2010
Strategic Partners Value Enhancement Fund, L.P.	Value-Added	Performance, Platform Stability	$5,127,340	November 2010
Hudson Realty Capital Fund IV, L.P.	Value-Added	Performance	$4,206,967	May 2011
O'Connor North American Property Partners II, L.P.	Opportunistic	Performance, Platform Stability	$4,357,237	May 2011
Beacon Capital Strategic Partners V, LP	Opportunistic	Performance, Platform Stability	$1,938,421	August 2012
Carlyle European Real Estate Partners III, LP	Opportunistic	Performance, Staff Turnover	$6,777,939	October 2014

Partnership Focus List Background

The purpose of the Partnership Focus Lists (PFL's) are to detail those MPEP and MTRP partnerships for which Staff has concerns regarding their ability to realize appropriate relative private investment returns over the life of the partnership. Factors which may trigger such concerns include, but are not limited to, the following:

- Changes in key personnel
- General Partner misconduct
- Adverse regulatory, macroeconomic, or capital market developments
- Financial distress at the partnership's sponsor or in the Limited Partner base
- A material departure from partnership strategy
- Risk management deficiencies (inappropriate use of leverage, investment pace, portfolio diversification, etc.)
- An ineffective sourcing effort
- Performance relative to benchmarks
- Performance relative to peers

Staff also considers partnership maturity when deciding which funds to include on the PFL. Unseasoned partnerships are not being included on the list simply because they are in the J-curve, and mature partnerships that are substantially realized are excluded from PFL consideration.

It is important to understand that unlike public equity managers, our contractual commitments to private equity and closed-end private real estate partnerships cannot be terminated or transitioned to a different manager except under unique circumstances specified in the contract and then usually only with agreement among a super-majority of all LP's. Therefore, readers of the PFLs should not expect that partnerships listed will see their managers replaced, outstanding commitments rescinded, or other action that as a legal or practical matter may be difficult to implement.

The PFLs are administered by the MBOI's Alternative Investments Staff (AIS), who meet at least quarterly to review and recommend changes to the lists. While all AIS are responsible for providing input into the composition of the PFLs, final decision making authority over which partnerships to include rests with the MBOI's Chief Investment Officer.

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

To: Members of the Board

From: Ethan Hurley, Director of Private Investments

Date: November 15, 2016

Subject: Montana Real Estate Pool (MTRP)

Following this memo are the items listed below:

i. **New commitments:**
There have been no new commitments since the Board met last.

ii. **Divestments** – JP Morgan Strategic Property Fund, LP. - $69,685,634.71 received October 5th.

iii. **Montana Real Estate Pool Review:**
Following this memo is the comprehensive review of the MTRP for the quarter ended June 30th.
- The portfolio was net cash flow positive for the quarter ending 3Q16 with contributions and distributions of $15.7M and $31.7M, respectively.
- There have been no significant changes or shifts in diversification to the portfolio since 1Q16.

Market Observations – 2Q16

- Broadly speaking, commercial real estate returns were down 26bps quarter over quarter as of 3Q16 as measured by NCREIF, but still positive at 1.77%.

- Fundamentals remain strong as vacancies continue to drop and rents continue to grow.

- Delinquency rates for September inched up and now stand at 4.78% for US commercial real estate loans as monitored by Trepp.

- US REIT stocks were up 7.98% YTD through October 24, 2016 as measured by the MSCI REIT Index, off nearly 900+ bps since July 26, 2016.

- While transaction volumes were near all-time highs at the end of 2015, volumes have trended downward for much of 2016 with 3Q16 transaction volume down 2% from the same period a year ago (Real Capital Analytics).

- While down relative to 2015, capital flows into the US continue to be quite strong through the 2Q16 at $63B, down 16% year-on-year (Jones Lang LaSalle).

- Global private real estate fundraising through 3Q16 decreased relative to 2Q16 and finished the period with 31 funds raising $18.5B (Preqin).

- Timber returns were down quarter over quarter by 31bps relative to 2Q16 and came in at 0.67% as measured by the NCREIF Timberland Index.

Montana Board of Investments

Real Estate Board Report

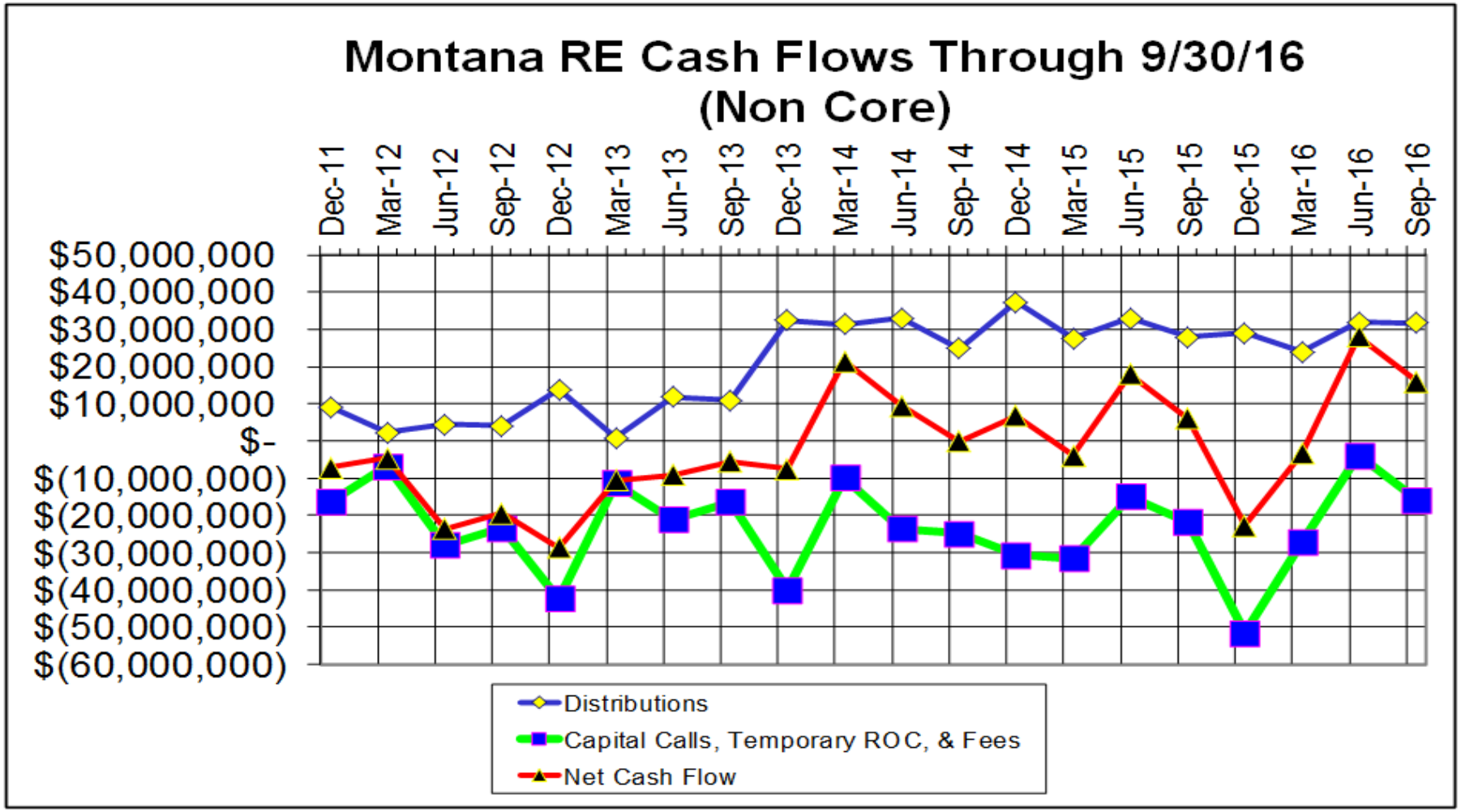
Q2 2016

Due to, among other things, the lack of a valuation standard in the real estate private equity industry, differences in the pace of investment across funds and the understatement of returns in the early years of a fund's life, the internal rate of return information may not accurately reflect current or expected future returns, and the internal rates of return and all other disclosures with respect to the Partnerships have not been prepared, reviewed or approved by the Partnerships, the General Partners, or any other affiliates.

Contents

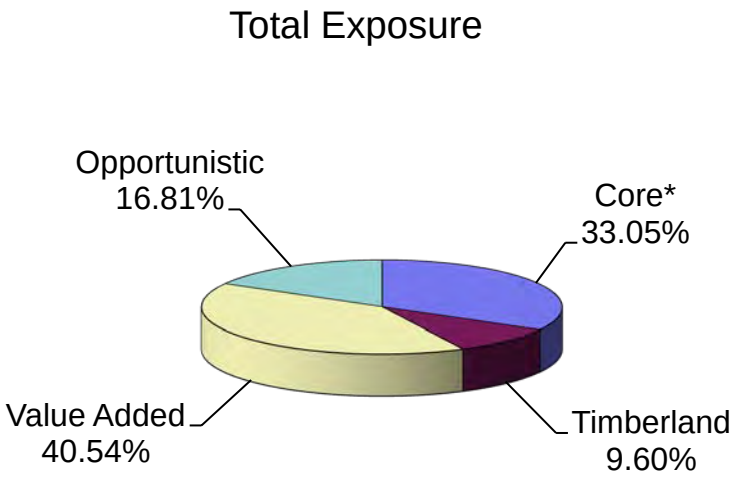
- Quarterly Cash Flow Chart
- Strategy – Total Exposure Chart
- Geography – Total Exposure Chart
- Property Type – Market Value Exposure Chart
- Time Weighted Returns
- Internal Rates of Return
- Commitment Summary
- MTRP Holdings Report as of 9/30/16
- Leverage

Quarterly Cash Flows through September 30, 2016



Net cash flow for the quarter ending 9/30/16 was positive.

Q2 2016 Strategy – Total Exposure

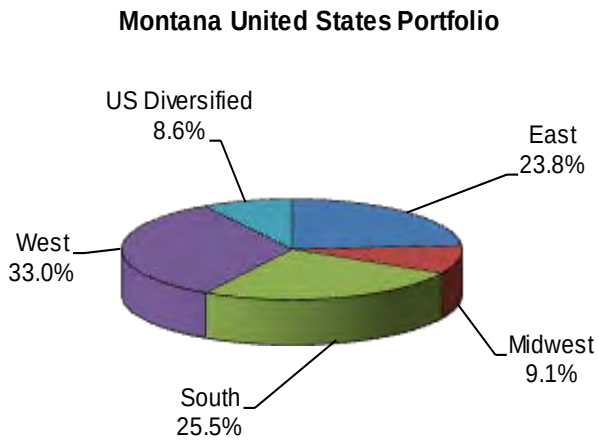


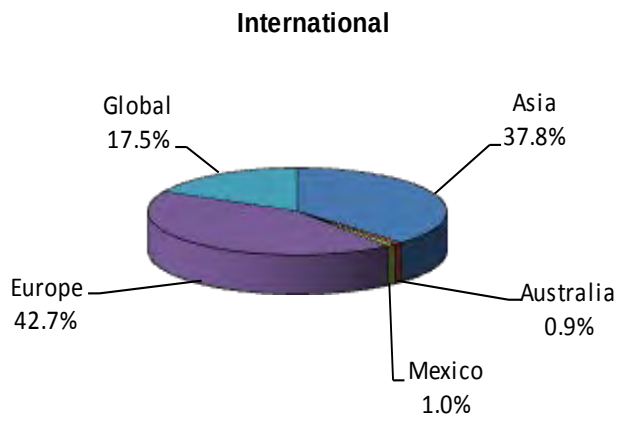
Strategy	Remaining Commitments	Percentage	Net Asset Value	Percentage	Total Exposure	Percentage
Core*	**$0**	**0.00%**	**$358,706,619**	**39.58%**	**$358,706,619**	**33.05%**
Timberland	**$0**	**0.00%**	**$104,200,813**	**11.49%**	**$104,200,813**	**9.60%**
Value Added	**$96,887,573**	**54.10%**	**$343,261,255**	**37.86%**	**$440,148,828**	**40.54%**
Opportunistic	**$82,186,268**	**45.90%**	**$100,395,941**	**11.07%**	**$182,582,209**	**16.81%**
Total	**$179,073,840**	**100.00%**	**$906,564,629**	**100.00%**	**$1,085,638,469**	**100.00%**

* Includes MT Office Portfolio

Core real estate dominates assets in the ground at approximately 40% of net asset value and includes the directly owned Montana office buildings. Timberland represents approximately 12% of the portfolio's total net asset value and approximately 10% of the total exposure. Value Added and Opportunistic account for approximately 38% and 11% of net asset value respectively.

Q2 2016 Geography – Total Exposure





	East	Midwest	South	West	US Diverse	Non-US	Total
Montana US Value[2]	$354.0	$135.7	$378.6	$491.4	$127.6		$1,487.1
Montana US Total[1]	23.8%	9.1%	25.5%	33.0%	8.6%		100.0%

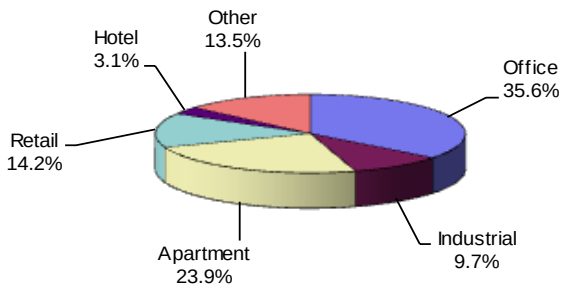
	Asia	Australia	Mexico	Europe	Global		Total
International[2]	$22.6	$0.5	$0.6	$25.5	$10.5		$59.6
International Percentage	37.8%	0.9%	1.0%	42.7%	17.5%		100.0%
Montana Total Value[2]	$354.0	$135.7	$378.6	$491.4	$127.6	$59.6	$1,546.7
Montana Total[1]	22.9%	8.8%	24.5%	31.8%	8.2%	3.9%	100.0%

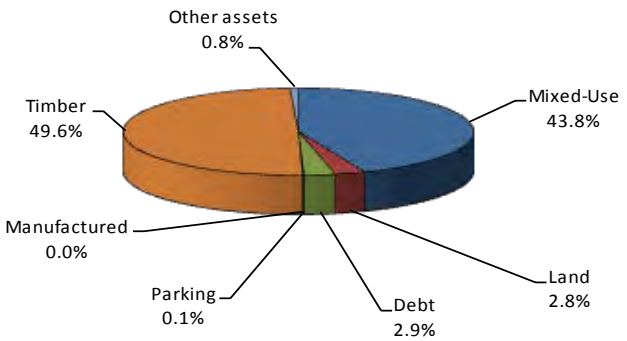
1) Diversification percentages are based on the Gross Market Value, which represents the MBOI share of the partnerships' interests in properties exclusive of any underlying debt used to acquire each property.

2) Values shown are in Millions.

The real estate portfolio is broadly diversified across the US with approximately 4% invested internationally.

Q2 2016 Property Type – Market Value Exposure





	Office	Industrial	Apartment	Retail	Hotel	Other[3]		Total
Montana US Value[2]	$529.1	$144.7	$356.1	$211.1	$46.0	$200.0		$1,487.1
Montana US Total	35.6%	9.7%	23.9%	14.2%	3.1%	13.5%		100.0%
Montana Non-US Value[2]	$13.4	$0.3	$7.4	$8.7	$3.4	$26.4		$59.6
Montana Non-US Total	22.4%	0.5%	12.4%	14.7%	5.7%	44.4%		100.0%
Montana Total Value[2]	$542.4	$145.0	$363.5	$219.8	$49.4	$226.5		$1,546.7
Montana Total[1]	35.1%	9.4%	23.5%	14.2%	3.2%	14.6%		100.0%
	Mixed-Use	Land	Debt	Parking	Manufactured	Timber[4]	Other Assets[3]	Total
Other[2]	$99.4	$6.3	$6.5	$0.2	$0.1	$112.2	$1.8	$226.5
Other Percentage	43.8%	2.8%	2.9%	0.1%	0.0%	49.6%	0.8%	100.0%

1) Diversification percentages are based on the Gross Market Value, which represents the MBOI share of the partnerships' interests in properties exclusive of any underlying debt used to acquire each property.

2) Values shown are in Millions.

3) Other Assets includes includes $48,566 in Entertainment and immaterial values in Condo Conversions, Homebuilding, Medical Office, and other properties not defined by the general partners.

4) Timber numbers includes $7,103,037 in the East region, $27,025,528 in the South region, $18,566,485 in the Midwest region, $38,445,515 in the West region, and $21,085,301 in the US Diverse region.

The real estate portfolio is well diversified across the major property types. At approximately 14%, Other represents the portfolio's exposure to Timber, Mixed-Use properties, Land, Debt, Manufactured Housing, Parking and related properties and assets. As has been noted in the past, composition of the portfolio by property type is and will continue to be primarily a function of a manager's expertise and success in sourcing deals rather than a function of staff's desire to over or underweight a specific property type.

Q2 2016 Time Weighted Returns

	Current Quarter			Year to Date		1 - Year		3 - Year		5 - Year		7 - Year		Inception	
	NAV	Net	Gross	Net	Gross	Net	Gross	Net	Gross	Net	Gross	Net	Gross	Net	Gross
INVESCO Core Real Estate-USA	51,447,671	3.38%	3.61%	4.66%	5.13%	9.95%	10.94%	11.70%	12.70%	11.09%	12.09%	9.79%	10.77%	3.93%	4.87%
JP Morgan Strategic Properties Fund	159,145,251	1.77%	1.99%	3.45%	3.91%	10.09%	11.08%	11.76%	12.84%	11.94%	13.03%	9.92%	11.01%	4.99%	6.04%
TIAA-CREF Asset Management Core Property	49,467,101	1.92%	2.08%	3.94%	4.26%	10.39%	11.09%	10.24%	11.01%	-	-	-	-	10.24%	11.01%
UBS-Trumbull Property Fund	79,097,295	1.51%	1.78%	3.34%	3.88%	9.51%	10.66%	10.07%	11.22%	9.76%	10.91%	-	-	11.19%	12.30%
Core Total	**339,157,318**	**1.97%**	**2.20%**	**3.72%**	**4.18%**	**10.04%**	**11.03%**	**11.20%**	**12.25%**	**11.15%**	**12.22%**	**9.23%**	**10.28%**	**4.58%**	**5.60%**
Montana Office Portfolio [1]	**19,549,301**	**7.74%**	**7.74%**	**7.74%**	**7.74%**	**7.74%**	**7.74%**	**7.13%**	**7.13%**	**7.19%**	**7.19%**	-	-	**7.19%**	**7.19%**
Timberland Total	**104,200,813**	**0.34%**	**0.50%**	**0.96%**	**1.29%**	**2.90%**	**3.50%**	**5.29%**	**6.17%**	**4.95%**	**5.90%**	-	-	**5.20%**	**6.10%**
Value Added Total	**343,261,255**	**2.99%**	**3.79%**	**5.53%**	**7.05%**	**14.94%**	**19.01%**	**16.56%**	**20.84%**	**13.92%**	**17.48%**	**8.88%**	**12.02%**	**6.09%**	**9.63%**
Opportunistic Total	**100,395,941**	**-1.03%**	**-0.72%**	**1.74%**	**3.01%**	**5.12%**	**7.69%**	**9.82%**	**12.61%**	**8.97%**	**11.63%**	**10.49%**	**13.74%**	**-5.96%**	**-2.57%**
Total Portfolio	**906,564,629**	**1.94%**	**2.38%**	**3.94%**	**4.88%**	**10.33%**	**12.52%**	**12.13%**	**14.47%**	**11.07%**	**13.19%**	**8.91%**	**11.03%**	**3.54%**	**5.82%**
Benchmark															
NCREIF	**505,332,830,320**		**2.03%**		**4.28%**		**10.64%**		**11.61%**		**11.52%**		-		**9.32%**
NFI-ODCE (NET)	**162,205,700,000**	**1.91%**		**3.90%**		**10.80%**		**11.97%**		**11.66%**		-		**7.68%**	

1) The value for the Montana Office Portfolio is provided by the MBOI and is taken "as-is".

The Total Portfolio turned in another positive quarter as general real estate market conditions continue their momentum with sound fundamentals. The Q2 Total Portfolio was on par with Q1 returns. Timberland and Opportunistic underperformed relative to Q1 by 28bps and 383bps respectively while Core and Value Added outperformed relative to Q1 by 25bps and 53bps respectively.

Q2 2016 Internal Rates of Return

	NAV	Current Quarter Net	Year to Date Net	1 - Year Net	3 - Year Net	5 - Year Net	7 - Year Net	Inception Net
Montana Office Portfolio	**19,549,301**	**7.74%**	**7.71%**	**7.67%**	**7.05%**	**7.13%**	**-**	**6.92%**
Molpus Woodlands Fund III, LP	47,069,907	0.47%	-0.08%	3.45%	5.82%	5.80%	-	5.80%
ORM Timber Fund III, LLC	30,103,089	-0.35%	1.77%	0.77%	2.55%	-	-	2.15%
RMS Forest Growth III LP	27,027,817	0.87%	1.91%	3.96%	5.69%	5.31%	-	5.48%
Timberland	**104,200,813**	**0.34%**	**0.96%**	**2.88%**	**5.09%**	**5.06%**	**-**	**5.11%**
ABR Chesapeake Fund III	9,936,560	0.49%	0.74%	13.28%	7.22%	8.58%	4.44%	3.95%
ABR Chesapeake Fund IV	28,148,820	1.67%	2.64%	10.43%	10.49%	10.92%	-	10.59%
AG Core Plus Realty Fund II	1,301,470	0.95%	13.23%	26.03%	15.72%	15.38%	13.26%	8.77%
AG Core Plus Realty Fund III	22,861,954	9.42%	10.77%	36.12%	29.51%	23.88%	-	23.50%
AG Core Plus Realty Fund IV, L.P.	4,556,821	0.53%	0.10%	2.50%	-	-	-	-0.84%
Apollo Real Estate Finance Corp.	3,591,998	0.13%	11.85%	8.91%	4.95%	3.46%	-0.36%	-0.73%
BPG Investment Partnership IX	26,005,150	6.13%	7.98%	16.63%	-	-	-	17.82%
CBRE Strategic Partners US Value Fund 6	12,614,012	-1.38%	0.29%	14.01%	15.93%	-	-	15.04%
CBRE Strategic Partners US Value Fund 7	25,372,729	5.10%	6.70%	19.35%	-	-	-	13.63%
DRA Growth & Income Fund VI	8,216,436	0.87%	3.40%	17.40%	30.43%	21.79%	15.48%	11.12%
DRA Growth & Income Fund VII	30,700,543	3.77%	13.07%	23.96%	18.06%	-	-	17.52%
DRA Growth and Income Fund VIII	21,850,742	1.89%	3.74%	10.16%	-	-	-	10.59%
Equus Investment Partnership X, LP	5,880,283	2.73%	6.03%	-	-	-	-	2.51%
Five Arrows Securities V, L.P.	9,098,724	1.34%	1.53%	6.78%	16.28%	14.03%	12.53%	11.45%
Harbert US Real Estate Fund V, LP	17,541,027	2.37%	7.53%	16.47%	-	-	-	15.63%
Hudson RE Fund IV Co-Invest [2]	48,440	-	-	-	-	-	-	6.25%
Hudson Realty Capital Fund IV	4,206,967	-0.73%	-1.51%	-6.69%	7.14%	-0.44%	-1.28%	-4.51%
Landmark Real Estate Partners VI	7,688,919	-0.36%	-0.52%	5.31%	14.41%	16.46%	-	23.50%
Realty Associates Fund VIII	11,468,895	0.61%	1.98%	7.67%	10.25%	6.75%	1.21%	-0.77%
Realty Associates Fund IX	15,519,465	1.92%	4.29%	11.09%	12.72%	11.11%	-	11.13%
Realty Associates Fund X	20,601,623	2.54%	4.65%	12.41%	13.53%	-	-	13.09%
Stockbridge Value Fund, LP	11,370,252	1.85%	4.25%	19.54%	23.21%	-	-	20.69%
Stockbridge Value Fund II, LP	24,029,984	3.96%	8.37%	13.19%	-	-	-	13.38%
Stoltz Real Estate Fund V, LP	15,522,100	6.19%	6.08%	-	-	-	-	13.83%
Strategic Partners Value Enhancement Fund	5,127,340	-3.28%	-2.99%	-7.96%	14.36%	8.53%	1.02%	1.60%
Velocis Fund II, LP [4]	0	-	-	-	-	-	-	-
Value Added	**343,261,255**	**2.99%**	**5.52%**	**14.94%**	**16.63%**	**14.05%**	**10.53%**	**8.64%**
AG Realty Fund VII L.P.	3,076,582	-4.44%	-6.15%	-2.58%	17.66%	17.60%	15.55%	13.18%
AG Realty Fund VIII L.P.	13,333,549	2.93%	11.68%	22.76%	19.14%	17.61%	-	16.59%
AG Realty Fund IX, L.P.	4,372,753	2.46%	1.86%	-	-	-	-	-0.78%
ARC (GP1) Ltd [3]	1,641,270	0.88%	0.34%	-6.67%	4.53%	5.07%	7.30%	-1.42%
Beacon Capital Strategic Partners V	1,938,421	-10.35%	-9.90%	-8.71%	6.23%	3.34%	4.23%	-7.84%
Carlyle Europe Real Estate Partners III	6,777,939	-0.77%	3.88%	1.46%	-2.91%	-4.23%	-1.65%	-4.73%
CIM Fund III, L.P.	25,924,249	0.70%	1.88%	5.30%	9.65%	13.66%	14.01%	11.02%
GEM Realty Fund IV	5,455,874	1.73%	9.35%	19.91%	25.51%	21.96%	-	21.04%
GEM Realty Fund V	10,342,032	3.04%	9.12%	22.12%	-	-	-	13.22%
GEM Realty Fund VI, L.P. [4]	0	-	-	-	-	-	-	-
MGP Asia Fund III, LP	15,414,529	-16.99%	-15.68%	-18.04%	4.79%	4.03%	18.05%	3.47%
MSREF VI International	3,432,307	0.18%	1.33%	4.78%	6.27%	5.94%	9.62%	-15.87%
O'Connor North American Property Partners II	4,357,237	0.00%	0.67%	7.97%	20.48%	13.76%	8.96%	-1.93%
PCCP Equity VII, LP	4,329,199	45.67%	46.54%	-	-	-	-	38.98%
Opportunistic	**100,395,941**	**-1.03%**	**1.88%**	**5.02%**	**10.16%**	**9.11%**	**11.34%**	**1.09%**
Total Non-Core	**567,407,311**	**1.92%**	**4.08%**	**10.46%**	**12.75%**	**11.09%**	**10.01%**	**5.66%**

1) The value for the Montana Office Portfolio is provided by the MBOI and is taken "as-is" per their request.
2) This asset was sold. As such, only the Since Inception return is considered meaningful.
3) ARC (GP1) Ltd was formerly known as Liquid Realty IV.
4) The performance period has not yet started as the Fund has not acquired real estate.
5) Aggregate historical returns include exited investments.

Returns for Timberland and Opportunistic underperformed relative to Q1 by 28bps and 383bps respectively while Value Added outperformed relative to Q1 by 53bps.

Q2 2016 Commitment Summary

	Vintage Year	Commitment	Capital Contributed [1]	Contributed %	Remaining Commitment	Capital Distributed	Net Asset Value	NAV %	Total Exposure	Total Exposure%
Core		**230,000,000**	**230,000,000**	**100%**	**-**	**49,540,319**	**339,157,318**	**37.41%**	**339,157,318**	**31.18%**
INVESCO Core Real Estate-USA	2007	45,000,000	45,000,000	100%	-	11,683,160	51,447,671	5.68%	51,447,671	4.73%
JP Morgan Strategic Property Fund	2007	95,000,000	95,000,000	100%	-	17,364,459	159,145,251	17.55%	159,145,251	14.63%
TIAA-CREF Asset Management Core Property	2013	40,000,000	40,000,000	100%	-	5,246,454	49,467,101	5.46%	49,467,101	4.55%
UBS-Trumbull Property Fund	2010	50,000,000	50,000,000	100%	-	15,246,247	79,097,295	8.72%	79,097,295	7.27%
Montana Office Portfolio	**2011**	**17,674,045**	**17,674,045**	**100%**	**-**	**4,938,240**	**19,549,301**	**2.16%**	**19,549,301**	**1.80%**
Timberland		**99,457,253**	**99,412,253**	**100%**	**-**	**13,720,813**	**104,200,813**	**11.49%**	**104,200,813**	**9.58%**
Molpus Woodlands Fund III, LP [2]	2011	50,000,000	44,664,311	100%	-	8,914,964	47,069,907	5.19%	47,069,907	4.33%
ORM Timber Fund III, LLC	2012	30,000,000	29,955,000	100%	-	1,236,739	30,103,089	3.32%	30,148,089	2.77%
RMS Forest Growth III LP	2011	25,000,000	24,792,942	100%	-	3,569,110	27,027,817	2.98%	27,027,817	2.48%
Value Added		**582,415,319**	**485,527,746**	**83%**	**96,887,573**	**270,331,150**	**343,261,255**	**37.86%**	**440,148,828**	**40.46%**
ABR Chesapeake Fund III	2006	20,000,000	20,000,000	100%	-	16,457,993	9,936,560	1.10%	9,936,560	0.91%
ABR Chesapeake Fund IV	2010	30,000,000	30,000,000	100%	-	9,727,757	28,148,820	3.10%	28,148,820	2.59%
AG Core Plus Realty Fund II	2007	20,000,000	16,625,976	83%	3,374,024	18,766,646	1,301,470	0.14%	4,675,494	0.43%
AG Core Plus Realty Fund III	2011	35,000,000	27,557,146	79%	7,442,854	15,305,171	22,861,954	2.52%	30,304,808	2.79%
AG Core Plus Realty Fund IV, L.P.	2015	20,000,000	4,320,000	22%	15,680,000	124,399	4,556,821	0.50%	20,236,821	1.86%
Apollo Real Estate Finance Corp.	2007	10,000,000	10,000,000	100%	-	6,107,792	3,591,998	0.40%	3,591,998	0.33%
BPG Investment Partnership IX	2013	30,000,000	27,944,323	93%	2,055,677	10,438,813	26,005,150	2.87%	28,060,827	2.58%
CBRE Strategic Partners US Value Fund 6	2011	20,000,000	20,000,000	100%	-	16,320,660	12,614,012	1.39%	12,614,012	1.16%
CBRE Strategic Partners US Value Fund 7	2014	25,000,000	22,413,131	90%	2,586,869	789,307	25,372,729	2.80%	27,959,598	2.57%
DRA Growth & Income Fund VI	2007	23,215,319	22,655,319	98%	560,000	24,283,547	8,216,436	0.91%	8,776,436	0.81%
DRA Growth & Income Fund VII	2011	30,000,000	28,362,000	95%	1,638,000	14,359,426	30,700,543	3.39%	32,338,543	2.97%
DRA Growth and Income Fund VIII, LLC	2014	25,000,000	21,217,432	85%	3,782,568	1,281,063	21,850,742	2.41%	25,633,310	2.36%
Equus Investment Partnership X, LP	2015	20,000,000	6,095,160	30%	13,904,840	455,564	5,880,283	0.65%	19,785,123	1.82%
Five Arrows Securities V, L.P.	2007	30,000,000	29,877,925	100%	122,075	34,287,569	9,098,724	1.00%	9,220,799	0.85%
Harbert US Real Estate Fund V, LP	2014	20,000,000	16,884,074	84%	3,115,926	2,050,040	17,541,027	1.93%	20,656,953	1.90%
Hudson RE Fund IV Co-Invest	2008	10,000,000	10,000,000	100%	-	14,845,835	48,440	0.01%	48,440	0.00%
Hudson Realty Capital Fund IV	2007	15,000,000	15,000,000	100%	-	6,387,087	4,206,967	0.46%	4,206,967	0.39%
Landmark Real Estate Partners VI	2011	20,000,000	16,647,671	83%	3,352,329	16,793,185	7,688,919	0.85%	11,041,248	1.01%
Realty Associates Fund VIII	2007	20,000,000	20,000,000	100%	-	7,540,251	11,468,895	1.27%	11,468,895	1.05%
Realty Associates Fund IX	2009	20,000,000	20,000,000	100%	-	13,271,599	15,519,465	1.71%	15,519,465	1.43%
Realty Associates Fund X	2012	20,000,000	20,000,000	100%	-	4,891,133	20,601,623	2.27%	20,601,623	1.89%
Stockbridge Value Fund, LP	2011	25,000,000	22,528,861	90%	2,471,139	1,485,946	24,029,984	2.65%	26,501,123	2.44%
Stockbridge Value Fund II, LP	2014	35,000,000	19,661,189	56%	15,338,811	13,546,231	11,370,252	0.00%	26,709,063	2.46%
Stoltz Real Estate Fund V, LP	2014	20,000,000	18,537,540	93%	1,462,460	5,621,522	15,522,100	1.71%	16,984,560	1.56%
Strategic Partners Value Enhancement Fund	2007	19,200,000	19,200,000	100%	-	15,192,614	5,127,340	0.57%	5,127,340	0.47%
Velocis Fund II, LP	2016	20,000,000	-	0%	20,000,000	-	-	0.00%	20,000,000	1.84%
Opportunistic		**302,206,871**	**217,819,189**	**72%**	**84,387,682**	**116,013,861**	**100,395,941**	**11.07%**	**184,783,623**	**16.99%**
AG Realty Fund VII L.P.	2007	20,000,000	16,054,000	80%	3,946,000	18,540,417	3,076,582	0.34%	7,022,582	0.65%
AG Realty Fund VIII L.P.	2011	20,000,000	16,916,132	85%	3,083,868	7,484,452	13,333,549	1.47%	16,417,417	1.51%
AG Realty Fund IX, L.P.	2015	20,000,000	4,400,000	22%	15,600,000	349,008	4,372,753	0.48%	19,972,753	1.84%
ARC (GP1) Ltd [3]	2011	18,818,203	18,818,202	100%	1	17,713,148	1,641,270	0.18%	1,641,271	0.15%
Beacon Capital Strategic Partners V	2007	23,750,000	22,500,000	95%	1,250,000	12,210,222	1,938,421	0.21%	3,188,421	0.29%
Carlyle Europe Real Estate Partners III [4]	2007	30,994,690	26,817,188	87%	4,177,502	14,366,739	6,777,939	0.75%	10,955,441	1.01%
CIM Fund III, L.P.	2007	25,000,000	25,000,000	100%	-	11,445,474	25,924,249	2.86%	25,924,249	2.38%
GEM Realty Fund IV	2010	15,000,000	11,359,300	76%	3,640,700	9,542,483	5,455,874	0.60%	9,096,574	0.84%
GEM Realty Fund V	2013	20,000,000	10,298,750	51%	9,701,250	1,075,865	10,342,032	1.14%	20,043,282	1.84%
GEM Realty Fund VI, L.P.	2016	25,000,000	-	0%	25,000,000	-	-	0.00%	25,000,000	2.30%
MGP Asia Fund III, LP	2007	26,143,978	20,083,259	77%	6,060,719	8,791,614	15,414,529	1.70%	21,475,248	1.97%
MSREF VI International [5]	2007	27,500,000	27,500,000	100%	-	4,841,469	3,432,307	0.38%	3,432,307	0.32%
O'Connor North American Property Partners II [6]	2007	15,000,000	14,961,772	100%	38,228	9,428,176	4,357,237	0.48%	4,395,465	0.40%
PCCP Equity VII, LP	2015	15,000,000	3,110,585	21%	11,889,415	224,794	4,329,199	0.48%	16,218,614	1.49%
Montana Real Estate		**1,231,753,488**	**1,050,433,234**	**85%**	**181,275,254**	**454,544,384**	**906,564,629**		**1,087,884,883**	

1) Capital contributed does not include contributions for expenses outside of the commitment amounts.
2) GP's reflects $0 unfunded as the investment period has expired.
3) ARC (GP1) Ltd was formerly known as Liquid Realty IV. GP gave a voluntary reduction to Montana on 3/24/2014
4) Carlyle Europe III's Commitment amount is converted to USD by using the EUR exchange rate from 10/9/2007, the date Montana committed to the fund. The current unfunded capital is based on this figure less the cumulative USD activity.
5) Morgan Stanley has the ability to call a 10% reserve from the investors. The full reserve, $2.5 million, was called on 5/21/2009.
6) GP's unfunded is $0 but they have the right to call an additional 10% of original commitment.
7) Aggregate historical returns include exited investments. These can be seen on the exited investments tab.

As noted above, commitments to Velocis II and GEM VI are now being reported.

MTRP Holdings Report as of September 30, 2016

Investment Name	Total Commitment	Net Capital Contributed	Unfunded Commitment	% of Unfunded	Adjusted NAV[7]
Total	**1,255,367,262**	**1,119,268,921**	**138,296,038**	**11.02%**	**873,832,375**
Core	230,000,000	230,000,000	0	0.00%	323,095,769
INVESCO Core Real Estate-USA	45,000,000	45,000,000	0	0.00%	51,447,671
JP Morgan Strategic Property Fund	95,000,000	95,000,000	0	0.00%	142,868,363
U.S. Cities Fund LP	40,000,000	40,000,000	0	0.00%	49,682,440
UBS-Trumbull Property Fund [1]	50,000,000	50,000,000	0	0.00%	79,097,295
Montana Office Portfolio	0	0	0	0.00%	18,722,692
Timber	105,000,000	99,267,628	5,480,314	5.22%	103,817,485
Molpus Woodlands Fund III, L.P.	50,000,000	44,519,686	5,480,314	10.96%	47,069,907
ORM Timber Fund III, LLC [5]	30,000,000	29,955,000	0	0.00%	30,061,089
RMS Forest Growth III LP [6]	25,000,000	24,792,942	0	0.00%	26,686,489
Value Added	590,751,319	505,724,282	85,027,037	14.39%	332,081,750
ABR Chesapeake Fund III	20,000,000	20,000,000	0	0.00%	9,045,630
ABR Chesapeake Fund IV	30,000,000	30,000,000	0	0.00%	27,583,073
AG Core Plus Realty Fund II	20,000,000	16,625,976	3,374,024	16.87%	901,470
AG Core Plus Realty Fund III	35,000,000	27,543,702	7,456,298	21.30%	21,344,704
AG Core Plus Realty Fund IV	20,000,000	5,400,000	14,600,000	73.00%	5,356,821
Apollo Real Estate Finance Corp.	10,000,000	10,000,000	0	0.00%	3,591,998
AREFIN Co-Invest	8,336,000	8,336,000	0	0.00%	17,157
BPG Investment Partnership IX, LP	30,000,000	27,944,323	2,055,677	6.85%	26,005,150
CBRE Strategic Partners U.S. Value Fund 6	20,000,000	20,000,000	0	0.00%	11,899,384
CBRE Strategic Partners US Value Fund 7	25,000,000	22,465,919	2,534,081	10.14%	25,372,729
DRA Growth & Income Fund VII	30,000,000	29,982,000	18,000	0.06%	29,160,142
DRA Growth & Income Fund VI	23,215,319	22,655,319	560,000	2.41%	6,928,436
DRA Growth and Income Fund VIII	25,000,000	20,988,166	4,011,834	16.05%	21,621,476
Equus Investment Partnership X, LP	20,000,000	9,011,588	10,988,412	54.94%	8,796,711
Five Arrows Securities V, L.P.	30,000,000	29,790,796	209,204	0.70%	7,503,036
Harbert US Real Estate Fund V, LP	20,000,000	18,028,769	1,971,231	9.86%	16,000,642
Hudson RE Fund IV Co-Invest	10,000,000	10,000,000	0	0.00%	48,441
Hudson Realty Capital Fund IV	15,000,000	15,000,000	0	0.00%	4,206,967
Landmark Real Estate Partners VI	20,000,000	16,337,993	3,662,007	18.31%	7,432,940
Realty Associates Fund IX	20,000,000	20,000,000	0	0.00%	13,925,958
Realty Associates Fund VIII	20,000,000	20,000,000	0	0.00%	10,935,470
Realty Associates Fund X	20,000,000	20,000,000	0	0.00%	18,380,113
Stockbridge Value Fund	25,000,000	19,947,331	5,052,669	20.21%	11,099,858
Stockbridge Value Fund II, LP	35,000,000	22,528,861	12,471,139	35.63%	24,029,984
Stoltz Real Estate Fund V, LP	20,000,000	18,537,540	1,462,460	7.31%	15,186,806
Strategic Partners Value Enhancement Fund	19,200,000	19,200,000	0	0.00%	518,112
Velocis Fund II, LP	20,000,000	5,400,000	14,600,000	73.00%	5,188,543
Opportunistic	273,873,514	228,563,628	47,759,642	17.44%	96,114,680
AG Realty Fund VII L.P.	20,000,000	18,800,000	1,200,000	6.00%	3,076,582
AG Realty Fund VIII L.P.	20,000,000	16,916,132	3,083,868	15.42%	13,333,549
AG Realty Fund IX, L.P.	20,000,000	7,850,000	12,150,000	60.75%	7,822,753
ARC (GP1) Ltd [3]	18,818,203	18,818,203	0	0.00%	1,204,236
Beacon Capital Strategic Partners V	23,750,000	22,500,000	1,250,000	5.26%	1,708,002
Carlyle Europe Real Estate Partners III [2]	30,161,333	28,850,467	1,310,866	4.35%	6,746,446
CIM Fund III, L.P.	25,000,000	25,000,000	0	0.00%	23,791,952
GEM Realty Fund IV	15,000,000	11,031,791	3,968,209	26.45%	5,455,874
GEM Realty Fund V	20,000,000	12,231,250	7,768,750	38.84%	11,758,782
MGP Asia Fund III, LP	26,143,978	20,272,934	5,871,044	22.46%	8,088,087
MSREF VI International [4]	25,000,000	27,500,000	0	0.00%	3,432,307
OConnor North American Partners II	15,000,000	14,642,084	307,672	2.05%	4,326,730
PCCP Equity VII, LP	15,000,000	4,150,766	10,849,234	72.33%	5,369,380

1. To reflect no unfunded commitment, commitment is reported as equal to capital contributed.
2. Change in Market Value is due to end of month FX changes. Also, there was an "Expired Commitment" in the amount of €1,981,561 du
3. GP gave a voluntary reduction in commitment to MT on 3/24/2014.
4. Morgan Stanley has the ability to call a 10% reserve from the investors. The full reserve, $2.5 million, was called on 5/21/2009. As a re
5. The $45,000 difference between Net Contributed Capital and Total Commitment will not be called. Thus the unfunded commitment is $0
6. The $207,058 difference between Net Contributed Capital and Total Commitment will not be called. Thus the unfunded commitment is $
7. Reflects NAVs as of 6/30/16 adjusted for contributions, distributions and market value changes through 6/30/16. Montana Office portfol

Q2 2016 Leverage

	Q3 2015	Q4 2015	Q1 2016	Q2 2016
Core (0% – 50%)	22.74%	23.85%	23.88%	23.78%
Timber (0% – 30%)	5.68%	5.07%	5.19%	5.20%
Non-Core (0% – 75%)	57.03%	56.86%	57.04%	56.31%
Total (0% - 60%)	**42.96%**	**43.31%**	**43.66%**	**43.11%**
Non-Core Breakout:				
Opportunistic	44.61%	47.15%	48.09%	47.26%
Value Add	60.35%	58.47%	58.67%	58.20%

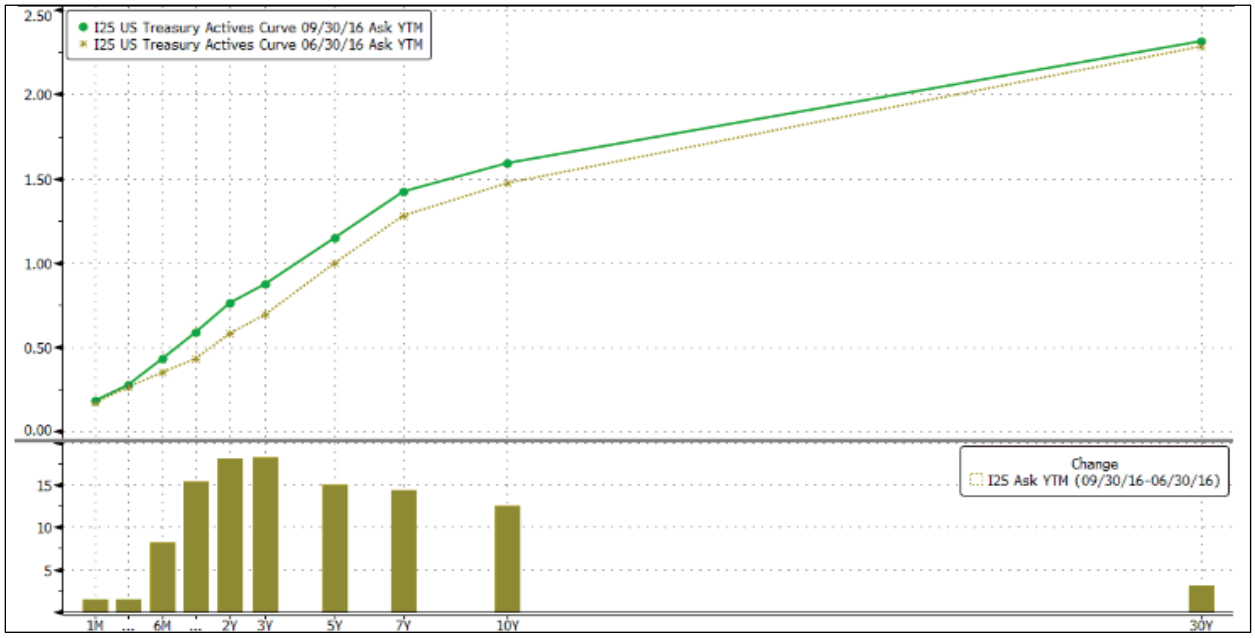
The portfolio remains moderately leveraged and well within all policy constraints.

Internal Fixed Income Overview

Jon Putnam, CFA, FRM, CAIA, Director of Fixed Income
November 16, 2016

Interest rates rose modestly along the curve during the 3rd quarter as the market started to build in a greater probability of an interest rate hike in the 4th quarter. The market has been skeptical of the Federal Reserve's ability to significantly raise rates given lackluster domestic and global growth.

U.S. Yield Curve - 06/30/16 to 09/30/16



Corporations continue to take advantage of low rates and strong investor demand by extending the maturity of their debt. The average duration of the corporate index has extended from 6.85 to 7.52 over the last three years.

Spreads kept grinding tighter throughout most of the quarter as shown in the table below. Corporate spreads have been tightening and are near the three year average across sectors. CMBS spreads are near the tightest levels of the last 5 years. ABS spreads are approaching the tightest levels in 3 years.

Spread to Treasuries (bps)

	6/30/2016	7/31/2016	8/31/2016	9/30/2016	Avg LTM	3 yr Avg
Bloomberg/Barclays Financials	152	141	130	137	146	125
Bloomberg/Barclays Industrials	159	148	138	140	169	141
Bloomberg/Barclays Utilities	142	136	130	132	145	129
Bloomberg/Barclays CMBS	98	85	78	84	104	104
Bloomberg/Barclays ABS	61	66	61	55	65	60
Bloomberg/Barclays Agency	21	23	21	21	18	17

The differential between A and BBB spreads narrowed as market participants continue to search for yield. The 3 year average was 71 bps. This is also an indication of investor's willingness to shoulder greater risk for less return.

Spread differential between A / BBB Rated Corporate Bonds

Foreign investors have maintained strong demand for spread product as interest rates around the world remain low (negative in many instances) and foreign central banks sustain an easy monetary policy stance. The table below shows the yield for bonds in several developed markets.

World Bond Markets 09/30/16

	2 yr	5 yr	10 yr
United States	0.76%	1.15%	1.59%
Germany	-0.70%	-0.58%	-0.12%
France	-0.65%	-0.45%	0.18%
United Kingdom	0.10%	0.22%	0.74%
Switzerland	-1.16%	-0.92%	-0.60%
Japan	-0.30%	-0.26%	-0.10%

Given these market conditions, we are reviewing the portfolios and emphasizing higher quality and greater liquidity within our holdings. The emphasis is on downside protection given bond's asymmetric return profile. We have made incremental sales of spread product in the portfolios as opportunities arise.

Portfolio Characteristics - Core Internal Bond Portfolio: September 30, 2016

Portfolio Metrics

	CIBP	Merrill U.S. Broad Index
Total Market Value	$1.92B	$19.60T
# of issues	290	9,908
Effective Duration	5.38	5.45
Spread Duration	5.76	5.92
Yield to Maturity	2.00%	1.92%
Average Quality	Aa3	Aa2

Sector Weights

	CIBP	Barclays Aggregate	Policy Range
Treasuries	22.55%	36.18%	15-45%
Agency/Govt Related	5.73%	8.07%	5-15%
ABS	5.53%	0.46%	0-7%
MBS	19.63%	27.61%	20-40%
CMBS	11.80%	1.66%	0-12%
Financial	12.57%	8.04%	
Industrial	15.33%	15.89%	
Utility	2.51%	2.00%	
TOTAL Corporate	30.41%	25.93%	10-40%
Cash/Other	4.34%	0.09%	
Total	100.00%	100.00%	

Credit Quality (Lowest Rating)

	CIBP	Barclays Aggregate	Difference
AAA	20.32%	4.31%	16.01%
AA	49.04%	69.96%	-20.92%
A	12.56%	10.26%	2.30%
BBB	17.19%	14.31%	2.88%
BB	0.89%	1.13%	-0.24%
B	0.00%	0.03%	-0.03%
CCC/D	0.00%	0.00%	0.00%
Total	100.00%	100.00%	

* Internal ratings have been applied to certain bonds.

Duration Distribution

	CIBP	Barclays Aggregate	Difference
0 -1	8.87%	0.83%	8.03%
1 - 3	28.19%	39.25%	-11.06%
3 - 5	25.45%	25.69%	-0.24%
5 - 7	13.71%	11.00%	2.71%
7 - 10	11.67%	8.89%	2.78%
10+	12.11%	14.34%	-2.23%
Total	100.00%	100.00%	

MONTANA DOMESTIC EQUITY POOL

November 16, 2016

9/30/2016 Domestic Stock Pool By Manager				
				Approved
Manager Name		**Market Value**	**%**	**Range**
STATE STREET BANK + TRUST CO		153.97	3.9%	
CASH EQUIVALENT Total		**153.97**	**3.9%**	
BLACKROCK EQUITY	S&P 500	2228.39	56.5%	
STATE STREET SPIF ALT INV	S&P 500	5.96	0.2%	
LARGE CAP INDEXED Total		**2234.35**	**56.7%**	
INTECH INVESTMENT MANAGEMENT	S&P 500	135.35	3.4%	
T ROWE PRICE ASSOCIATES INC	S&P 500	317.63	8.1%	
ANALYTIC INVESTORS	S&P 500	163.84	4.2%	
JP MORGAN ASSET MGMT	S&P 500	271.75	6.9%	
LARGE CAP ACTIVE Total		**888.57**	**22.5%**	
TOTAL LARGE CAP		**3276.90**	**83.1%**	**72-91%**
ARTISAN	Russell Mid Cap Value	135.93	3.4%	
BLACKROCK	S&P Mid Cap	66.55	1.7%	
IRIDIAN ASSET MANAGEMENT	Russell Mid Cap Value	68.02	1.7%	
NICHOLAS INVESTMENT PARTNERS	Russell Mid Cap Growth	0.02	0.0%	
TIMESSQUARE CAPITAL MGMT	Russell Mid Cap Growth	155.64	3.9%	
TOTAL MID CAP		**426.16**	**10.8%**	**6-17%**
ALLIANCE BERNSTEIN	Russell 2000 Growth	31.09	0.8%	
DIMENSIONAL FUND ADVISORS INC	Russell 2000	68.43	1.7%	
VAUGHAN NELSON INV	Russell 2000 Value	82.10	2.1%	
VOYA INVESTMENT MANAGEMENT	Russell 2000 Growth	31.66	0.8%	
WELLS CAPITAL MGT	Russell 2000 Value	27.34	0.7%	
TOTAL SMALL CAP		**240.62**	**6.1%**	**3-11%**
MDEP Total		**3943.68**	**100.0%**	

The table above displays the Montana Domestic Equity Pool (MDEP) allocation at quarter end across market cap segments and manager styles. At this time, all weightings are within the approved ranges. There were changes to the allocations within the pool during the quarter as mid-caps and small caps were pared and some of the higher beta portfolios were trimmed or eliminated.

Domestic equity markets shook off the initial effects of the British referendum rejecting membership in the European Union and posted solid returns for the third quarter. It helped that the Federal Open Market Committee decided to remain on hold as the domestic economic data continued to show positive yet slow growth and the members wanted to evaluate the economic repercussions of the Brexit.

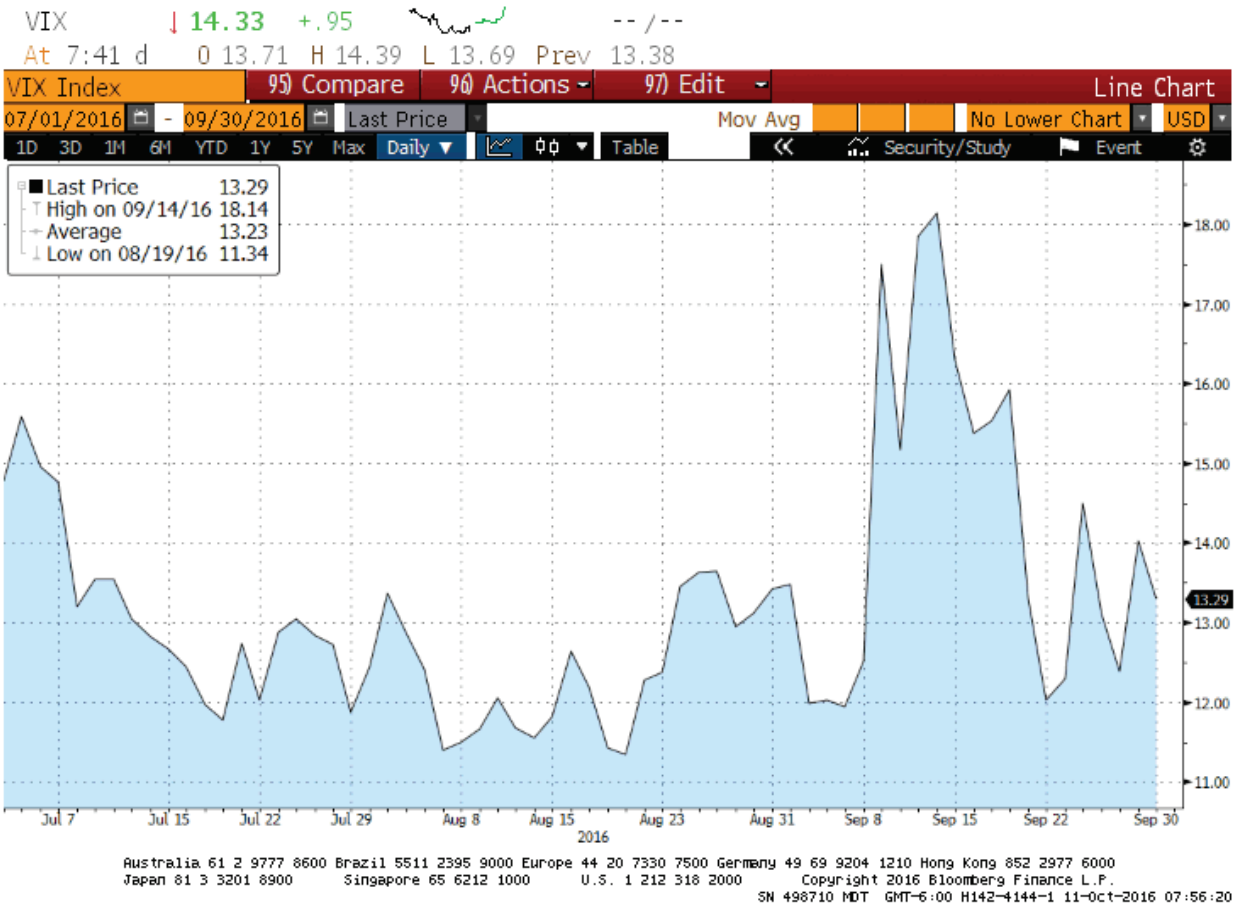
Most of the quarterly performance was attained within the first two weeks of July as stocks rebounded strongly after the brief correction at the end of the second quarter. Since then however the domestic equity market has been in a trading range, no doubt weighing the likelihood of the Fed's next move and corporate earnings reports that were due in October.

US Market Environment									
3Q 2016							Last Twelve Months		
	Value	Neutral	Growth				Value	Neutral	Growth
Large	3.5%	4.0%	4.6%			Large	10.0%	7.9%	6.0%
Mid	4.5%	4.5%	4.6%			Mid	13.7%	10.3%	6.8%
Small	5.9%	9.1%	9.2%			Small	15.5%	11.5%	7.5%

Interestingly the rally was led by the cyclical sectors of the market with technology leading and posting a 12% return for the quarter. The defensive high-dividend sectors which have been so popular with investors actually posted negative returns within an otherwise strong market. Consumer staples, telecom services, utilities, and REITS experienced losses.

A comparison of market capitalizations shows that small cap stocks were the strongest performers. Within the small caps, growth stocks posted average returns of 9.2% which were the strongest returns overall. Large caps lagged the small caps as well as the mid-caps but still posted solid returns of around 4%. Growth stocks outperformed value stocks within all market capitalizations with the largest disparity being within the small cap stocks.

Largely because of the recent rally, returns for the past twelve months through the end of September are now solidly positive with most mid-caps and small caps posting double-digit returns.



After a rather tranquil July and August, the VIX spiked in the middle of September as concerns mounted about a Fed hike earlier than anticipated. The stock market gave up some ground in the neighborhood of 2% but then quickly regained its footing and continued within the trading range. Even so the high reading of 18 for the quarter was hardly anything compared to the typical market downdrafts of the past and is regarded as not indicating much market stress.

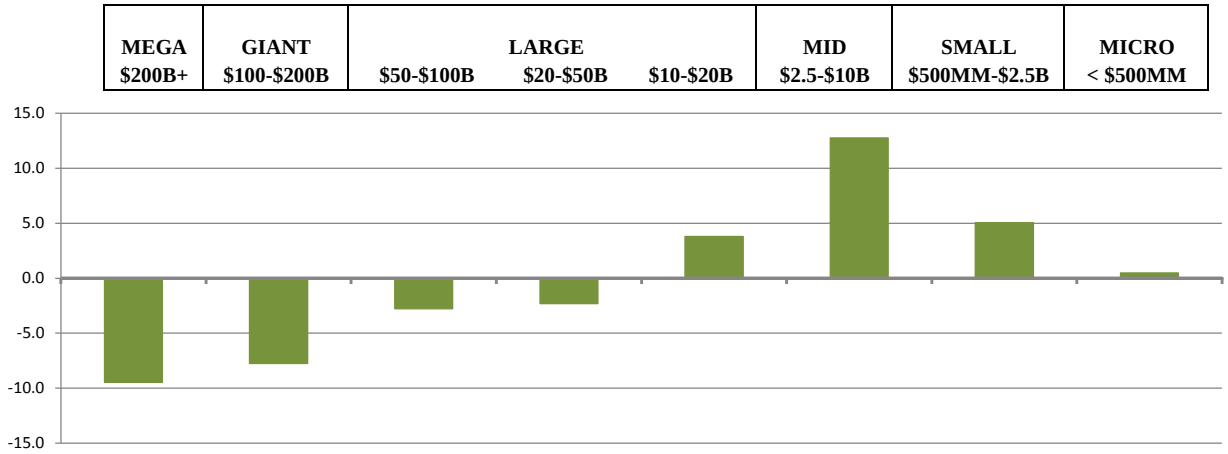
MDEP outperformed by 12 basis points in the quarter. Within the pool, the allocation to mid-caps and small caps added value despite some significant underperformance by the actively managed small cap portfolios when compared to their benchmarks. The actively managed portfolios within the large cap allocation added value. The JP Morgan portfolio contributed the most.

Going forward the overweights to mid-caps and small caps will continue albeit at their current reduced levels compared to previous quarters. In addition the cash level will remain elevated.

ACTIVE DOMESTIC EXPOSURE-MARKET CAP %

Sep 30, 2016

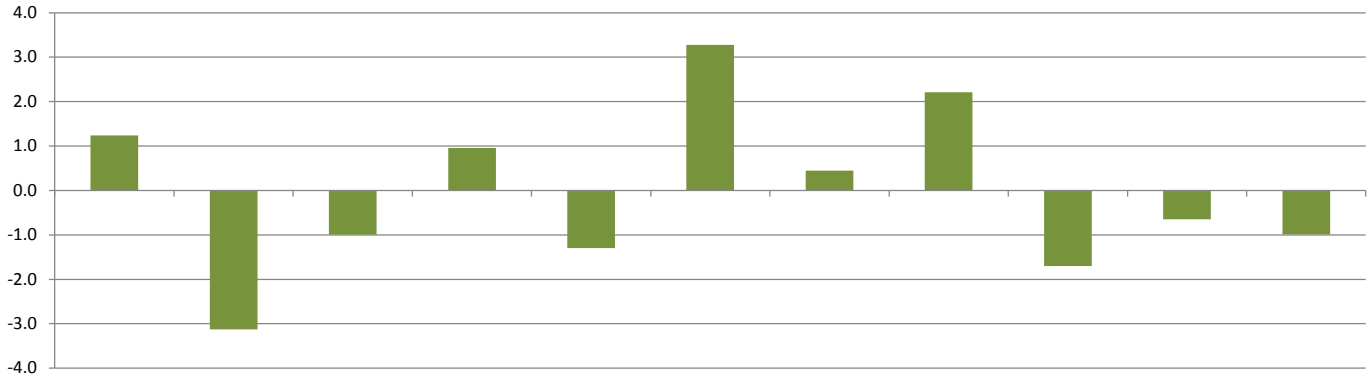
MANAGERS	MEGA $200B+	GIANT $100-$200B	LARGE $50-$100B	LARGE $20-$50B	LARGE $10-$20B	MID $2.5-$10B	SMALL $500MM-$2.5B	MICRO < $500MM	WTD AVG MARKET CAP ($B)
Alliance Bernstein	--	--	--	--	--	55.7	40.6	3.7	3,171
Analytic Investors, Inc	18.5	27.2	16.4	19.1	6.1	13.5	-2.6	--	113,383
Artisan Partners	--	--	--	16.0	21.2	61.7	1.0	--	11,731
Dimensional Fund Advisors	--	--	--	--	--	29.6	59.5	10.9	1,916
INTECH Investment Management	13.5	9.4	12.2	34.5	21.3	9.2	--	--	92,197
Iridian Asset Mgmt	--	--	--	31.8	8.7	48.9	10.7	--	14,695
J.P. Morgan	20.6	14.1	32.9	21.6	9.6	1.2	0.0	--	135,090
Wells Capital Management	--	--	--	--	1.1	54.5	43.2	1.2	3,229
T. Rowe Associates	24.3	18.0	16.5	23.1	12.5	5.5	--	--	143,600
TimesSquare Cap Mgmt	--	--	--	14.4	40.0	43.4	2.2	--	12,573
Vaughan Nelson Mgmt	--	--	--	--	--	54.8	45.2	--	3,022
Voya Investment Management	--	--	--	--	--	45.1	54.5	0.4	2,543
ACTIVE DOMESTIC EQUITY PORTFOLIOS	**12.3**	**10.4**	**12.6**	**18.6**	**13.5**	**23.3**	**8.4**	**0.6**	**80**
Benchmark: S&P Composite 1500	**21.8**	**18.1**	**15.4**	**20.9**	**9.7**	**10.5**	**3.4**	**0.1**	**131**
Over/underweight(-)	**-9.5**	**-7.7**	**-2.8**	**-2.3**	**3.8**	**12.8**	**5.1**	**0.5**	



ACTIVE DOMESTIC EXPOSURE-SECTOR %

Sep 30, 2016

MANAGERS	Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Technology	Materials	Real Estate	Telecom Services	Utilities
Alliance Bernstein	18.3	2.5	2.5	6.2	23.4	14.5	29.8	2.8	--	--	--
Analytic Investors, Inc	12.7	11.0	5.8	10.2	15.8	11.1	20.9	1.4	4.2	3.5	1.6
Artisan Partners	19.3	--	11.5	24.0	1.7	16.3	15.4	10.2	--	--	1.6
Dimensional Fund Advisors	15.8	5.1	4.2	19.1	8.4	19.2	16.4	5.5	0.7	1.5	4.2
INTECH Investment Management	13.3	12.8	4.8	9.3	10.4	13.2	17.9	5.3	5.6	1.1	6.5
Iridian Asset Mgmt	10.7	7.6	3.2	4.0	11.6	14.2	22.2	26.4	--	--	--
J.P. Morgan	15.5	3.7	7.8	17.1	15.3	9.9	25.4	2.8	-0.1	0.8	1.9
Wells Capital Management	7.3	6.0	9.7	20.9	13.1	17.9	12.7	1.6	5.8	--	--
T. Rowe Associates	13.1	9.4	6.3	12.1	15.6	8.3	23.2	3.5	3.2	--	--
TimesSquare Cap Mgmt	13.5	2.6	1.7	10.1	11.1	23.7	22.9	6.7	1.5	1.9	3.4
Vaughan Nelson Mgmt	4.8	--	4.4	26.4	10.4	21.3	13.6	6.2	1.8	6.2	--
Voya Investment Management	15.7	1.2	1.5	5.2	20.6	16.1	27.8	6.9	3.9	--	5.3
Active Domestic Equity Portfolios	**13.7**	**6.1**	**5.9**	**14.0**	**12.8**	**13.6**	**21.3**	**5.5**	**2.1**	**1.8**	**2.5**
Benchmark: S&P Composite 1500	**12.5**	**9.3**	**6.9**	**13.1**	**14.1**	**10.3**	**20.9**	**3.3**	**3.8**	**2.4**	**3.5**
Over/underweight(-)	**1.2**	**-3.1**	**-1.0**	**1.0**	**-1.3**	**3.3**	**0.4**	**2.2**	**-1.7**	**-0.6**	**-1.0**



ACTIVE DOMESTIC PORTFOLIO CHARACTERISTICS

Sep 30, 2016

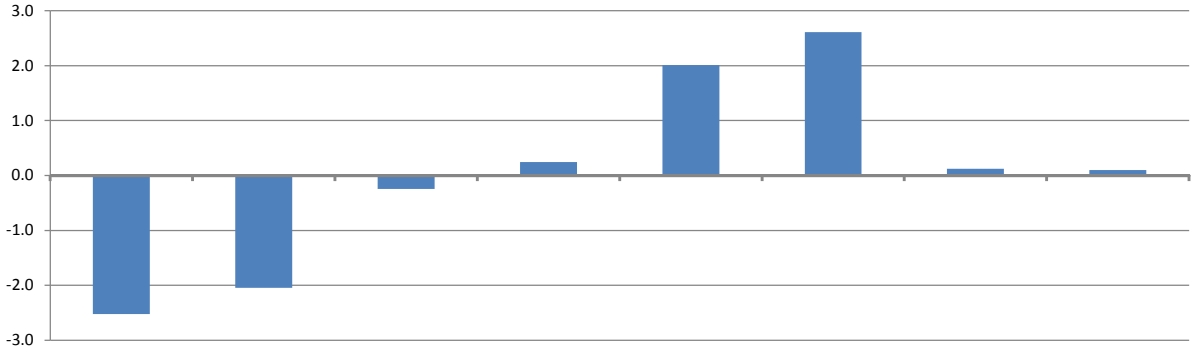
MANAGERS	Market Value	Number of Securities	3Yr Historical EPS Growth	Beta	Price/ Earnings	Price/ Book	Dividend Yield
Alliance Bernstein	31,221,735	100	27.2	--	30.8	4.1	0.4
Analytic Investors, Inc	166,006,246	148	18.4	--	17.0	3.1	3.1
Artisan Partners	135,834,950	50	-1.4	--	16.5	1.7	1.7
Dimensional Fund Advisors	68,864,605	1,888	11.0	--	20.4	1.9	1.2
INTECH Investment Management	135,487,786	328	15.1	--	22.0	3.3	1.9
Iridian Asset Mgmt	68,315,857	47	20.8	#REF!	18.7	3.0	1.2
J.P. Morgan	274,155,370	275	21.1	#REF!	16.9	2.4	1.5
Wells Capital Management	27,399,431	67	8.6	#REF!	21.4	1.7	1.8
T. Rowe Associates	318,349,965	247	16.8		21.5	2.8	1.8
TimesSquare Cap Mgmt	155,309,893	75	24.7		21.9	3.5	0.9
Vaughan Nelson Mgmt	82,235,662	69	1.0		20.0	1.9	1.4
Voya Investment Management	31,772,255	147	18.2		12.9	3.0	0.9
Active Domestic Equity Portfolios	**1,494,953,755**	**2,609**	**16.0**	**1.05**	**19.2**	**2.5**	**1.7**
BENCHMARKS							
S&P Composite 1500		1,506	14.6	--	19.9	2.7	2.0
S&P/Citigroup 1500 Pure Growth		358	31.1	--	24.3	3.4	0.8
S&P/Citigroup 1500 Pure Value		356	5.5	--	14.5	1.1	1.6
S&P 500		505	14.9	--	19.7	2.8	2.1
Russell 1000		994	14.8	--	19.9	2.7	2.0
Russell 1000 Growth		599	23.1	--	23.2	5.5	1.5
Russell 1000 Value		687	6.6	--	17.2	1.8	2.5
Russell Midcap		794	13.4	--	21.3	2.5	1.7
Russell Midcap Growth		464	16.1	--	25.2	4.9	1.1
Russell Midcap Value		561	11.0	--	18.6	1.8	2.3
Russell 2000		1,961	12.2	--	20.3	2.0	1.5
Russell 2000 Growth		1,154	17.3	--	24.5	3.7	0.8
Russell 2000 Value		1,338	7.6	--	17.4	1.3	2.2

DOMESTIC EXPOSURE-MARKET CAP %

Sep 30, 2016

MANAGERS	MEGA $200B+	GIANT $100-$200B	LARGE $50-$100B	LARGE $20-$50B	LARGE $10-$20B	MID $2.5-$10B	SMALL $500MM-$2.5B	MICRO < $500MM	WTD AVG MARKET CAP ($B)
Alliance Bernstein	--	--	--	--	--	55.7	40.6	3.7	3,170.8
Analytic Investors, Inc	18.5	27.2	16.4	19.1	6.1	13.5	-2.6	--	113,383.0
Artisan Partners	--	--	--	16.0	21.2	61.7	1.0	--	11,731.2
Dimensional Fund Advisors	--	--	--	--	--	29.6	59.5	10.9	1,915.5
INTECH Investment Management	13.5	9.4	12.2	34.5	21.3	9.2	--	--	92,197.4
Iridian Asset Mgmt	--	--	--	31.8	8.7	48.9	10.7	--	14,695.3
J.P. Morgan	20.6	14.1	32.9	21.6	9.6	1.2	--	--	135,090.1
Wells Capital Management	--	--	--	--	1.1	54.5	43.2	1.2	3,228.5
T. Rowe Associates	24.3	18.0	16.5	23.1	12.5	5.5	--	--	143,600.0
TimesSquare Cap Mgmt	--	--	--	14.4	40.0	43.4	2.2	0.0	12,573.0
Vaughan Nelson Mgmt	--	--	--	--	--	54.8	45.2	0.0	3,022.3
Voya Investment Management	--	--	--	--	--	45.1	54.5	0.4	2,543.2
BlackRock S&P 500 Index Fund	24.5	20.4	17.3	23.5	10.9	4.2	--	--	146,157.5
BlackRock Midcap Equity Index Fund	--	--	--	--	0.7	87.4	11.8	--	4,845.9
Domestic Equity Pool SPIF	24.3	20.2	17.2	23.3	10.8	4.2	--	--	146,157.3
ALL DOMESTIC EQUITY PORTFOLIOS	**19.3**	**16.1**	**15.1**	**21.1**	**11.7**	**13.1**	**3.5**	**0.2**	**118.0**
Benchmark: S&P Composite 1500	**21.8**	**18.1**	**15.4**	**20.9**	**9.7**	**10.5**	**3.4**	**0.1**	**131.4**
Over/underweight(-)	**-2.5**	**-2.0**	**-0.2**	**0.2**	**2.0**	**2.6**	**0.1**	**0.1**	

MEGA $200B+	GIANT $100-$200B	LARGE $50-$100B	LARGE $20-$50B	LARGE $10-$20B	MID $2.5-$10B	SMALL $500MM-$2.5B	MICRO < $500MM

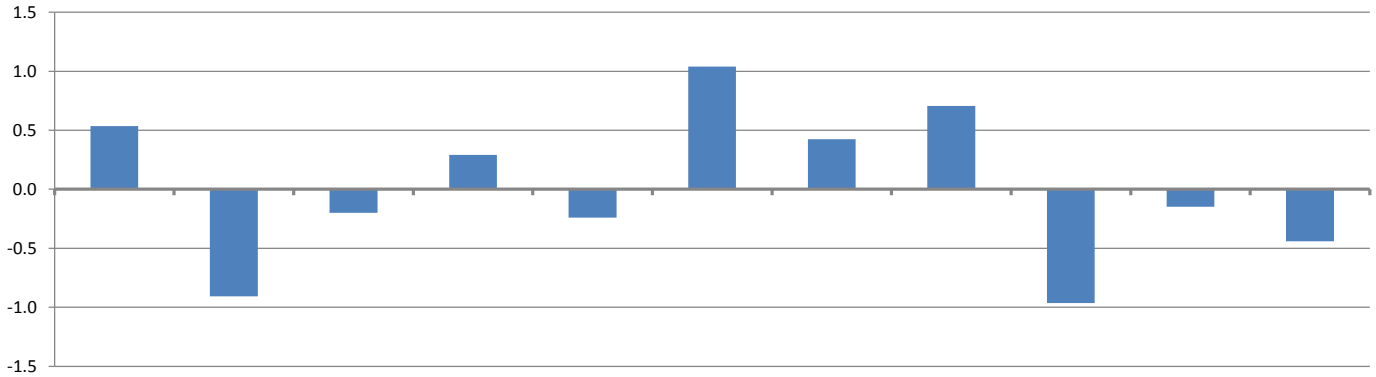


DOMESTIC EXPOSURE-SECTOR %

Sep 30, 2016

MANAGERS	Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Technology	Materials	Real Estate	Telecom Services	Utilities
Alliance Bernstein	18.3	2.5	2.5	6.2	23.4	14.5	29.8	2.8	--	--	--
Analytic Investors, Inc	12.7	11.0	5.8	10.2	15.8	11.1	20.9	1.4	4.2	3.5	1.6
Artisan Partners	19.3	--	11.5	24.0	1.7	16.3	15.4	10.2	--	--	1.6
Dimensional Fund Advisors	15.8	5.1	4.2	19.1	8.4	19.2	16.4	5.5	0.7	1.5	4.2
INTECH Investment Management	13.3	12.8	4.8	9.3	10.4	13.2	17.9	5.3	5.6	1.1	6.5
Iridian Asset Mgmt	10.7	7.6	3.2	4.0	11.6	14.2	22.2	26.4	--	--	--
J.P. Morgan	15.5	3.7	7.8	17.1	15.3	9.9	25.4	2.8	-0.1	0.8	1.9
Wells Capital Management	7.3	6.0	9.7	20.9	13.1	17.9	12.7	1.6	5.8	--	--
T. Rowe Associates	13.1	9.4	6.3	12.1	15.6	8.3	23.2	3.5	3.2	--	--
TimesSquare Cap Mgmt	13.5	2.6	1.7	10.1	11.1	23.7	22.9	6.7	1.5	1.9	3.4
Vaughan Nelson Mgmt	4.8	--	4.4	26.4	10.4	21.3	13.6	6.2	1.8	6.2	--
Voya Investment Management	15.7	1.2	1.5	5.2	20.6	16.1	27.8	6.9	3.9	--	5.3
BlackRock S&P 500 Index Fund	12.6	10.0	7.3	12.9	14.8	9.8	21.4	2.9	3.1	--	--
BlackRock Midcap Equity Index Fund	11.6	4.3	3.8	15.0	8.2	14.2	17.9	7.2	11.9	2.7	3.3
Domestic Equity Pool SPIF	12.5	9.9	7.3	12.8	14.7	9.7	21.2	2.9	3.1	0.2	5.6
											3.3
All Domestic Equity Portfolios	**13.0**	**8.4**	**6.7**	**13.3**	**13.9**	**11.4**	**21.3**	**4.0**	**2.9**	**2.3**	**3.0**
Benchmark: S&P Composite 1500	**12.5**	**9.3**	**6.9**	**13.1**	**14.1**	**10.3**	**20.9**	**3.3**	**3.8**	**2.4**	**3.5**
Over/underweight(-)	**0.5**	**-0.9**	**-0.2**	**0.3**	**-0.2**	**1.0**	**0.4**	**0.7**	**-1.0**	**-0.1**	**-0.4**

Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Technology	Materials	Real Estate	Telecom Services	Utilities



DOMESTIC PORTFOLIO CHARACTERISTICS

Sep 30, 2016

MANAGERS	Market Value	Number of Securities	3Yr Historical EPS Growth	Beta	Price/ Earnings	Price/ Book	Dividend Yield
Alliance Bernstein	31,221,735	100	27.2	--	30.8	4.1	0.4
Analytic Investors, Inc	166,006,246	148	18.4	--	17.0	3.1	3.1
Artisan Partners	135,834,950	50	-1.4	--	16.5	1.7	1.7
Dimensional Fund Advisors	68,864,605	1,888	11.0	--	20.4	1.9	1.2
INTECH Investment Management	135,487,786	328	15.1	--	22.0	3.3	1.9
Iridian Asset Mgmt	68,315,857	47	20.8	--	18.7	3.0	1.2
J.P. Morgan	274,155,370	275	21.1	--	16.9	2.4	1.5
Wells Capital Management	27,399,431	67	8.6	--	21.4	1.7	1.8
T. Rowe Associates	318,349,965	247	16.8		21.5	2.8	1.8
TimesSquare Cap Mgmt	155,309,893	75	24.7		21.9	3.5	0.9
Vaughan Nelson Mgmt	82,235,662	69	1.0		20.0	1.9	1.4
Voya Investment Management	31,772,255	147	18.2		12.9	3.0	0.9
BlackRock S&P 500 Index Fund	2,228,392,743	511	14.9		19.7	2.8	2.1
BlackRock Midcap Equity Index Fund	66,553,885	402	11.5		21.9	2.2	1.6
Domestic Equity Pool SPIF	5,959,000	505	14.9		19.7	2.8	2.1
All Domestic Equity Portfolios	**3,949,897,358**	**2,809**	**15.2**	**1.01**	**19.5**	**2.7**	**1.9**
BENCHMARKS							
S&P Composite 1500		1,506	14.6	--	19.9	2.7	2.0
S&P/Citigroup 1500 Pure Growth		358	31.1	--	24.3	3.4	0.8
S&P/Citigroup 1500 Pure Value		356	5.5	--	14.5	1.1	1.6
S&P 500		505	14.9	--	19.7	2.8	2.1
Russell 1000		994	14.8	--	19.9	2.7	2.0
Russell 1000 Growth		599	23.1	--	23.2	5.5	1.5
Russell 1000 Value		687	6.6	--	17.2	1.8	2.5
Russell Midcap		794	13.4	--	21.3	2.5	1.7
Russell Midcap Growth		464	16.1	--	25.2	4.9	1.1
Russell Midcap Value		561	11.0	--	18.6	1.8	2.3
Russell 2000		1,961	12.2	--	20.3	2.0	1.5
Russell 2000 Growth		1,154	17.3	--	24.5	3.7	0.8
Russell 2000 Value		1,338	7.6	--	17.4	1.3	2.2

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

To: Members of the Board

From: Rande R. Muffick, CFA, Director of Public Market Investments

Date: November 15, 2016

Subject: Montana Domestic Equity Pool (MDEP) – Transition

Following an abrupt lift out of the portfolio management team which had managed the MBOI account at Wells Capital, staff moved swiftly to transition the assets into a large cap exchange traded fund (ETF). This was in keeping with the current strategy of trimming the small cap allocation within MDEP.

The size of the transition amounted to $27 million and included the following managers/funds:

Manager	Action	Amount (approx.)
Wells Capital Small Cap Value	Terminated	$27 million
S&P 500 Index ETF (SPY)	Purchased	$27 million

State Street Global Markets was selected as transition manager based upon the short time frame involved in the process.

The overall cost of the transition amounted to 4 basis points of the market value of the transition or approximately $10,946. This amount resulted mainly from commissions.

The transition was completed on October 7, 2016 and all trading of the legacy assets and the SPY was completed at the market close on that day. Because the trades were done on a "market on close" basis, significant market impact costs were avoided.

The Board handout displays MDEP as of the end of October following the effects of the transition. The various components of the costs and other information are included on the following pages from the post trade summary provided by State Street Global Markets.

Executive Summary

State Street Bank and Trust Company ("State Street") was appointed to manage the transition for Montana where a legacy portfolio managed by Wells Capital was transitioned to SPY ETF. Transition trading began on Oct 7, 2016 and ended on Oct 13, 2016. State Street has provided this report to detail the cost of the transition, the returns of the portfolios involved, the trading strategies utilized and the market conditions that took place during the transition. We have also reconciled the actual transition activity to the estimated results in our pre trade analysis. * Trades that fall outside the transition period may not be reflected in this report.

Implementation Shortfall Summary

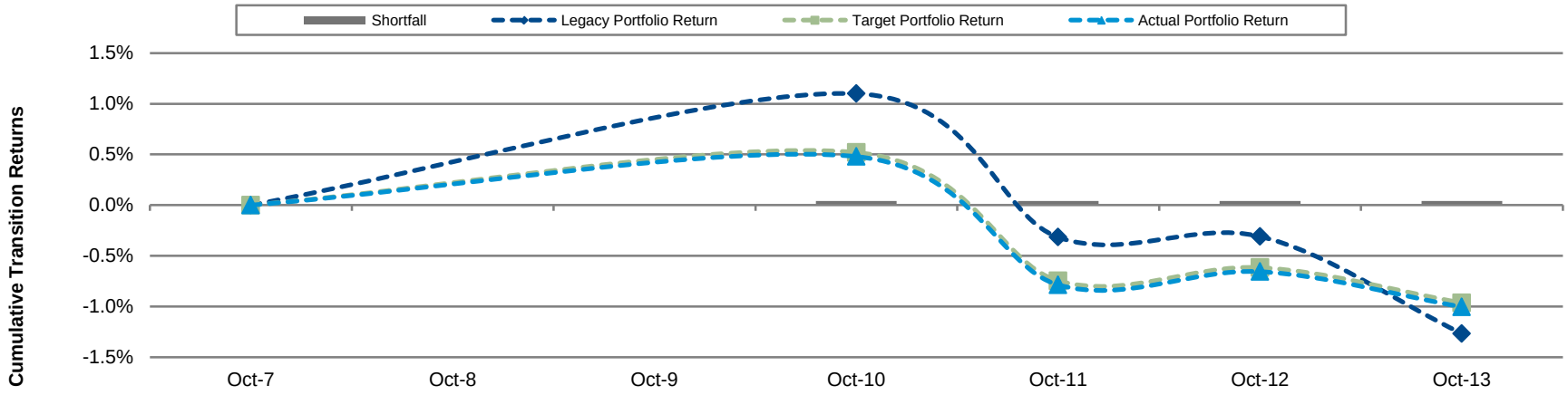
Implementation Shortfall, or IS, calculates the cost of a transition event as the amount of performance slippage incurred as a result of the transition. Performance slippage is defined as the actual transition return achieved versus the return of the target portfolios, assuming the transition occurred instantaneously without any costs.

Implementation Shortfall Summary

	Starting Value	Ending Value	Gain/Loss	Performance
Montana Portfolio	27,370,821	27,096,088	(274,733)	-1.00%
Target Portfolio	27,370,821	27,107,034	(263,788)	-0.96%
Legacy Portfolio	27,370,821	27,024,210	(346,611)	-1.27%
Implementation Shortfall (Target Return - Montana Return)				0.04%

Benchmark Information

	Overall	APAC	EMEA	NA
Equity	07-Oct-16 CLOSE			
Futures	07-Oct-16 CLOSE			
FX	07-Oct-16 LDN 4pm			



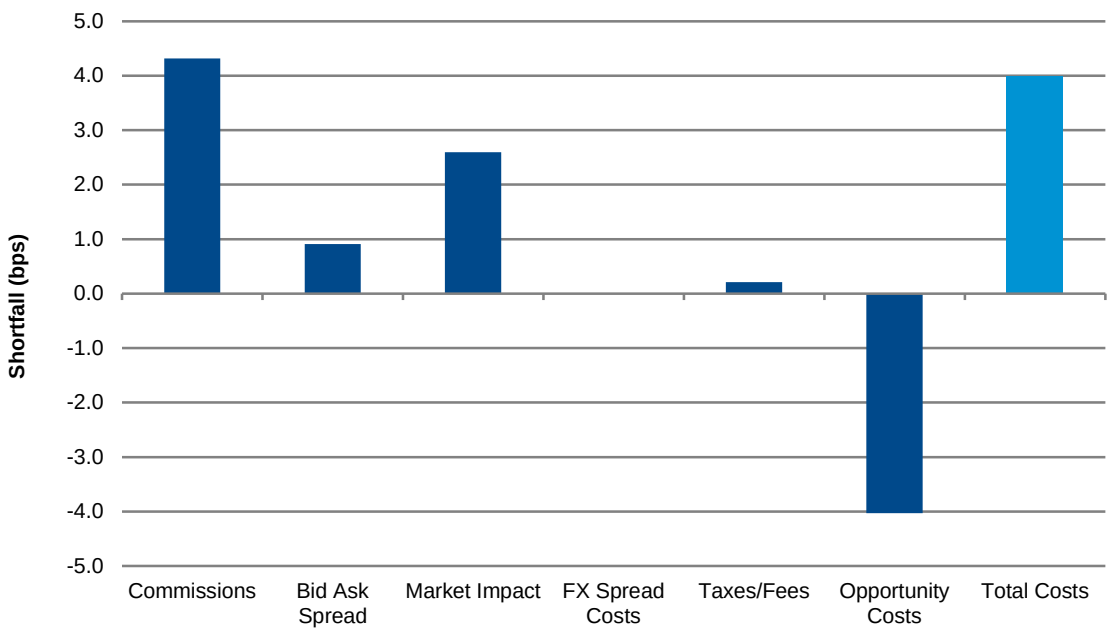
Implementation Shortfall Attribution

In this section, we attribute the costs to their various sources. A summary of these costs and how they are calculated are as follows:

1. **Commissions** – The total amount of commissions charged for executions during the transition.
2. **Bid Ask Spread** – The difference between the mid-point of the historically observed bid ask price for each security.
3. **Market Impact** – The cost associated with accessing liquidity in the market.
4. **FX Spread Costs** – The difference between the WM fixing rates and the historically observed WM bid/ask spreads for each currency pair executed during the transition.
5. **Taxes/Fees** - The total local taxes/fees levied on market trading carried out during the transition.
6. **Opportunity Costs** – The costs associated with the volatility in security prices between the start of the transition and when each security is executed. [Calc: Total Shortfall for each name less commissions, bid ask spread, market impact, FX costs and taxes/fees]

Implementation Shortfall Attribution

	Actual Cost	Basis Points
Commissions	11,810	4.31
Bid Ask Spread	2,493	0.91
Market Impact	7,096	2.59
FX Spread Costs	-	-
Taxes/Fees	578	0.21
Opportunity Costs	(11,031)	(4.03)
Total Costs	10,945	4.00



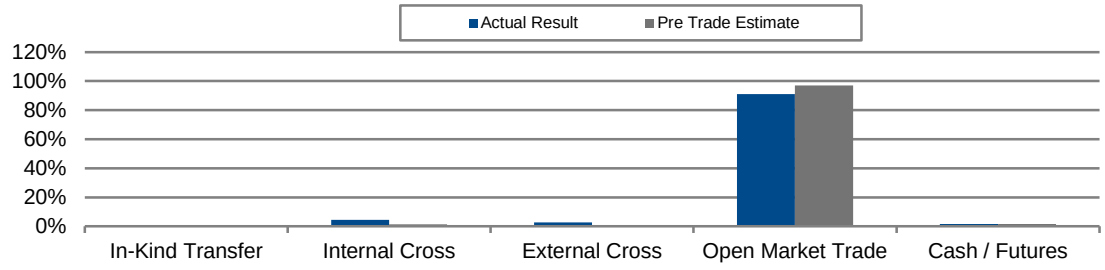
* For purposes of reconciling non-base currency values for the calculation of implementation shortfall in this report, such values are converted at the mid point of the WM fixing rate (the "Fixing Rate") on the benchmark date or dates set forth on the table entitled "Benchmark Information" on page 2 of this report.

Reconciliation to Pre Trade Analysis

State Street provided a pre trade analysis that estimated the cost of the transition prior to the start of the trade. In addition we estimated the allocation of trading across different execution methods. In the graphs and tables below we have compared the actual results to our pre trade estimates.

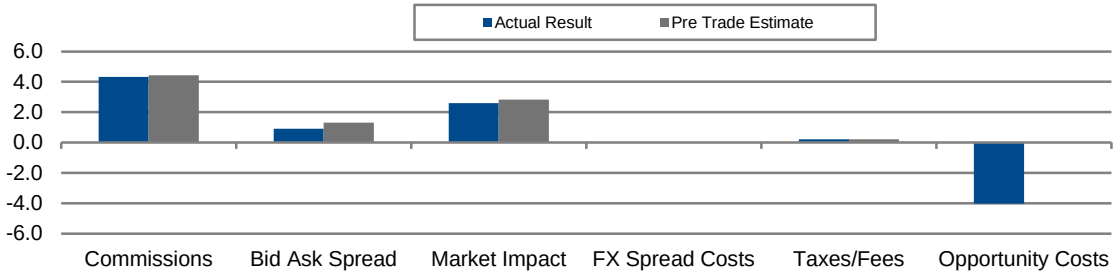
Trading By Execution Method

	Actual Result	Pre Trade Estimate	Variance
In-Kind Transfer	0.0%	0.0%	0.0%
Internal Cross	4.5%	1.5%	3.0%
External Cross	2.8%	0.0%	2.8%
Open Market Trade	91.0%	97.0%	-6.0%
Cash / Futures	1.7%	1.6%	0.2%



Cost Attribution in bps

	Actual Result	Pre Trade Estimate	Variance
Commissions	4.31	4.44	(0.13)
Bid Ask Spread	0.91	1.30	(0.39)
Market Impact	2.59	2.83	(0.24)
FX Spread Costs	-	-	-
Taxes/Fees	0.21	0.21	0.00
Opportunity Costs	(4.03)	-	(4.03)
Total Costs	4.00	8.78	(4.78)



Trading Costs Distribution

Actual Cost of Transition	4.00
Pre-Trade Estimates	
Mean Cost of Transition (bps)	8.78
One Standard Deviation Event +/- bps from mean	10.19
Two Standard Deviation Event +/- bps from mean	20.37

Commission Reconciliation

	Actual Result	Pre Trade Estimate
Internal Cross	-	-
External Cross	152	-
Open Market Trade	11,657	12,222
Futures	-	-
Total Commissions	11,810	12,222

MONTANA INTERNATIONAL EQUITY POOL

November 16, 2016

9/30/2016 International Stock Pool By Manager				
				Approved
Manager Name		**Market Value**	**%**	Range
STATE STREET		42.9	2.58%	
CASH EQUIVALENT Total		**42.9**	**2.6%**	
BLACKROCK	MSCI ACWI EX US	974.1	58.53%	
BLACKROCK	MSCI EMERGING MARKETS	32.4	1.94%	0-5%
STATE STREET ISPIFF	MSCI EAFE	5.5	0.33%	
LARGE CAP INDEXED Total		**1012.0**	**60.8%**	
ACADIAN	MSCI ACWI EX US VALUE	98.9	5.94%	
LAZARD	MSCI ACWI EX US VALUE	116.7	7.01%	
VALUE Total		**215.6**	**13.0%**	
BAILLIE GIFFORD	MSCI ACWI EX US GROWTH	91.4	5.49%	
INVESCO	MSCI ACWI EX US GROWTH	111.2	6.68%	
GROWTH Total		**202.6**	**12.2%**	
LARGE CAP ACTIVE Total		**418.2**	**25.1%**	
LARGE CAP Total		**1473.1**	**88.5%**	79-92%
AMERICAN CENTURY	MSCI ACWI EX US SMALL CAP GROWTH	31.0	1.86%	
BLACKROCK	MSCI ACWI EX US SMALL CAP	29.7	1.78%	
DFA INTERNATIONAL	MSCI ACWI EX US SMALL CAP	81.9	4.92%	
TEMPLETON INVESTMENT	MSCI ACWI EX US SMALL CAP VALUE	48.0	2.89%	
SMALL CAP Total		**190.7**	**11.5%**	8-16%
MTIP Total		**1663.8**	**100.0%**	

The table above displays the Montana International Equity Pool (MTIP) allocation at quarter end across market cap segments and manager styles. At this time, all weightings are within the approved ranges.

International equities posted strong returns during the quarter, outpacing U.S. equities. Following the major sell off precipitated by the Brexit vote in late June, international equities moved to calendar year highs amid moderately positive economic data from Europe and Japan's announcement of further monetary and fiscal stimulus. Similar to the U.S., the international markets settled into a trading range in August following a very strong July.

Emerging markets as a whole posted the strongest international returns. China was a standout as it rallied 13.9% following some encouraging economic data that indicated growth would continue at current levels.

Non-US Developed Market Environment									
	3Q 2016						Last Twelve Months		
	Value	Neutral	Growth				Value	Neutral	Growth
Large	7.8%	6.5%	5.3%			Large	5.8%	8.0%	10.1%
Mid	9.6%	7.3%	5.9%			Mid	9.3%	10.9%	11.9%
Small	8.8%	8.0%	7.3%			Small	12.1%	13.5%	14.9%
Emerging Market Environment									
	3Q 2016						Last Twelve Months		
	Value	Neutral	Growth				Value	Neutral	Growth
Large	8.3%	8.8%	9.4%			Large	14.9%	16.2%	17.4%
Mid	7.9%	7.3%	6.7%			Mid	10.8%	12.7%	14.2%
Small	9.0%	7.6%	6.2%			Small	17.1%	12.7%	8.3%

Mid to upper single digit returns were posted across all market capitalizations and styles within the ACWI universe. Developed market equities were led by mid-caps and small caps but the performances of all capitalizations and styles were quite balanced. Emerging markets saw balanced performances as well but large cap stocks posted slightly better returns than the small cap stocks.

The DXY chart shows how the dollar strengthened further in July, adding to its strong post Brexit move. From there and into the end of the quarter it gave back about half of its total gain following the vote. Looking back over the past twelve months, it's rather ironic that with global central bank actions and events such as Brexit, the dollar ended the quarter at basically the same level as of the end of September 2015.

MTIP underperformed its benchmark by -32 basis points during the quarter. The performance of the actively portfolios accounted for all of the pool's underperformance. The large cap active portfolios as a whole were a drag on performance while the small cap active portfolios as a whole added value. The Lazard, Invesco and Templeton portfolios were the largest detractors of pool performance. These portfolios usually lag when the international equity market moves sharply to the upside.

Going forward it is likely that the active weight within the large caps will be incrementally increased. Although the small cap allocation is slightly below the benchmark, no increase in the allocation is planned at this time. In addition the cash level will remain elevated.

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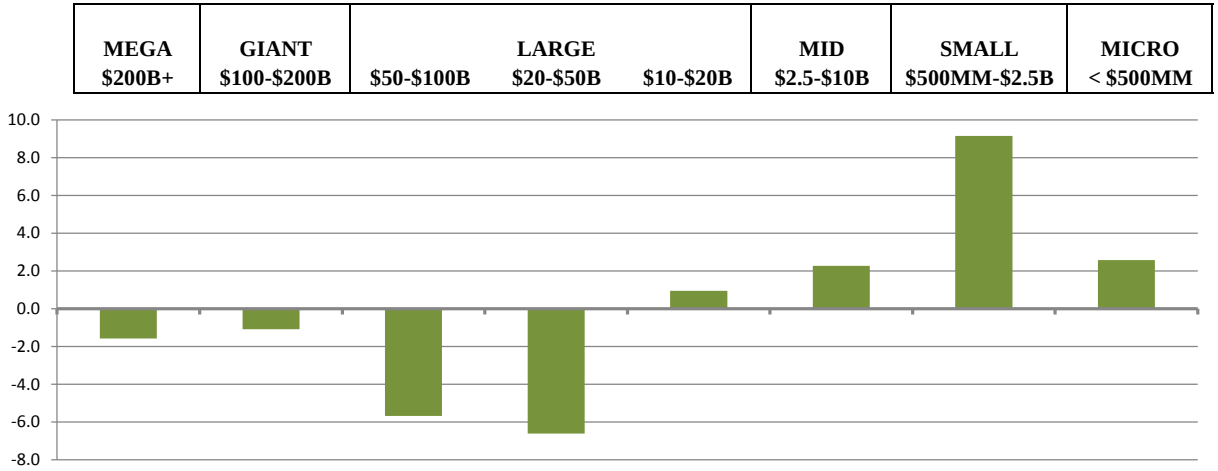
ACTIVE INTERNATIONAL EXPOSURE-MARKET CAP %

Sep 30, 2016

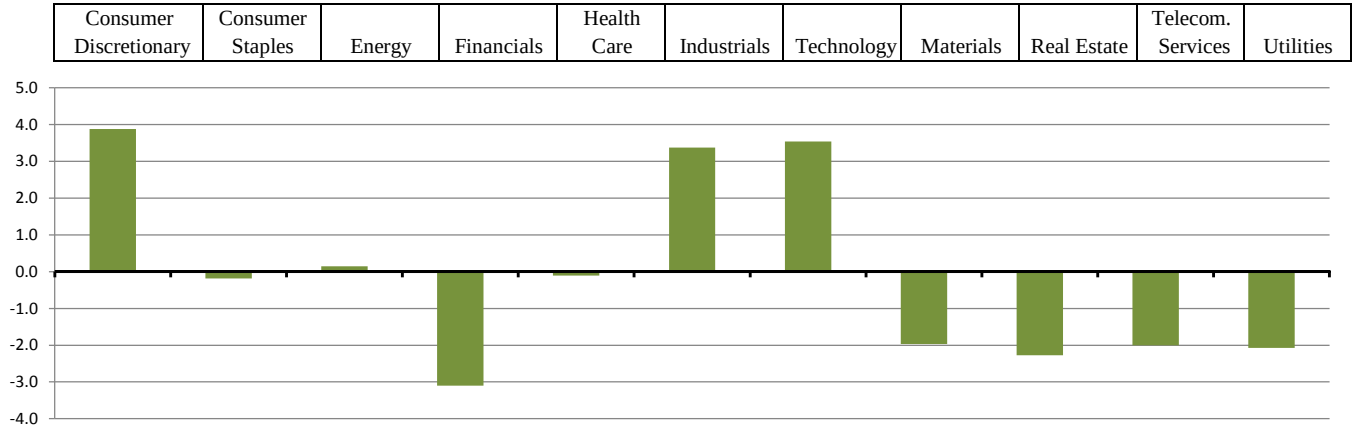
Managers	MEGA $200B+	GIANT $100-$200B	LARGE $50-$100B	LARGE $20-$50B	LARGE $10-$20B	MID $2.5-$10B	SMALL $500MM-$2.5B	MICRO < $500MM	WTD AVG MARKET CAP ($B)
Acadian Asset Management	1.7	9.9	9.7	12.2	14.4	30.7	13.0	8.5	22.9
American Century Invt Mgmt	--	--	--	--	--	44.0	50.7	5.3	1.9
Baillie Gifford	1.8	11.3	4.6	21.1	23.2	32.6	5.3	0.1	27.2
DFA International Small Cap	--	--	--	--	0.5	29.9	55.9	13.7	1.7
Invesco	0.7	11.8	13.1	32.9	33.2	8.2	--	--	39.7
Lazard Asset Mgmt LLC	7.5	12.3	10.4	26.6	19.6	20.9	2.8	--	38.1
Templeton Invt Counsel LLC	--	--	--	--	1.2	27.5	65.4	5.9	1.6
ACTIVE INTERNATIONAL EQUITY PORTFOLIOS	**2.2**	**8.3**	**7.0**	**17.1**	**16.7**	**25.0**	**19.5**	**4.2**	23.8
International Custom Benchmark	**3.8**	**9.3**	**12.7**	**23.7**	**15.7**	**22.8**	**10.3**	**1.6**	34.3
Over/underweight(-)	**-1.6**	**-1.1**	**-5.7**	**-6.6**	**1.0**	**2.3**	**9.1**	**2.6**	-



ACTIVE INTERNATIONAL EXPOSURE-SECTOR %

Sept 30, 2016

MANAGERS	Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Technology	Materials	Real Estate	Telecom. Services	Utilities
Acadian Asset Management	6.7	1.9	15.0	27.4	8.9	10.1	12.1	8.9	3.8	3.7	1.6
American Century Invt Mgmt	15.4	8.4	4.6	6.1	9.7	26.2	12.5	8.3	3.6	--	3.2
Baillie Gifford	20.7	20.5	0.8	15.4	10.0	15.4	15.1	2.0	--	--	--
DFA International Small Cap	17.0	6.6	4.6	10.3	6.5	24.4	9.5	12.8	4.2	1.6	2.4
Invesco	20.2	11.5	4.6	18.4	8.8	13.0	18.2	2.7	--	--	--
Lazard Asset Mgmt LLC	11.7	12.4	7.4	17.0	7.7	15.3	12.1	4.5	2.3	7.6	1.8
Templeton Invt Counsel LLC	24.6	8.8	4.3	12.2	7.2	19.2	12.8	5.8	3.6	--	--
Active International Equity Portfolios	15.9	10.3	6.3	16.9	8.4	16.2	13.4	6.0	2.2	2.4	1.2
International Custom Benchmark	**12.0**	**10.5**	**6.2**	**20.0**	**8.5**	**12.8**	**9.9**	**8.0**	**4.5**	**4.4**	**3.2**
Over/underweight(-)	**3.9**	**-0.2**	**0.1**	**-3.1**	**-0.1**	**3.4**	**3.5**	**-2.0**	**-2.3**	**-2.0**	**-2.1**



INTERNATIONAL EQUITY
Region and Market Exposure
September 30, 2016

	Int'l Portfolio Weight (%)	MSCI ACWI ex US IMI	Difference
Cash	2.45%	0.00%	2.45%
Cash	2.45%	0.00%	2.45%
Developed Countries	79.48%	77.41%	2.07%
Asia Pacific	23.97%	25.85%	-1.88%
Australia	4.35%	5.03%	
Hong Kong	1.95%	2.27%	
Japan	16.28%	17.29%	
New Zealand	0.28%	0.24%	
Singapore	1.12%	1.02%	
European Union	23.61%	23.83%	-0.22%
Austria	0.49%	0.18%	
Belgium	1.26%	1.09%	
Denmark	1.97%	1.34%	
Finland	1.76%	0.74%	
France	3.86%	6.27%	
Germany	5.15%	5.85%	
Ireland	0.32%	0.37%	
Italy	1.44%	1.54%	
Luxembourg	0.02%	0.00%	
Netherlands	1.35%	2.10%	
Portugal	0.27%	0.12%	
Spain	1.70%	2.03%	
Sweden	4.02%	2.20%	
Mid East/Africa	1.23%	0.60%	0.62%
Israel	1.23%	0.60%	
Non-EU Europe	5.47%	6.61%	-1.14%
Norway	0.82%	0.54%	
Switzerland	4.65%	6.07%	
North America	8.49%	6.92%	1.57%
Canada	6.46%	6.92%	
United States	2.03%	0.00%	
United Kingdom	16.71%	13.59%	3.12%
United Kingdom	16.71%	13.59%	
Emerging Market Countries	18.06%	22.59%	-4.53%
Asia Pacific	10.68%	16.25%	-5.58%
China	3.01%	5.72%	
India	0.26%	1.99%	
Indonesia	0.57%	0.60%	
Malaysia	0.20%	0.68%	
Philippines	0.45%	0.35%	
South Korea	2.57%	3.47%	
Taiwan	2.97%	2.88%	
Thailand	0.65%	0.56%	
European Union	0.30%	0.42%	-0.12%
Czech Republic	0.00%	0.04%	
Greece	0.00%	0.08%	
Hungary	0.00%	0.06%	
Poland	0.30%	0.24%	
Latin America/Caribbean	4.22%	2.85%	1.37%
Brazil	2.90%	1.51%	
Chile	0.10%	0.27%	
Colombia	0.00%	0.10%	
Mexico	1.22%	0.89%	
Peru	0.00%	0.08%	
Mid East/Africa	2.70%	2.31%	0.39%
Egypt	0.00%	0.05%	
Qatar	0.00%	0.19%	
South Africa	1.82%	1.58%	
Turkey	0.89%	0.30%	
United Arab Emirates	0.00%	0.20%	
Non-EU Europe	0.16%	0.75%	-0.59%
Russia	0.16%	0.75%	
Grand Total	100.00%	100.00%	0.00%

ACTIVE INTERNATIONAL PORTFOLIO CHARACTERISTICS

Sep 30, 2016

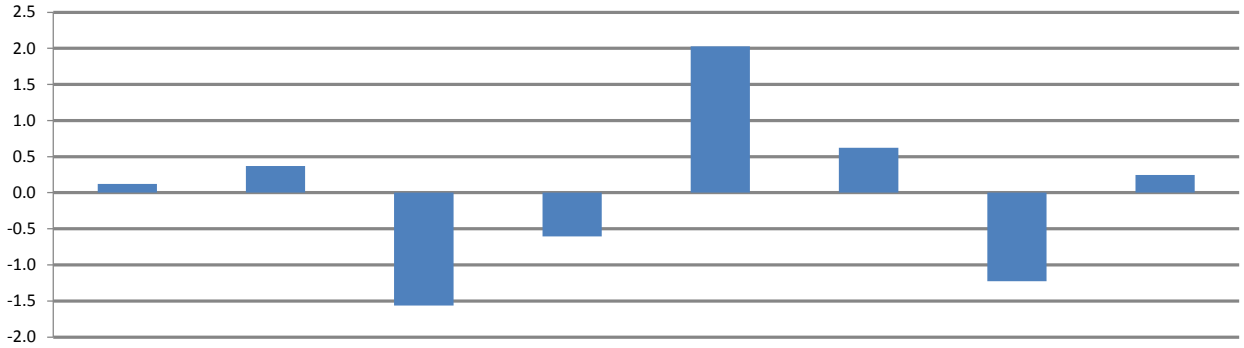
	Market Value	Number of Securities	3Yr Hist EPS Growth	Price/ Earnings	Price/ Book	Dividend Yield
Active International External Portfolios	**579,062,527**	**4,631**	**10.4**	**16.4**	**1.9**	**2.57**
International Equity Managers						
Acadian Asset Management	98,907,311	437	9.4	11.1	1.2	3.2
American Century Invt Mgmt	31,012,157	113	23.7	24.6	3.1	1.4
Baillie Gifford	91,385,227	72	12.1	21.8	3.1	1.8
Lazard Asset Mgmt LLC	116,926,983	69	10.4	18.3	2.4	3.0
Invesco	110,898,812	67	7.4	17.7	2.3	2.8
DFA International Small Cap	81,743,313	4,190	10.2	15.4	1.4	2.6
Templeton Invt Counsel LLC	48,188,725	115	9.0	14.9	1.6	2.4
Benchmarks						
MSCI AC World ex USA IMI		6,183	10.11	15.97	1.56	2.99
MSCI All Country World Ex-United States		1,853	9.69	15.98	1.57	3.09
MSCI All Country World Ex-United States Growth		1,055	15.13	20.61	2.73	2.14
MSCI All Country World Ex-United States Value		1,036	4.03	12.86	1.10	4.07
MSCI EAFE Small Cap		2,221	14.73	16.12	1.48	2.44
MSCI World Ex-United States Small Cap		2,441	14.05	16.32	1.49	2.43
MSCI All Country Pacific		946	15.61	14.05	1.37	2.70
MSCI Europe		446	4.62	18.17	1.74	3.56

INTERNATIONAL EXPOSURE-MARKET CAP %

Sep 30, 2016

Managers	MEGA $200B+	GIANT $100-$200B	LARGE $50-$100B	LARGE $20-$50B	LARGE $10-$20B	MID $2.5-$10B	SMALL $500MM-$2.5B	MICRO < $500MM	WTD AVG MARKET CAP ($B)
Acadian Asset Management	4.2	8.0	10.2	13.2	17.8	24.4	14.1	8.0	25.6
American Century Invt Mgmt	--	--	--	--	--	47.5	46.1	6.4	2.1
Baillie Gifford	4.8	5.8	6.7	20.0	28.7	31.3	2.7	0.1	27.5
DFA International Small Cap	--	--	--	--	0.2	32.6	54.7	12.4	1.8
Invesco	1.7	11.0	15.2	32.3	30.5	9.3	--	--	42.0
Lazard Asset Mgmt LLC	10.3	11.5	9.6	27.9	20.7	17.5	2.5	--	40.1
Templeton Invt Counsel LLC	--	--	--	--	0.8	33.4	59.8	6.0	1.7
BlackRock ACWI Ex US Superfund A	5.8	8.1	17.0	28.0	18.2	21.6	1.3	--	41.5
BlackRock Emerging Market Fund look through	12.1	5.0	5.8	21.0	20.8	30.0	5.2	--	32.4
BlackRock Intl Small Cap Index look through	--	--	--	--	--	28.5	61.9	9.5	1.5
Intl Equity Pool SPIF	4.3	10.0	20.1	29.8	17.1	18.4	0.2	--	45.6
ALL INTERNATIONAL EQUITY PORTFOLIOS	**5.1**	**7.4**	**13.2**	**23.5**	**17.7**	**22.9**	**8.6**	**1.6**	35.0
International Custom Benchmark	**5.0**	**7.0**	**14.7**	**24.1**	**15.7**	**22.3**	**9.9**	**1.4**	35.9
Over/underweight(-)	**0.1**	**0.4**	**-1.6**	**-0.6**	**2.0**	**0.6**	**-1.2**	**0.2**	-

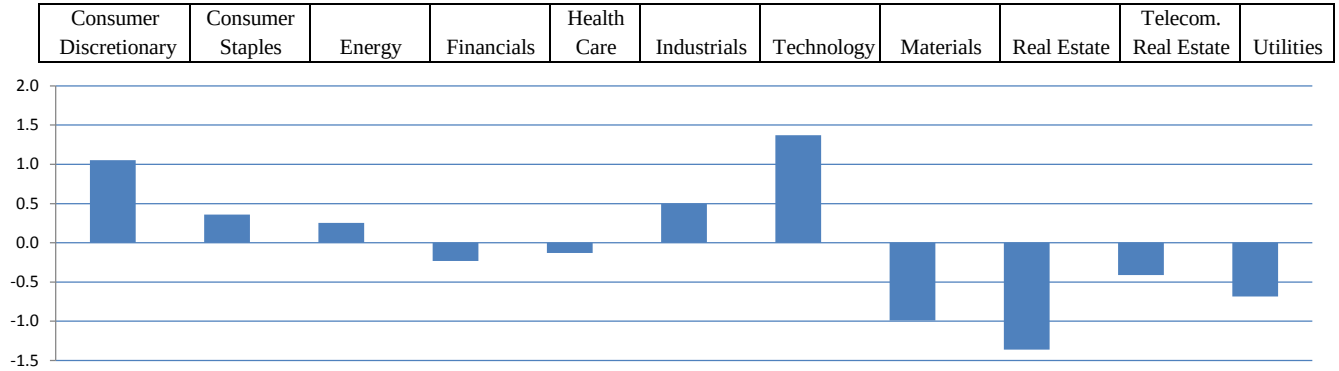
MEGA $200B+	GIANT $100-$200B	LARGE $50-$100B	LARGE $20-$50B	LARGE $10-$20B	MID $2.5-$10B	SMALL $500MM-$2.5B	MICRO < $500MM



INTERNATIONAL EXPOSURE-SECTOR %

Sep 30, 2016

MANAGERS	Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Technology	Materials	Real Estate	Telecom. Services	Utilities
Acadian Asset Management	6.7	1.9	15.0	27.4	8.9	10.1	12.1	8.9	3.8	3.7	1.6
American Century Invt Mgmt	15.4	8.4	4.6	6.1	9.7	26.2	12.5	8.3	3.6	--	3.2
Baillie Gifford	20.7	20.5	0.8	15.4	10.0	15.4	15.1	2.0	--	--	--
DFA International Small Cap	17.0	6.6	4.6	10.3	6.5	24.4	9.5	12.8	4.2	1.6	2.4
Invesco	20.2	11.5	4.6	18.4	8.8	13.0	18.2	2.7	--	--	--
Lazard Asset Mgmt LLC	11.7	12.4	7.4	17.0	7.7	15.3	12.1	4.5	2.3	7.6	1.8
Templeton Invt Counsel LLC	24.6	8.8	4.3	12.2	7.2	19.2	12.8	5.8	3.6	--	--
BlackRock ACWI Ex US Superfund A	11.4	11.4	6.6	21.6	8.6	11.7	9.6	7.5	3.5	4.9	3.3
BlackRock Emerging Market Fund look through	10.6	7.9	7.3	23.7	2.6	5.9	23.9	6.4	2.7	6.1	2.9
BlackRock Intl Small Cap Index look through	15.6	6.9	3.6	9.6	7.8	19.6	11.8	10.9	10.7	1.1	2.4
Intl Equity Pool SPIF	12.2	12.8	4.8	19.2	11.4	14.1	5.5	7.5	4.0	--	--
All International Equity Portfolios	13.0	10.9	6.4	19.7	8.4	13.3	11.3	7.0	3.1	4.0	2.5
International Custom Benchmark	**12.0**	**10.5**	**6.2**	**20.0**	**8.5**	**12.8**	**9.9**	**8.0**	**4.5**	**4.4**	**3.2**
Over/underweight(-)	**1.1**	**0.4**	**0.3**	**-0.2**	**-0.1**	**0.5**	**1.4**	**-1.0**	**-1.4**	**-0.4**	**-0.7**



INTERNATIONAL EQUITY
Region and Market Exposure
September 30, 2016

	Int'l Portfolio Weight (%)	MSCI ACWI ex US IMI	Difference
Cash	1.47%	0.00%	1.47%
Cash	1.47%	0.00%	1.47%
Developed Countries	76.62%	77.41%	-0.79%
Asia Pacific	24.30%	25.85%	-1.55%
Australia	4.74%	5.03%	
Hong Kong	2.16%	2.27%	
Japan	16.19%	17.29%	
New Zealand	0.20%	0.24%	
Singapore	1.01%	1.02%	
European Union	23.58%	23.83%	-0.26%
Austria	0.26%	0.18%	
Belgium	1.13%	1.09%	
Denmark	1.57%	1.34%	
Finland	1.06%	0.74%	
France	5.59%	6.27%	
Germany	5.63%	5.85%	
Ireland	0.32%	0.37%	
Italy	1.40%	1.54%	
Luxembourg	0.01%	0.00%	
Netherlands	1.86%	2.10%	
Portugal	0.16%	0.12%	
Spain	1.91%	2.03%	
Sweden	2.69%	2.20%	
Mid East/Africa	0.78%	0.60%	0.18%
Israel	0.78%	0.60%	
Non-EU Europe	6.22%	6.61%	-0.39%
Norway	0.57%	0.54%	
Switzerland	5.65%	6.07%	
North America	7.29%	6.92%	0.37%
Canada	6.58%	6.92%	
United States	0.71%	0.00%	
United Kingdom	14.45%	13.59%	0.86%
United Kingdom	14.45%	13.59%	
Emerging Market Countries	21.91%	22.59%	-0.69%
Asia Pacific	14.73%	16.25%	-1.53%
China	5.04%	5.72%	
India	1.40%	1.99%	
Indonesia	0.62%	0.60%	
Malaysia	0.53%	0.68%	
Philippines	0.40%	0.35%	
South Korea	3.20%	3.47%	
Taiwan	2.95%	2.88%	
Thailand	0.58%	0.56%	
European Union	0.40%	0.42%	-0.02%
Czech Republic	0.03%	0.04%	
Greece	0.05%	0.08%	
Hungary	0.04%	0.06%	
Poland	0.28%	0.24%	
Latin America/Caribbean	3.55%	2.85%	0.70%
Brazil	2.13%	1.51%	
Chile	0.23%	0.27%	
Colombia	0.07%	0.10%	
Mexico	1.06%	0.89%	
Peru	0.06%	0.08%	
Mid East/Africa	2.60%	2.31%	0.28%
Egypt	0.03%	0.05%	
Qatar	0.14%	0.19%	
South Africa	1.77%	1.58%	
Turkey	0.52%	0.30%	
United Arab Emirates	0.14%	0.20%	
Non-EU Europe	0.63%	0.75%	-0.12%
Russia	0.63%	0.75%	
Grand Total	100.00%	100.00%	0.00%

INTERNATIONAL PORTFOLIO CHARACTERISTICS

Sep 30, 2016

	Market Value	Number of Securities	3Yr Hist EPS Growth	Price/ Earnings	Price/ Book	Dividend Yield
International Accounts with look throughs	**1,667,665,393**	**8,403**	**10.1**	**16.1**	**1.7**	**2.89**
International Equity Managers						
Acadian Asset Management	98,907,311	437	9.4	11.1	1.2	3.2
American Century Invt Mgmt	31,012,157	113	23.7	24.6	3.1	1.4
Baillie Gifford	91,385,227	72	12.1	21.8	3.1	1.8
Lazard Asset Mgmt LLC	116,926,983	69	10.4	18.3	2.4	3.0
Invesco	110,898,812	67	7.4	17.7	2.3	2.8
DFA International Small Cap	81,743,313	4,190	10.2	15.4	1.4	2.6
Templeton Invt Counsel LLC	48,188,725	115	9.0	14.9	1.6	2.4
BlackRock ACWI Ex US Superfund A	978,064,547	1,870	9.8	16.0	1.6	3.1
BlackRock Emerging Market Fund look through	32,363,111	846	12.6	13.6	1.6	2.5
BlackRock Intl Small Cap Index look through	29,702,934	4,328	13.3	15.9	1.5	2.4
Intl Equity Pool SPIF	5,527,000	927	8.9	16.8	1.6	3.3
Benchmarks						
MSCI AC World ex USA IMI		6,183	10.11	15.97	1.56	2.99
MSCI All Country World Ex-United States		1,853	9.69	15.98	1.57	3.09
MSCI All Country World Ex-United States Growth		1,055	15.13	20.61	2.73	2.14
MSCI All Country World Ex-United States Value		1,036	4.03	12.86	1.10	4.07
MSCI EAFE Small Cap		2,221	14.73	16.12	1.48	2.44
MSCI World Ex-United States Small Cap		2,441	14.05	16.32	1.49	2.43
MSCI All Country Pacific		946	15.61	14.05	1.37	2.70
MSCI Europe		446	4.62	18.17	1.74	3.56

MEMORANDUM

Montana Board of Investments
Department of Commerce
2401 Colonial Drive, 3rd Floor
Helena, MT 59601 (406) 444-0001

To: Members of the Board

From: Rande R. Muffick, CFA, Director of Public Market Investments

Date: November 15, 2016

Subject: Public Equity External Managers Watch List - Quarterly Update

There were no changes to the Watch List this quarter.

PUBLIC EQUITIES
MANAGER WATCH LIST
November 2016

Manager	Style Bucket	Reason	$ Invested (mil)	Inclusion Date
Artisan	**Domestic – MC Value**	**Performance**	**$135.9**	**November 2014**
Alliance Bernstein	**Domestic – SC Growth**	**Performance**	**$31.1**	**February 2015**

RETIREMENT FUND BOND POOL

November 16, 2016

	RFBP - 9/30/16 $(000)		Policy Range
CORE INTERNAL BOND PORTFOLIO	1,919,827	80.33%	
REAMS ASSET MGMT CO	244,784	10.24%	
CORE (U.S. INVESTMENT GRADE) MANAGERS	**2,164,611**	**90.57%**	**80-100%**
NEUBERGER BERMAN	108,213	4.53%	
POST TRADITIONAL HIGH YIELD FUND	100,107	4.19%	
TOTAL HIGH YIELD MANAGERS	**208,320**	**8.72%**	**0-15%**
POOL LEVEL CASH	**16,928**	**0.71%**	**0-5%**
TOTAL RETIRMENT FUND BOND POOL	**2,389,859**	**100.00%**	

Retirement Funds Bond Pool Composition and Performance:

The pool consists of the Core Internal Bond Portfolio (CIBP), Reams the core-plus portfolio, and the two high yield portfolios, Post Advisory, and Neuberger Berman. At this time weightings are within the approved ranges.

For the quarter the pool returned 0.87% vs 0.46% for the Barclays US Aggregate Bond Index. Relative performance was aided by a further tightening of credit spreads particularly in high yield bonds. The Barclays High Yield Index returned 5.5% for the quarter.

Within RFBP, the overweight to high yield bonds added significantly to the outperformance of the pool despite the fact that the externally managed high yield portfolios lagged their respective high yield benchmarks. This was due to the significant outperformance of high yield bond returns in general when compared to other types of bonds within the benchmark. The CIBP outperformed by -7 basis points for the quarter and the externally managed Reams portfolio underperformed by -50 basis points.

Retirement Funds Bond Pool Characteristics:

The RFBP continues to be typically underweight treasuries and agencies and overweight corporates, asset backed and CMBS.

Duration is slightly less than the Merrill U.S. Broad Index at 5.11.

Overall credit quality is steady at A1 as compared to Aa1 for the Merrill U.S. Broad Index.

The pool has an effective overweight in high yield due to the core plus portfolio and the dedicated high yield portfolios. The overweight has increased slightly from the additional funds invested in the Post Advisory portfolio during the first half of this calendar year.

Cash level is 4.9% compared to 4.1% last quarter.

Strategy:

Going forward the intent is to gradually increase the high yield allocation within the pool which would include another $15 million into the Post Advisory portfolio when market conditions are favorable.

	3 Month	*Fiscal YTD*	*1 Year*	*3 Year*	*5 Year*	*10 Year*
RETIREMENT FUNDS BOND POOL	0.87	0.87	5.78	4.55	4.26	5.59
CORE INTERNAL BOND PORTFOLIO	0.53	0.53	5.35	4.59	3.80	5.40
REAMS ASSET MANAGEMENT	0.46	0.46	5.70	3.93	4.25	
NEUBERGER BERMAN	5.36	5.36	12.12	4.84	8.24	
POST ADVISORY GROUP	3.96	3.96	8.45	5.85	9.11	
BARCLAYS AGGREGATE (DAILY)	0.46	0.46	5.19	4.03	3.08	4.79
BARCLAYS US UNIVERSAL INDEX - DAILY	0.96	0.96	6.11	4.27	3.62	
BARCLAYS US HIGH YIELD - 2% ISSUER CAP	5.55	5.55	12.74	5.30	8.34	

Portfolio Characteristics - Retirement Fund Bond Pool: September 30, 2016

Portfolio Metrics

	RFBP	Barclays Aggregate
Total Market Value	$2.42B	$19.60T
# of issues	938	9,908
Effective Duration	5.08	5.45
Spread Duration	5.48	5.92
Yield to Maturity	2.25%	1.92%
Average Quality	A1	Aa2

Sector Weights

	RFBP	Barclays Aggregate	Difference
Treasuries	21.26%	36.18%	-14.92%
Agency/Govt Related	4.68%	8.07%	-3.39%
ABS	4.96%	0.46%	4.50%
MBS	19.05%	27.61%	-8.56%
CMBS	10.32%	1.66%	8.66%
Financial	12.40%	8.04%	4.36%
Industrial	20.20%	15.89%	4.31%
Utility	2.18%	2.00%	0.18%
TOTAL Corporate	34.78%	25.93%	8.85%
Cash/Other	4.95%	0.09%	4.86%
Total	100.00%	100.00%	

Credit Quality (Lowest Rating)

	RFBP	Barclays Aggregate	Difference
AAA	18.74%	4.31%	14.43%
AA	46.69%	69.96%	-23.27%
A	10.89%	10.26%	0.63%
BBB	14.58%	14.31%	0.27%
BB	3.95%	1.13%	2.82%
B	3.49%	0.03%	3.46%
CCC/D	1.65%	0.00%	1.65%
Total	100.00%	100.00%	0.00%

* Internal ratings have been applied to certain bonds.

Trust Fund Investment Pool
Performance
September 30, 2016

Performance Summary

- The Trust Fund Investment Pool had a return of (+0.66%) for the third quarter. All four underlying asset classes (Investment Grade Fixed Income, High Yield, Real Estate, and Cash) had positive returns for the quarter.

- The largest contributor (combination of pool return and the average weight of the pool) to the Pool's quarterly return was Fixed Income (+0.37%) as 86% of the portfolio is allocated to Investment Grade Fixed Income.

- The Trust Fund Investment Pool had a one year return of (+5.94%). All four underlying asset classes (Investment Grade Fixed Income, High Yield, Real Estate, and Cash) had positive returns over the trailing one year time horizon. The current yield to maturity on the internal Fixed Income portfolio is 2.04%.

- Real Estate was the best performing asset class (+10.43%) for the trailing one year, followed by High Yield (+9.24). Fixed Income was the largest contributor to the overall Pool one-year return (+4.75%).

Trust Fund Investment Pool Performance
9/30/2016

	Cumulative		Annualized					Annual				
	QTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
Trust Fund Investment Pool	**0.66**	**0.66**	**5.94**	**5.25**	**4.72**	**5.67**	**5.87**	**1.83**	**6.96**	**(0.25)**	**6.99**	**8.20**
Fixed Income	0.45	0.45	5.63	4.88	4.12	5.25	5.50	1.04	6.96	(1.47)	6.26	8.41
Real Estate	1.75	1.75	10.43	11.48	11.47			12.94	11.18	10.53	12.47	15.64
High Yield	3.94	3.94	9.24	6.58	9.95	9.55		1.44	6.00	10.28	18.65	3.13
Cash Equivalents	0.13	0.13	0.45	0.27	0.22	0.19	2.44	0.21	0.20	(0.06)	3.80	0.27
Fixed Income - Average Monthly Weight	85.57	85.57	85.68	85.80	86.33	86.98	86.43	85.75	85.94	86.44	87.69	86.78
Real Estate - Average Monthly Weight	7.57	7.57	7.61	7.32	6.65	5.95	6.28	7.33	7.11	6.36	5.24	5.15
High Yield - Average Monthly Weight	4.41	4.41	4.44	4.72	4.81	4.72	4.95	4.65	4.95	5.05	4.93	5.09
Cash Equivalents - Average Monthly Weight	2.45	2.45	2.28	2.16	2.21	2.34	2.34	2.26	2.00	2.15	2.14	2.97
Approximat **Fixed Income - Contribution to Return**	0.37	0.37	4.75	4.12	3.49			0.85	5.88	(3.79)	5.37	7.24
Real Estate - Contribution to Return	0.13	0.13	0.78	0.83	0.75			0.91	0.78	2.00	0.64	0.80
High Yield - Contribution to Return	0.16	0.16	0.40	0.31	0.47			0.06	0.29	1.55	0.90	0.16
Cash Equivalents - Contribution to Return	0.00	0.00	0.01	0.01	0.00			0.00	0.00	(0.00)	0.08	0.01

Bloomberg Aggregate Bond	0.46	0.46	5.19	4.03	3.08	4.10	4.79	1.96	5.72	(0.10)	3.77	7.71
NCREIF ODCE	2.05	2.05	10.06	12.44	12.39			13.67	13.45	13.77	10.78	14.66
Bloomberg US High Yield - 2% Issuer Cap	5.55	5.55	12.74	5.30	8.34	8.72		(3.66)	2.00	7.53	13.08	6.43
Libor 1 Month Index	0.13	0.13	0.43	0.25	0.24	0.24	1.11	0.28	0.16	0.18	0.22	0.23
Fixed Income - Relative Return	(0.00)	(0.00)	0.44	0.85	1.04	1.15	0.72	(0.92)	1.24	(1.38)	2.49	0.70
Real Estate - Relative Return	(0.30)	(0.30)	0.37	(0.96)	(0.92)			(0.73)	(2.27)	(3.24)	1.69	0.98
High Yield - Relative Return	(1.61)	(1.61)	(3.50)	1.29	1.60	0.83		5.10	4.00	2.75	5.57	(3.30)
Cash Equivalents - Relative Return	(0.00)	(0.00)	0.02	0.02	(0.03)	(0.05)	1.33	(0.06)	0.04	(0.24)	3.57	0.03

Portfolio Characteristics - Trust Fund Bond Portfolio: September 30, 2016

Portfolio Metrics

	TFBP	Barclays Aggregate
Total Market Value	$2.07B	$19.60T
# of issues	318	9,908
Effective Duration	5.50	5.45
Spread Duration	5.83	5.92
Yield to Maturity	2.04%	1.92%
Average Quality	Aa3	Aa2

Sector Weights

	TFBP	Barclays Aggregate	Policy Range
Treasuries	24.47%	36.18%	15-45%
Agency/Govt Related	5.66%	8.07%	5-15%
ABS	5.39%	0.46%	0-7%
MBS	18.10%	27.61%	20-40%
CMBS	11.43%	1.66%	0-12%
Financial	9.86%	8.04%	
Industrial	17.88%	15.89%	
Utility	2.35%	2.00%	
TOTAL Corporate	30.09%	25.93%	10-40%
Cash/Other	4.86%	0.09%	
Total	100.00%	100.00%	

Credit Quality (Lowest Rating)

	TFBP	Barclays Aggregate	Difference
AAA	27.24%	4.31%	22.93%
AA	41.94%	69.96%	-28.02%
A	10.01%	10.26%	-0.25%
BBB	18.85%	14.31%	4.54%
BB	1.96%	1.13%	0.83%
B	0.00%	0.03%	-0.03%
CCC/D	0.00%	0.00%	0.00%
Total	100.00%	100.00%	

* Internal ratings have been applied to certain bonds.

Duration Distribution

	TFBP	Barclays Aggregate	Difference
0 -1	10.59%	0.83%	9.76%
1 - 3	22.82%	39.25%	-16.43%
3 - 5	25.81%	25.69%	0.13%
5 - 7	16.70%	11.00%	5.70%
7 - 10	11.21%	8.89%	2.32%
10+	12.87%	14.34%	-1.47%
Total	100.00%	100.00%	

State Fund
Investment Portfolio Performance
September 30, 2016

Performance Summary

- The State Fund investment portfolio had a positive return of (+0.79) for the third quarter. All of the underlying asset classes (Investment Grade Fixed Income, Domestic Equity, International Equity, Real Estate, and Cash) had positive returns for the quarter.

- The largest contributor (combination of pool return and the average weight of the pool) to the quarterly return was Domestic Equity (+0.35%) due to the strong performance of public equity markets.

- The State Fund investment portfolio had a positive return of (+5.36%) for the trailing one year. All the underlying asset classes had positive returns for the trailing one year. The current yield to maturity on the internal Fixed Income portfolio is 1.61%.

- Domestic Equity was the best performing asset class (+15.41) for the trailing one year, followed by Real Estate (+10.04) and International Equity (+9.27). The largest contributor to the overall one year return was Fixed Income (+3.19%) as 81% of the portfolio is allocated to Investment Grade Fixed Income.

STATE FUND INSURANCE

November 16, 2016

Asset Type	Investment	MV% 09/30/2016	Policy	Target
Fixed Income	State Fund Bond Pool (ex. cash)	**81.13%**	**Minimum 75%**	
Equity	Blackrock Equity Index	9.42%	Maximum 12%	
	Blackrock ACWI ex. US	1.22%	Maximum 4%	
Total Equity		**10.64%**	**Maximum 15%**	**10%**
Real Estate	TIAA CREF Core Property	2.85%		
	American Core Realty Fund	3.17%		
Total Real Estate		**6.02%**	**Maximum 8%**	**5%**
Cash	Short Term Investment Pool	**2.21%**	**Between 1%-5%**	
Total		***100.00%***		

During the 2nd quarter, there were no purchases or sales within Equity or Core Real Estate. Both asset classes significantly outperformed the bond portfolio during the quarter. Allocations are within the approved policy ranges.

The bond portfolio outperformed the Barclays Govt/Credit Intermediate index by 15 bps for 3Q16 although absolute return was a minimal 31 bps. During the quarter, interest rates rose 12 – 18 bps all along the intermediate portion of the curve. Intermediate corporate spreads tightened 15 bps during the quarter.

There was approximately $48M in purchases and $33M of maturities and sales during the quarter. The majority of purchase activity was in Treasuries/Agencies along with a couple of AA rated corporates as we continue to have a higher quality bias.

In September, the State Fund Board approved a $35M dividend distribution. State Fund staff has provided an estimate that cash flows will commence the week of November 7th and be completed the week of November 21st. We sold approximately $30M in short Agency securities in October to prepare for this event.

The chart on the following page shows the characteristics of the State Fund Bond Portfolio as of quarter end. The portfolio had a slightly shorter duration than the benchmark in the 3rd quarter. The bond pool has an overweight in agencies, asset backed securities (ABS) and corporate bonds and is underweight Treasuries relative to the benchmark. The portfolio seeks to build in a yield advantage to the index. There were no major changes to the overall credit quality of the portfolio. The primary objective of this portfolio is to maximize investment income consistent with safety of principal.

State Fund Bond Portfolio Characteristics: September 30, 2016

Portfolio Metrics

	SFBP	Barclays Intermediate Govt/Credit
Total Market Value	$1.26B	$10.50T
# of issues	211	5,177
Effective Duration	3.77	4.06
Spread Duration	3.77	4.06
Yield to Maturity	1.61%	1.51%
Average Quality	Aa3	Aa2

Sector Weights

	SFBP	Barclays Intermediate Govt/Credit	Difference
Treasuries	18.39%	55.83%	-37.44%
Agency/Govt Related	20.88%	11.23%	9.65%
ABS	5.26%	0.00%	5.26%
MBS	0.29%	0.00%	0.29%
CMBS	0.46%	0.00%	0.46%
Financial	25.91%	12.22%	13.69%
Industrial	22.78%	19.00%	3.78%
Utility	3.38%	1.72%	1.66%
Cash	2.65%	0.00%	2.65%
Other	0.00%	0.00%	0.00%
Total	100.00%	100.00%	

Credit Quality (Lowest Rating)

	SFBP	Barclays Intermediate Govt/Credit	Difference
AAA	8.31%	4.88%	3.43%
AA	42.97%	63.30%	-20.33%
A	27.00%	12.68%	14.32%
BBB	21.34%	17.78%	3.56%
BB	0.38%	1.36%	-0.98%
B	0.00%	0.00%	0.00%
CCC/D	0.00%	0.00%	0.00%
Total	100.00%	100.00%	

Duration Distribution

	SFBP	Barclays Intermediate Govt/Credit	Difference
0 -1	11.36%	0.60%	10.76%
1 - 3	30.82%	37.66%	-6.84%
3 - 5	29.98%	30.34%	-0.37%
5 - 7	17.57%	19.16%	-1.58%
7 - 9	9.48%	11.79%	-2.31%
9 - 10	0.79%	0.44%	0.35%
Total	100.00%	100.00%	

State Fund Performance
9/30/2016

	Cumulative		Annualized					Annual				
	QTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2015	2014	2013	2012	2011
Montana State Fund	**0.79**	**0.79**	**5.36**	**4.43**	**4.85**	**5.34**	**5.26**	**2.20**	**4.98**	**3.10**	**7.23**	**5.26**
Fixed Income	0.32	0.32	3.97	3.36	3.36	4.34	4.84	1.76	3.89	(0.40)	6.31	5.99
Domestic Equities	3.84	3.84	15.41	11.17	16.41	13.29	7.53	1.46	13.79	32.71	16.02	2.26
International Equities	6.90	6.90	9.27	0.23	6.11			(5.62)	(3.80)	15.40	16.94	(13.59)
Real Estate	1.62	1.62	10.04	11.14				12.78	10.76	5.52		
Cash Equivalents	0.14	0.14	0.50	0.26	0.26	0.27	1.65	0.22	0.11	0.19	0.30	0.28
Fixed Income - Average Monthly Weight	81.57	81.57	81.15	80.65	80.96	81.10	80.90	80.41	80.16	82.03	86.55	86.51
Domestic Equities - Average Monthly Weight	9.33	9.33	9.51	9.92	9.78	9.51	9.28	10.01	10.20	10.16	9.93	9.65
International Equities - Average Monthly Weight	1.18	1.18	1.17	1.28	1.23	1.23	1.32	1.27	1.36	1.29	1.16	1.32
Real Estate - Average Monthly Weight	6.02	6.02	6.03	5.64	5.47	5.65	6.09	5.77	5.28	3.28		
Cash Equivalents - Average Monthly Weight	1.90	1.90	2.14	2.51	2.56	2.51	2.42	2.54	3.00	3.25	2.35	2.52
Approximate **Fixed Income - Contribution to Return**	0.26	0.26	3.19	2.69				1.39	3.08	(0.30)	5.44	5.22
Approximate **Domestic Equities - Contribution to Return**	0.35	0.35	1.45	1.10				0.14	1.39	3.05	1.59	0.22
Approximate **International Equities - Contribution to Return**	0.08	0.08	0.11	0.00				(0.07)	(0.05)	0.18	0.20	(0.18)
Approximate **Real Estate - Contribution to Return**	0.10	0.10	0.60	0.62				0.73	0.56	0.17	0.00	0.00
Approximate **Cash Equivalents - Contribution to Return**	0.00	0.00	0.01	0.01				0.01	0.00	0.01	0.01	0.01
State Fund Composite Benchmark	**0.60**	**0.60**	**4.67**	**3.54**	**3.79**	**4.25**	**4.50**	**0.98**	**4.01**	**2.49**	**5.11**	**5.13**
Bloomberg Gov/Credit Intermediate	0.16	0.16	3.52	2.80	2.45	3.33	4.17	2.06	3.58	(0.13)	3.53	6.09
S&P 500 Index	3.85	3.85	15.43	11.16	16.37	13.17	7.24	1.78	12.73	21.86	13.96	8.54
MSCI AC World ex US (Net)	6.91	6.91	9.26	0.18	6.04	3.66	2.17	(9.19)	(1.01)	12.31	8.36	(7.18)
NCREIF ODCE	2.05	2.05	10.06	12.44	12.39	12.42	6.02	13.67	13.45	13.77	10.78	14.66
Libor 1 Month Index	0.13	0.13	0.43	0.25	0.24	0.24	1.11	0.28	0.16	0.18	0.22	0.23
Fixed Income - Relative Return	0.16	0.16	0.45	0.57	0.91	1.01	0.67	(0.30)	0.31	(0.27)	2.78	(0.10)
Domestic Equities - Relative Return	(0.01)	(0.01)	(0.02)	0.01	0.04	0.12	0.29	(0.33)	1.06	10.85	2.06	(6.28)
International Equities - Relative Return	(0.01)	(0.01)	0.01	0.05	0.07			3.57	(2.79)	3.08	8.58	(6.41)
Real Estate - Relative Return	(0.43)	(0.43)	(0.02)	(1.30)				(0.89)	(2.69)	(8.25)		
Cash Equivalents - Relative Return	0.01	0.01	0.07	0.01	0.02	0.03	0.54	(0.05)	(0.05)	0.02	0.08	0.05
Difference from Benchmark	**0.19**	**0.19**	**0.69**	**0.89**	**1.06**	**1.09**	**0.75**	**1.22**	**0.98**	**0.61**	**2.12**	**0.13**

Overview of the Montana Real Estate Pool (MTRP)

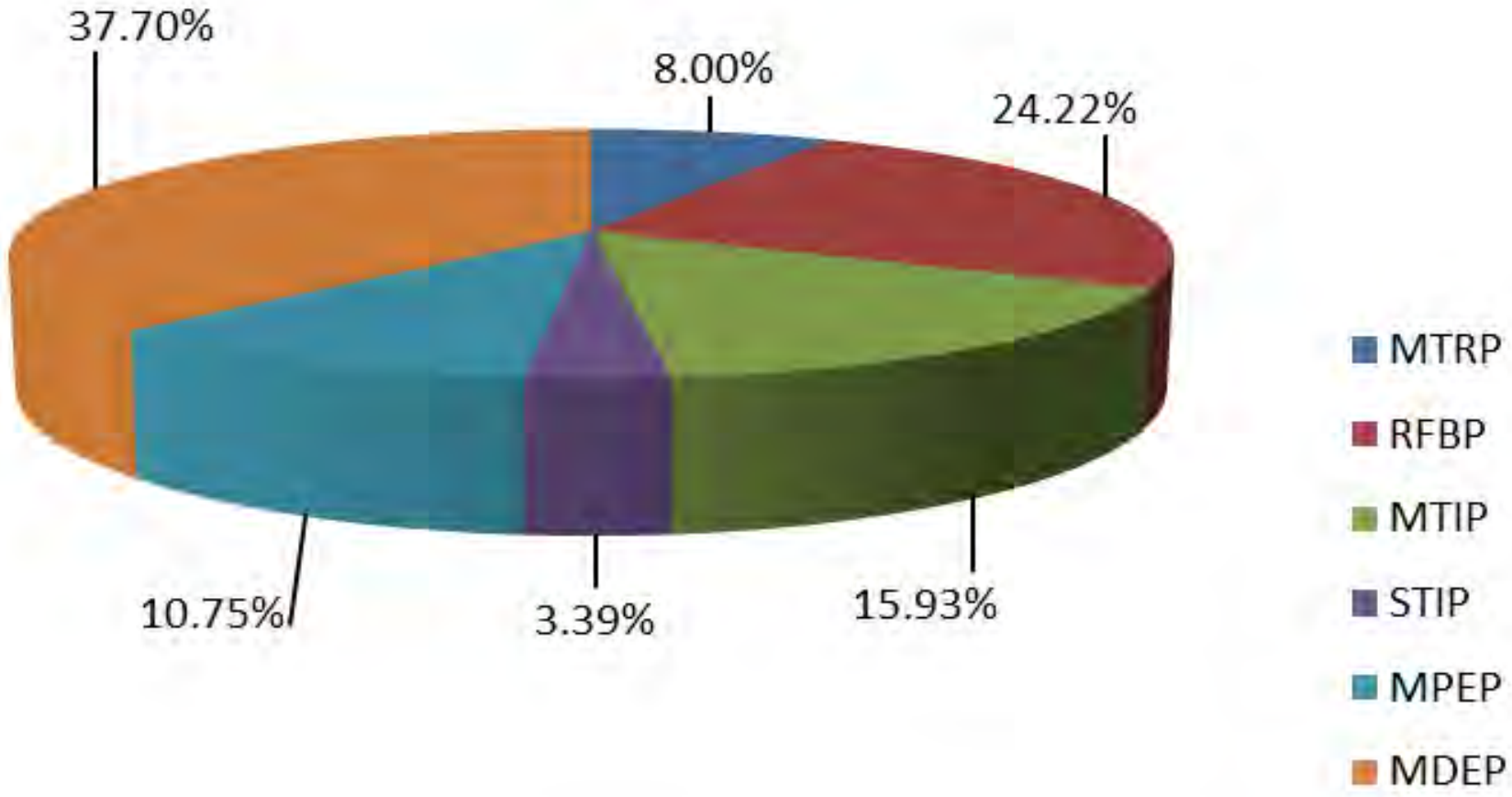
Table of Contents

1. MTRP with the Retirement Plans
2. MTRP – Role and Approach
3. MTRP – Objectives and Results
4. MTRP – Macro Risks
5. General Terms Associated with Private Equity Real Estate/Timber Fund Investments
6. Private Equity Real Estate/Timber Fund Investment Strategies & Sub-Strategies
7. Measurement of Private Equity Real Estate/Timber Fund Level Returns
8. Lifecycle of a Private Equity Real Estate/Timber Fund
9. Review – MTRP Annual Flows
10. MTRP – What We Have
11. MTRP – Current Focus
12. MTRP – Due Diligence Process
13. Appendix A – Board Brief Key

Montana Real Estate Pool (MTRP)

- Fifth largest Asset Pool for Retirement Plans
  - Allocation range: 6%-10%
- Illiquid assets

Pension Allocation as of 10/14/16



MTRP– Role and Approach

- Provide the Plans with exposure to a diverse spectrum of real estate and timberland investment opportunities across different property types, geographies; species, age classes and geographies as it relates to timber
- North American-centric, but can be up to 30% international
- Primarily invest in private equity real estate/timber partnership interests, consider the addition of public strategies going forward
- Diversify across a number of funds, vintage years, investment strategies and geographies

Private Equity Real Estate/Timber – Objectives and Results

- Objectives
  - Higher returns
  - Diversification vs. traditional asset classes (stocks & bonds)
  - Inflation hedge
  - Lower volatility - timber

- Return Results
  - Initial returns have been weak due to timing of entry
  - Recent return history has been much improved

Private Equity Real Estate/Timber – Risks

- Cash Flow (Liquidity/Timing)
  - Decision to invest, actual investment, return on investment
- Operating and Business
- Geographic/Property type
- Species
- Natural disasters/fire/pest infestation
- Financial/Leverage
- Valuation
- Structure
- Manager/Strategy
- Vintage Year

General Terms Associated with Private Equity Real Estate/Timber Fund Investments

Board Briefs

Let's Take A Closer Look

The Limited Partnership – The Fund

- The common legal structure used for private equity funds
- Governed by the Limited Partnership Agreement ("LPA")
  - Sets out the key terms, "rules of the road": investment limitations and constraints, fund term, management and control, distribution rights, etc.
  - Is subject to discussion and negotiation
- Comprised of:
  - General Partner (The "GP"), Advisor/Management Co.
    - Has management responsibility for the fund
    - Invests the fund's capital
    - Will make a financial commitment to the fund as an alignment of interest
    - Advisor/Management Co. is an affiliate of the GP and receives a management fee as well as incentive compensation ("carried interest") based on the performance of the fund
  - Limited Partners ("LPs")
    - Pensions, endowments, foundations and other investors
    - Make a financial investment in the partnership ("commitment")
    - Not involved in the day-to-day management of the partnership
    - Receive income and capital gains distributions from investments

Key Terms Associated with Private Equity Real Estate/Timber Funds

- ***Term***
  - The duration of the partnership
  - Typically 7-8 years with extension provisions, timber funds 12 – 20 years
- ***Investment period***
  - The time period over which the manager is expected to invest the fund
  - Typically 2-4 years
- ***Vintage Year***
  - The year of fund formation and/or the first capital call from investors
  - Useful when comparing performance across similar types of funds
- ***Committed Capital***
  - The total dollar value amount of capital pledged to a fund
  - Is not invested on day one of the fund, but is called from investors over time
  - Comes from the LPs as well as the GP
  - GP's capital commitment typically 1%-5%, sometimes as high as 10% - 20%
- ***Capital Call***
  - Also known as a draw down
  - Is the actual act of the fund requesting money be transferred to make an investment and/or pay fees and expenses

Key Terms Associated with Private Equity Real Estate/Timber Funds (cont'd)

- ***Co-Investments***
  - Outside fund capital raised by the GP
  - Can help to accommodate fund investments that would otherwise violate investment size limitations
  - May be offered on a no fee/no carry basis
- ***GP Removal***
  - A provision that allows the GP to be removed with or without cause
- ***Key Man Provision***
  - A clause that prevents the GP from making new investments after the departure of a specified number of agreed upon key executives
- ***Preferred Return (aka Hurdle Rate)***
  - The minimum required rate of return to LPs before the GP is allowed to receive carried interest
- ***Carried Interest***
  - The profit sharing interest of the GP which is payable once LPs have achieved repayment of their invested capital plus the preferred return
  - Typically 20%, 15% - 20% for timber funds
- ***Clawback***
  - A payment from the GP to LPs of distributions received by the General Partner that exceed the agreed-upon carried interest percentage

Key Terms Associated with Private Equity Real Estate/Timber Funds (cont'd)

- Distribution Waterfall (two types)

  Primary difference is the timing of carried interest received by the GP

European Waterfall

— LPs first receive
  - 100% of distributions until 100% of contributed capital plus all expenses has been received for ***all*** investments plus the preferred return (usually 8-10%)

— Catchup
  - GP will take some portion, typically 50-50% or 60-40%, of subsequent distributions until it has "caught up" to its share (20%) of previously distributed profits for ***all*** investments over and above the 8-10% preferred return to LPs

— Thereafter, distributions are shared for ***all*** investments
  - GP receives 20%
  - LPs receive 80%

Deal-by-Deal Waterfall

— LPs first receive
  - 100% of distributions until 100% of contributed capital plus associated expenses have been received for ***each*** realized investment while maintaining the preferred return (usually 8-10%)

— Catchup
  - GP will take some portion, typically 50-50% or 60-40%, of distributions until it has "caught up" to its share (20%) of previously distributed profits for ***each*** investment over and above the 8-10% preferred return

— Thereafter, distributions are shared for ***each*** investment
  - GP receives 20%
  - LPs receive 80%

Key Terms Associated with a Private Equity Real Estate/Timber Funds - Costs

- ***Management Fee***
  - Annual fee paid by LPs to the GP
  - Paid quarterly in advance or in arrears
  - Typically 1.0% - 1.5% per year during the investment period based on capital committed, 0.80% - 1.0% based on invested capital for timber funds
  - Thereafter can range from 1.0% - 1.25% based on the cost of active investments, 1% of FMV for timber funds
- ***Organizational Expenses***
  - Fees, costs and expenses incurred with the establishment and organization of the fund and its infrastructure
  - Examples of these costs are printing, filing fees and legal
  - The Fund will reimburse the GP to a specified maximum which can range from $500,000 - $2.5M

Key Documents Associated with Private Equity Real Estate/Timber Funds

- ***Subscription Agreement***
  - The application submitted by an investor wishing to join the partnership.
  - All prospective investors must be approved by the GP prior to admission to the fund

- ***Private Placement Memorandum ("PPM")***
  - A document provided to prospective investors that states the objectives, risks and principal terms of the fund
  - Includes a description of the strategy, the firm's track record, biographies of the management team and risk factors involved with the fund

- ***Side Letter***
  - A legal agreement between an LP and the GP that addresses specific needs and issues that may arise with that LP
    - Ex: FOIA and related state law provisions, administrative matters (reporting requirements) or special LP rights (Advisory Board membership, fee/carried interest concessions, etc.)
  - May be subject to a Most Favored Nation ("MFN") clause whereby side letter agreements entered into by one LP may be available to other LPs
    - carve-outs (i.e. size of commitment) may limit an LP's ability to adopt other investors' provisions

Private Equity Real Estate/Timber Fund Investment Strategies

Core

- Target returns 4-7% net
- Income return comprises at least 2/3 of total return over long periods
- Leverage is typically 30% or less loan-to-value
- Focuses primarily on four main property types: office, multifamily, retail and industrial
- Focuses on high quality, fully-leased properties in gateway markets

Timber

- Diversification by species, age class, product type (pulpwood, chip and saw, saw logs)
- Regional diversification
- Domestic and international
- Target returns 4-7% net IRR, mostly from biological growth, income derived from timber sales and other ancillary activities like recreational leases, high-and-better use land sales
- Leverage 0-30% loan-to-value

Non-Core

Value-Add

- Target returns 8-12% net
- Higher leverage than Core, up to 70% loan-to-value
- Focuses on properties with opportunities to add value
  - Property management—marketing and leasing
  - Asset management—reposition a "tired asset" or increase efficiency to lower operating expenses

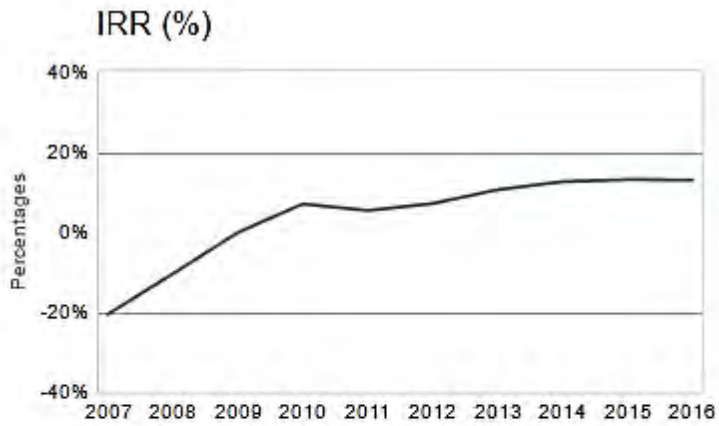
Opportunistic

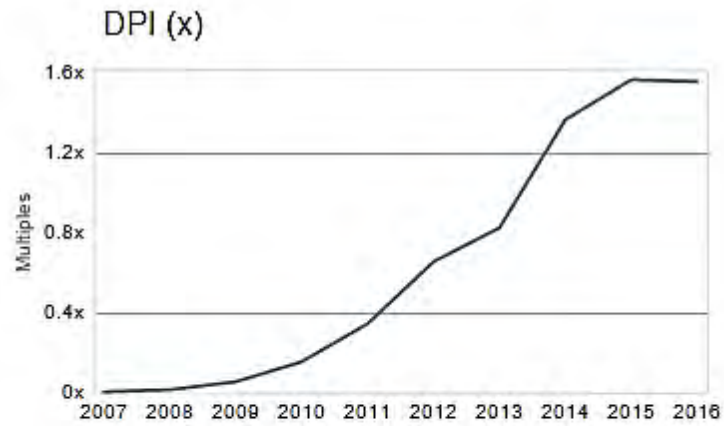
- Target returns 12%+ net
- Uses the highest leverage, greater than 70% loan-to-value
- May include investments in ground-up development and non-traditional real estate, for example, operating companies

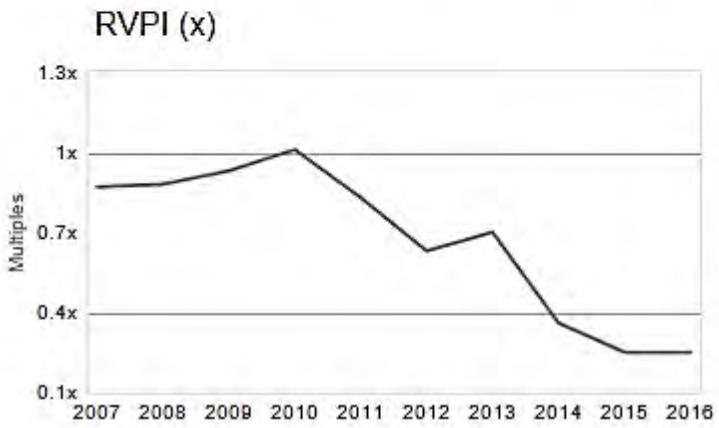
Measurement of Private Equity
Real Estate/Timber Fund Level Returns

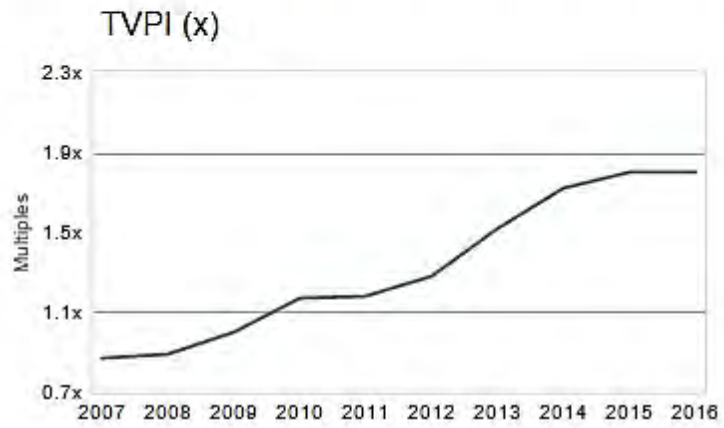
- ***IRR (Internal Rate of Return)***
  - The dollar-weighted rate of return that makes the combined net present value of all positive and negative cash flows equal to zero
  - Cash flows occurring earlier in the time period have a greater effect on the IRR
  - Can be negative initially as capital is called for investments and management fees, but then increases as investments gain in value and are sold
- ***PIC (Paid in Capital)***
  - The amount of committed capital that has been transferred from the Limited Partner to the General Partner, includes all investment costs, fees and expenses
- ***DPI (Distributions to Paid in Capital)***
  - A ratio of distributions paid to Limited Partners divided by paid in capital
  - Increases over the life of a fund
- ***RVPI (Residual Value to Paid in Capital)***
  - A ratio of the current value of investments held in a fund divided by paid in capital
  - Increases initially as investments are made and increase in value and then decreases as they are sold off
- ***TVPI (Total Value to Paid in Capital, aka MOIC)***
  - The value of distributions plus residual value divided by paid in capital
  - Increases over the life of the fund
  - (DPI + RVPI)/ PIC = MOIC

Illustrations of Metrics Used to Evaluate & Measure Private Equity Real Estate/Timber Fund Returns



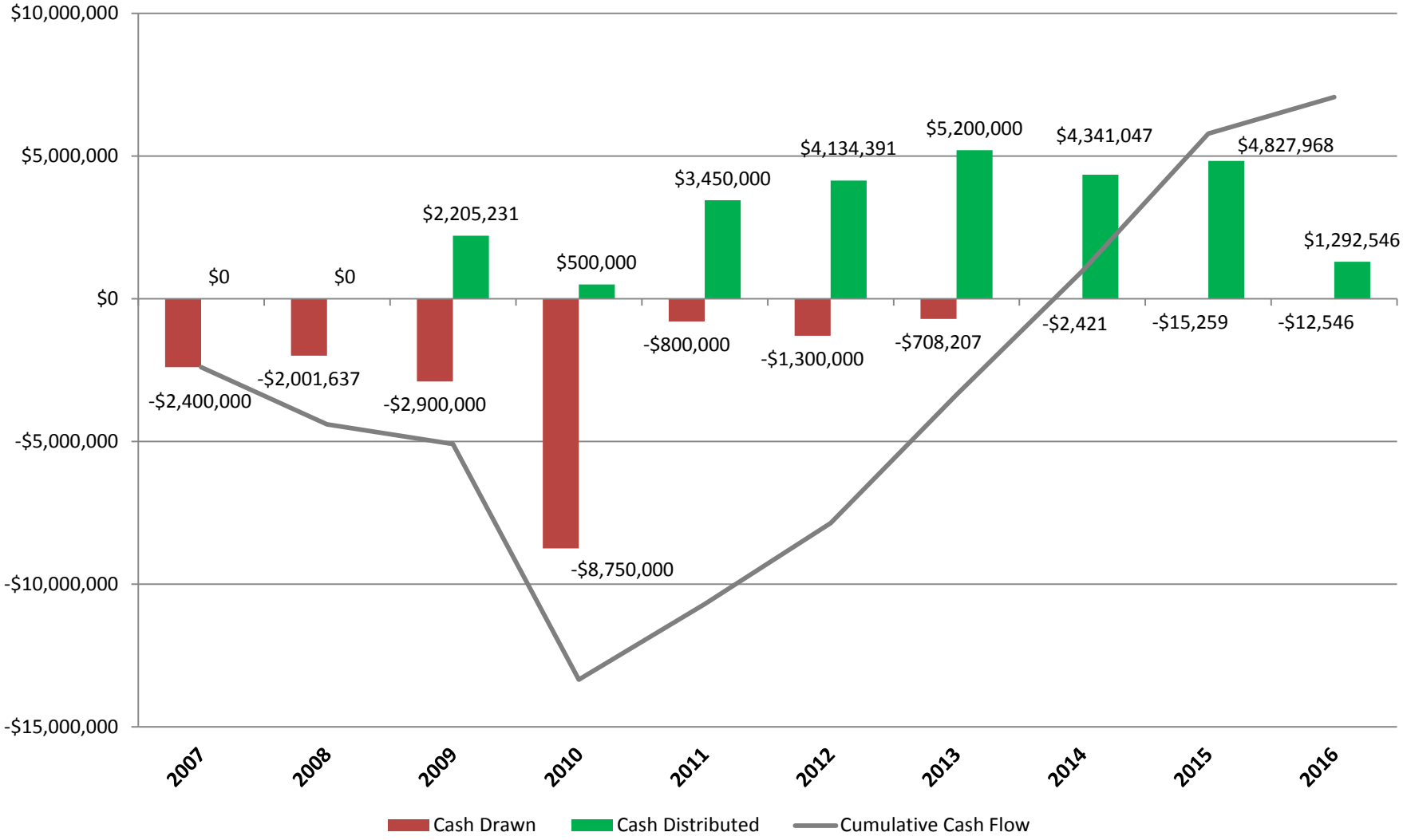






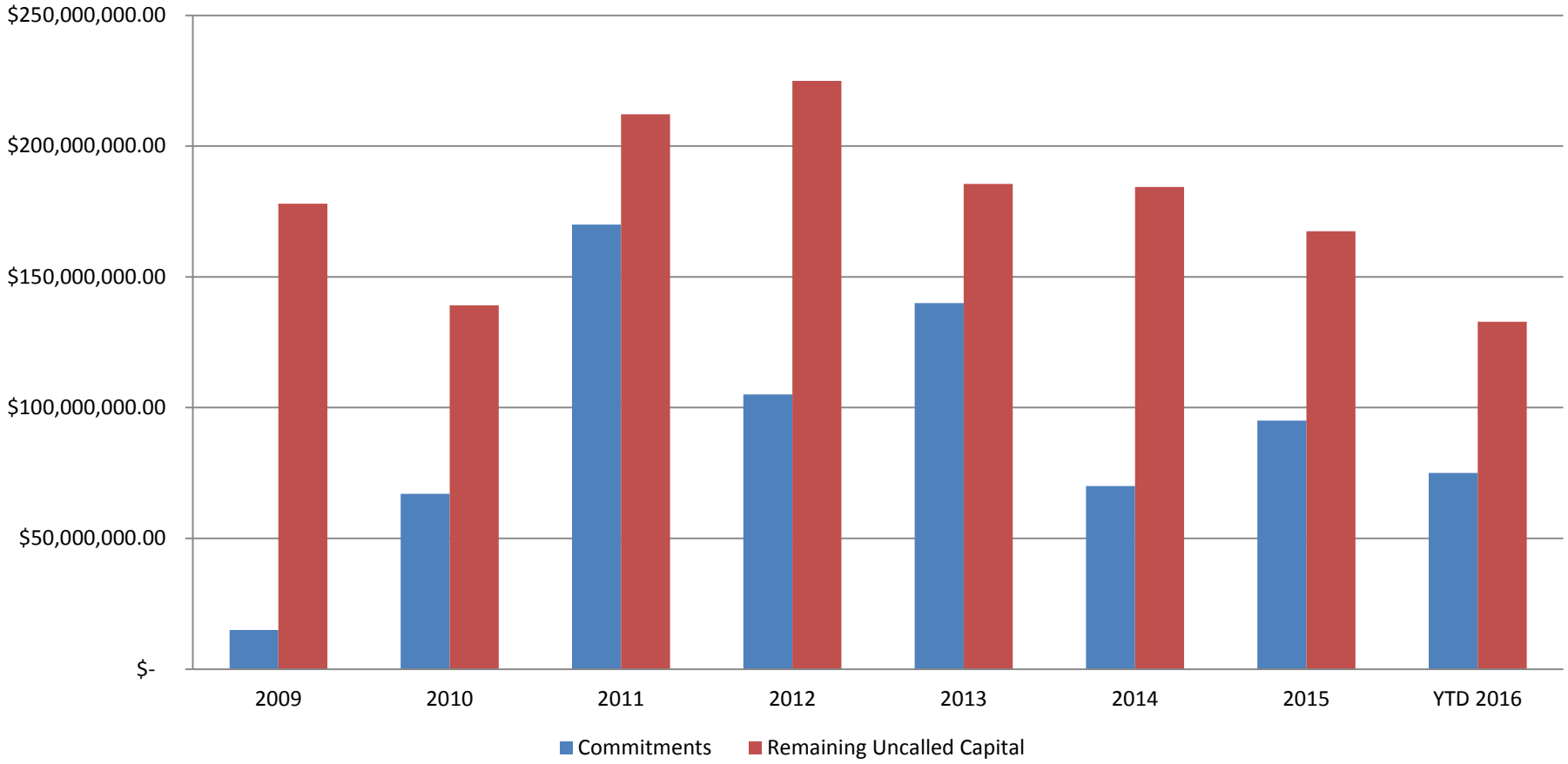
Life Cycle of a Private Equity Real Estate/Timber Fund

MBOI's Experience – AG Realty Fund VII L.P.
Vintage Year 2007 Fund



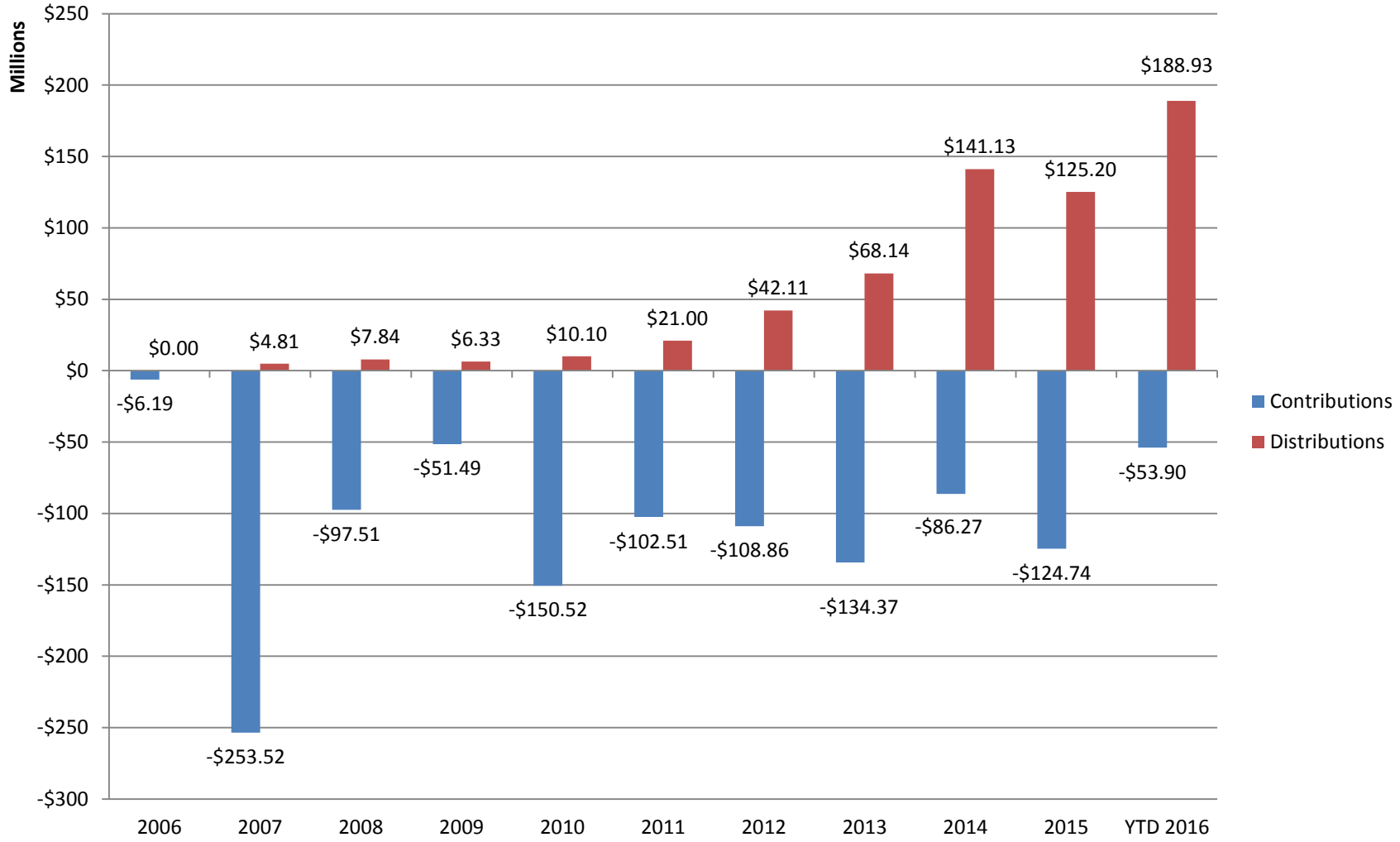
Review – MTRP Annual Flows

Commitments vs. Remaining Uncalled Capital by Vintage Year



[1]YTD 2016 through September 2016

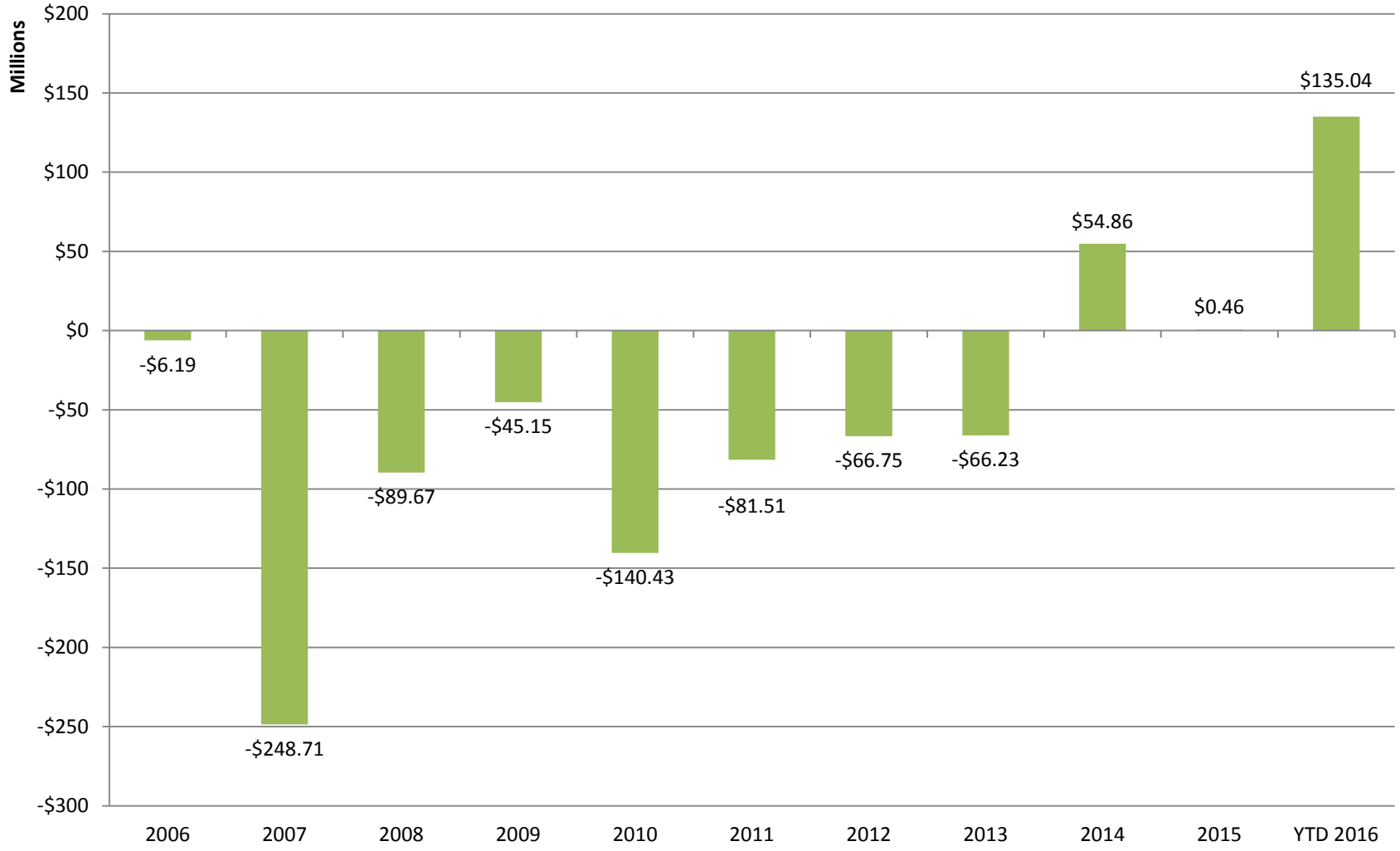
Contributions vs. Distributions by Vintage Year



[1]YTD 2016 through October 18, 2016

[2] Distributions include cash outflows received from recent core RE manager divestments

Net Cash Flows by Vintage Year

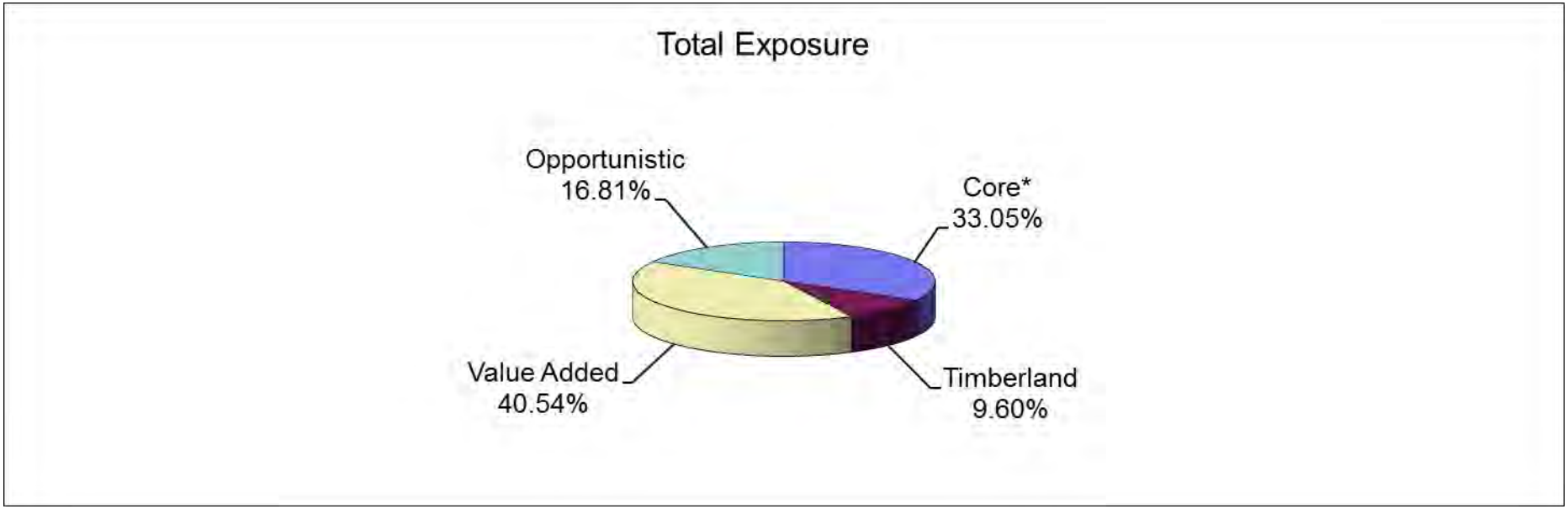


[1]YTD 2016 through October 18, 2016

[2] Net cash flows consider outflows received from recent core RE manager divestments

MTRP - What We Have

Q2 2016 Strategy – Total Exposure

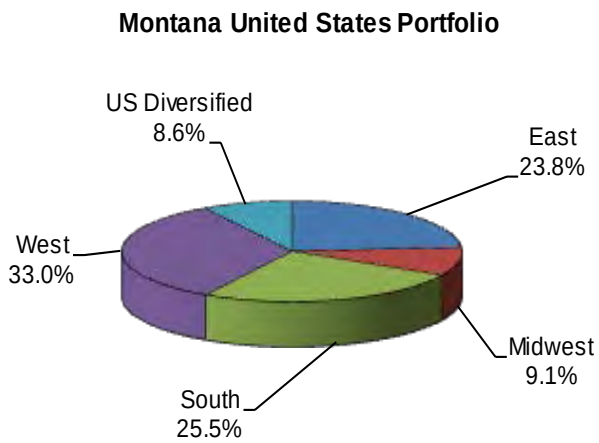


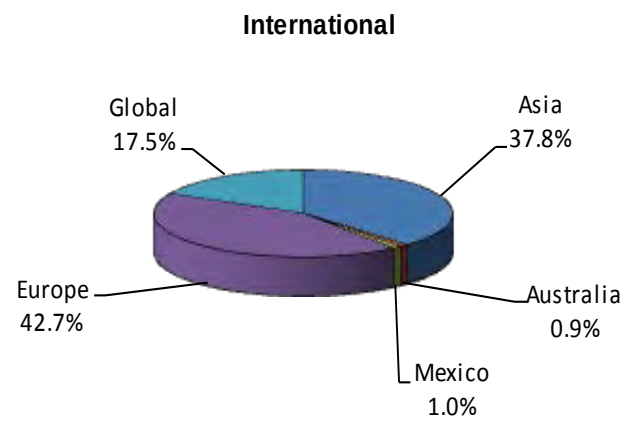
Strategy	Remaining Commitments	Percentage	Net Asset Value	Percentage	Total Exposure	Percentage
Core*	$0	0.00%	$358,706,619	39.58%	$358,706,619	33.05%
Timberland	$0	0.00%	$104,200,813	11.49%	$104,200,813	9.60%
Value Added	$96,887,573	54.10%	$343,261,255	37.86%	$440,148,828	40.54%
Opportunistic	$82,186,268	45.90%	$100,395,941	11.07%	$182,582,209	16.81%
Total	$179,073,840	100.00%	$906,564,629	100.00%	$1,085,638,469	100.00%

* Includes MT Office Portfolio

Core real estate dominates assets in the ground at approximately 40% of net asset value and includes the directly owned Montana office buildings. Timberland represents approximately 12% of the portfolio's total net asset value and approximately 10% of the total exposure. Value Added and Opportunistic account for approximately 38% and 11% of net asset value respectively.

Q2 2016 Geography – Total Exposure





	East	Midwest	South	West	US Diverse	Non-US	Total
Montana US Value[2]	$354.0	$135.7	$378.6	$491.4	$127.6		$1,487.1
Montana US Total[1]	23.8%	9.1%	25.5%	33.0%	8.6%		100.0%

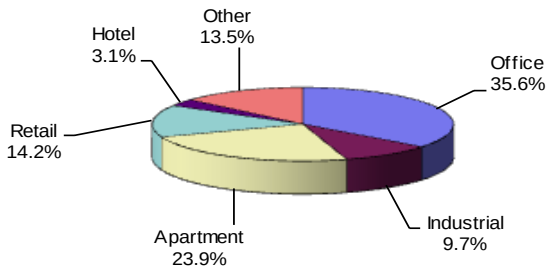
	Asia	Australia	Mexico	Europe	Global		Total
International[2]	$22.6	$0.5	$0.6	$25.5	$10.5		$59.6
International Percentage	37.8%	0.9%	1.0%	42.7%	17.5%		100.0%
Montana Total Value[2]	$354.0	$135.7	$378.6	$491.4	$127.6	$59.6	$1,546.7
Montana Total[1]	22.9%	8.8%	24.5%	31.8%	8.2%	3.9%	100.0%

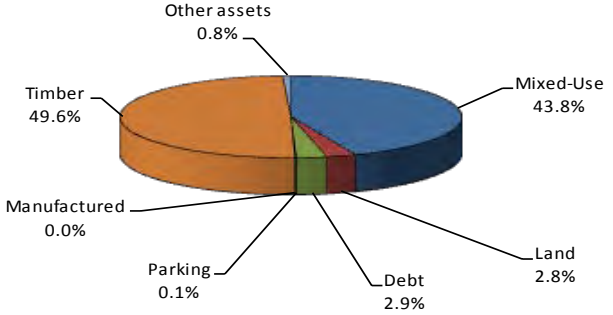
1) Diversification percentages are based on the Gross Market Value, which represents the MBOI share of the partnerships' interests in properties exclusive of any underlying debt used to acquire each property.

2) Values shown are in Millions.

The real estate portfolio is broadly diversified across the US with approximately 4% invested internationally.

Q2 2016 Property Type – Market Value Exposure





	Office	Industrial	Apartment	Retail	Hotel	Other[3]		Total
Montana US Value[2]	$529.1	$144.7	$356.1	$211.1	$46.0	$200.0		$1,487.1
Montana US Total	35.6%	9.7%	23.9%	14.2%	3.1%	13.5%		100.0%
Montana Non-US Value[2]	$13.4	$0.3	$7.4	$8.7	$3.4	$26.4		$59.6
Montana Non-US Total	22.4%	0.5%	12.4%	14.7%	5.7%	44.4%		100.0%
Montana Total Value[2]	$542.4	$145.0	$363.5	$219.8	$49.4	$226.5		$1,546.7
Montana Total[1]	35.1%	9.4%	23.5%	14.2%	3.2%	14.6%		100.0%
	Mixed-Use	Land	Debt	Parking	Manufactured	Timber[4]	Other Assets[3]	Total
Other[2]	$99.4	$6.3	$6.5	$0.2	$0.1	$112.2	$1.8	$226.5
Other Percentage	43.8%	2.8%	2.9%	0.1%	0.0%	49.6%	0.8%	100.0%

1) Diversification percentages are based on the Gross Market Value, which represents the MBOI share of the partnerships' interests in properties exclusive of any underlying debt used to acquire each property.

2) Values shown are in Millions.

3) Other Assets includes includes $48,566 in Entertainment and immaterial values in Condo Conversions, Homebuilding, Medical Office, and other properties not defined by the general partners.

4) Timber numbers includes $7,103,037 in the East region, $27,025,528 in the South region, $18,566,485 in the Midwest region, $38,445,515 in the West region, and $21,085,301 in the US Diverse region.

The real estate portfolio is well diversified across the major property types. At approximately 14%, Other represents the portfolio's exposure to Timber, Mixed-Use properties, Land, Debt, Manufactured Housing, Parking and related properties and assets. As has been noted in the past, composition of the portfolio by property type is and will continue to be primarily a function of a manager's expertise and success in sourcing deals rather than a function of staff's desire to over or underweight a specific property type.

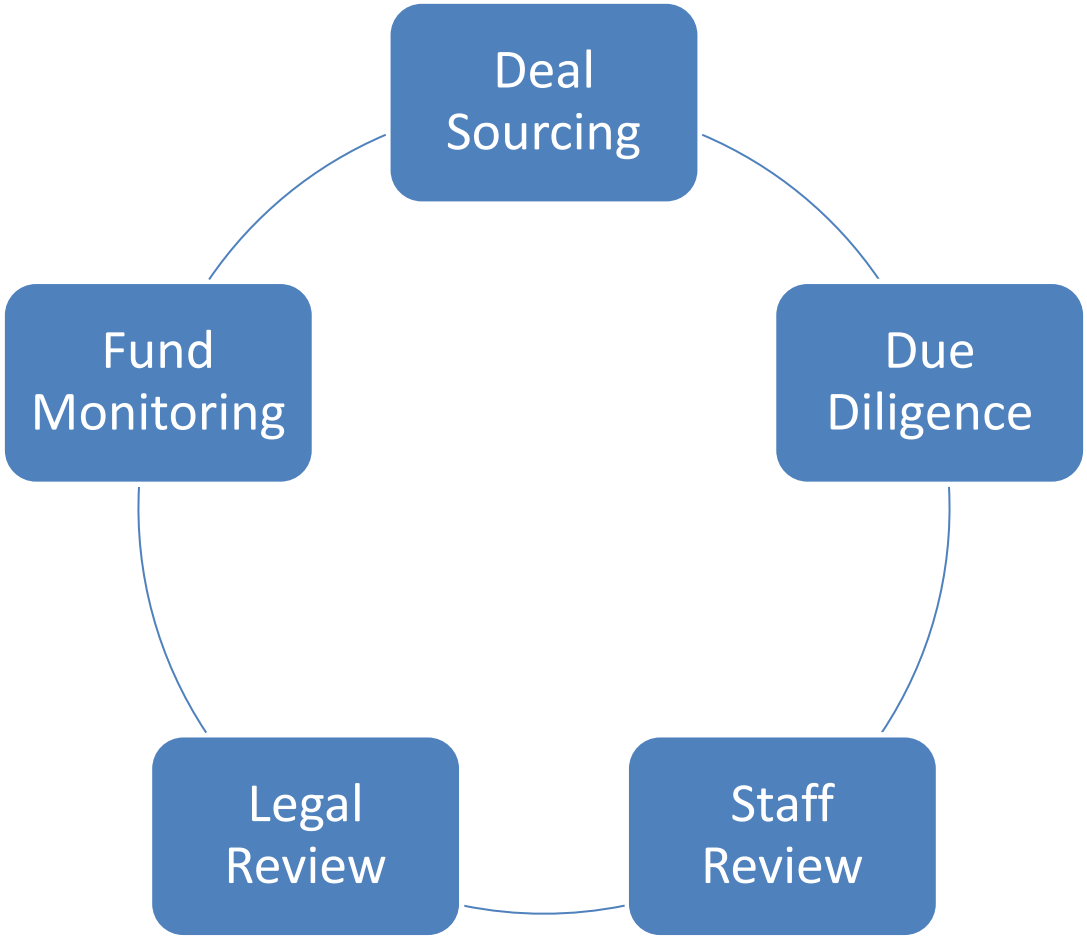
MTRP - Current Focus

MTRP– Strategy and Rationale

What	Why
• Focus on North America →	• Well understood, deepest, most liquid, "rules of the game," budgetary constraints
• Be selective with re-ups →	• Focus on our key relationships, best managers, differentiation within the portfolio
• Maintain our current core exposure →	• Stable current income, broad geographic and property type diversification
• Maintain/add to our value-added exposure with a focus on traditional "brick and sticks" →	• Exposure to additional growth markets outside the gateway cities, relatively less competition, higher yield
• Direct Lending →	• Adds diversification, source of income
• Continue to explore other public security and real estate debt-related strategies →	• Continued diversification, yield
• Opportunistically sell in the secondaries market →	• Active portfolio management, divest of non-strategic relationships
• Diversified North American timber →	• Diversification, stable returns, largest market in the world

MTRP Due Diligence Process

Due Diligence Process



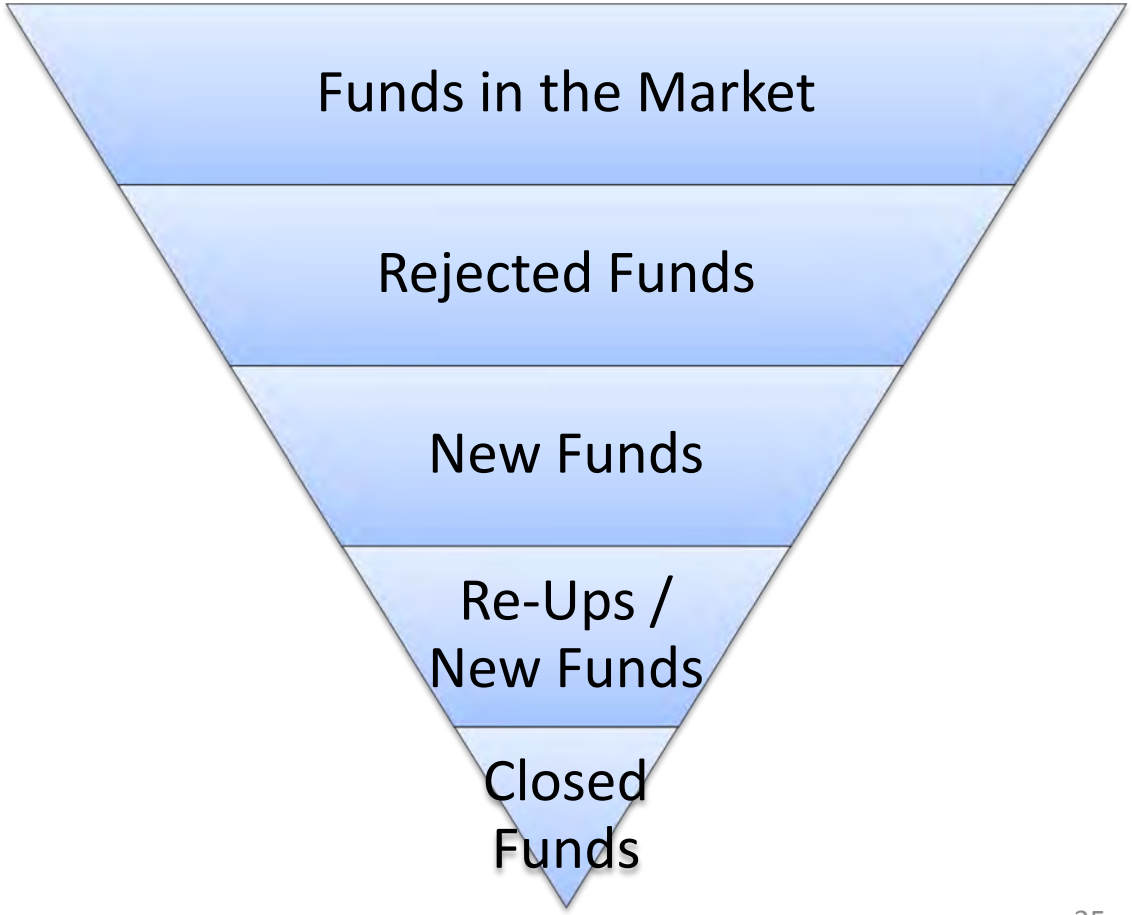
Due Diligence Process

Deal Sourcing

Network of Contacts

- Limited Partners
- Plan Sponsors
- General Partners
- Intermediaries
  - Placement Agents
  - Consultants
  - Service Providers
- Periodicals

Forward Calendar



Due Diligence Process

- ***<u>Due Diligence Defined:</u>***
  - An investigation or audit of a potential investment
  - Checklists used to ensure that the process is repeatable and disciplined

Due Diligence Process

Due Diligence Checklist

- ***Onsites with GPs***
  - Interview staff
  - Review systems, controls
  - Understand firm culture
- ***Standard Documents Reviewed***
  - Private Placement Memorandum (PPM)
  - Due Diligence Questionnaire (DDQ)
  - Limited Partnership Agreement (LPA)
  - Manager Valuation Policy
  - Quarterly/Annual Reports
  - Quarterly/Annual Financial Statements
  - SEC: Form ADV Part II

Due Diligence Process

Due Diligence Checklist (cont'd)

- ***Other Requests***
  - Conference calls
  - Key members of the team meets with MBOI's private investment staff in Helena
  - Investment memos
  - Limited Partner Advisory Committee (LPAC) Presentations & Meeting Minutes
  - Annual Meeting Presentations
  - Insurance Coverage
  - Industry Studies
  - Investor Rights Agreements

Due Diligence Process

Due Diligence Checklist (cont'd)

- ***Other Requests (cont'd)***
  - Placement Agent Disclosure Questionnaire
  - Manager Fee and Expense Questionnaire
  - All Funds Historical Transaction Attribution Analysis
  - History of Fund Secondary Transactions
  - Reference Checks: On-List and Off List (focus)
  - Confirmation of auditor
  - Google Search of Firm, Funds, and Individuals
    - Monitor Political Contributions in Montana www.fec.gov
  - Supplemental information requests from MBOI, templates to gather underlying investment level data

Due Diligence Process

Staff Review

- ***Discussion & Decision***
  - Presentation of Executive Summary Report by lead analyst to all team members
  - Discussion: Assess any issues raised and whether the conclusion justifies the recommendation Decision(s):
    - Investment in the Fund
    - Commitment size to the Fund
  - Identify issues to be negotiated during the legal review

Due Diligence Process

Legal Review

- ***Legal Review***
  - MBOI legal counsel reviews legal documents and presents report for staff to review
    - Compliance to any negotiated changes in fund terms
    - Compliance to any requested supplemental reports
  - MBOI legal counsel submits the completed and signed legal documents for a scheduled closing
  - MBOI legal counsel will later review any MFN provisions MBOI is eligible to elect for approval

Due Diligence Process

Fund Monitoring

- ***Fund Monitoring***
  - Provide Fund information to SSB: Private Edge Group
  - Review Quarterly/Annual Reports & Financials
    - Quarterly Internal Review (RYG) of MPEP/MTRP activity
    - Participate in manager scheduled Quarterly Calls (if any)
  - Schedule in-person, on-site meetings at MBOI
  - Annual General Meetings (AGM), selectively
    - Schedule meetings with existing and prospective fund managers in conjunction with AGM attendance
  - LPAC Membership (if any) Participation, selectively

Due Diligence Process

Resources Employed

- ***<u>Resources Employed</u>***
  - Internal Staff: Private Investments Team
  - Reporting: State Street Bank - Private Edge Group
  - Legal: Jackson & Walker/Luxan & Murfitt