These minutes are Approved and Final. Full Board review and decision took place at the August 16 & 17, 2016 Regular Meeting of the Board.

MONTANA BOARD OF INVESTMENTS
DEPARTMENT OF COMMERCE
2401 Colonial Drive, 3rd Floor
Helena, Montana
MINUTES OF THE MEETING – May 24-25, 2016

BOARD MEMBERS PRESENT:

Mark Noennig, Chairman
Karl Englund, Vice Chairman
Kathy Bessette
Quinton Nyman
Jack Prothero
Marilyn Ryan
Jon Satre
Sheena Wilson

BOARD MEMBER ABSENT:

Terry Cohea

LEGISLATIVE LIAISON PRESENT:

Senator Bob Keenan

LEGISLATIVE LIAISON ABSENT:

Representative Kelly McCarthy

STAFF PRESENT:

Polly Boutin, Associate Financial Manager
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
Tim House, Investment Analyst
Douglas Hill, In-State Portfolio Manager
Ethan Hurley, CAIA, Director of Private Investments
Ed Kelly, Investment Analyst
Eron Krpan, CIPM, Investment Analyst
Tammy Lindgren, Investment Accountant
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 Analyst
John Romasko, CFA, Investment Analyst
Nathan Sax, CFA, Director of Fixed Income
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.
Dan Snyder, Chief Operating Officer, Neptune Aviation
Jennifer Draughon, Corporate Treasurer, Neptune Aviation
Tom Swenson, President & CEO, Bank of Montana, Missoula
Daniel Day, Vice President, Bank of Montana, Missoula
Herb Kulow, CMB, In-State Loan Program (Contracted)
Ryan McCauley, BOI Intern

CALL TO ORDER

Board Chairman Mark Noennig called the regular meeting of the Board of Investments (Board) to order at 1:00 p.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 February 23, 2016 Board Meeting Minutes.

Member Sheena Wilson made a motion to accept the February 23, 2016 Board Meeting Minutes as presented. Member Jack Prothero seconded the motion. The motion carried.

ADMINISTRATIVE BUSINESS

Audit Committee Report

The Audit Committee met prior to the Board meeting. Committee Chairman Jon Satre noted most Board members were present at the meeting. Staff provided an update on the Legislative Audit Division, which was on site from April 20 through the first week of May, and may be back on site in June. There is a lot of work on the implementation of GASB 72. The Board's external auditors Wipfli were also on site starting the internal controls review; they will return in August. Staff has revised the Internal Control Policy, which the Audit Committee reviewed and approved; the Committee is recommending approval by the full Board.

Committee Chairman Jon Satre made a motion to approve the revisions to the Internal Control Policy. Member Sheena Wilson seconded the motion.

Deputy Director Geri Burton noted per Committee Chairman Satre's suggestion, additional language was added under *Part I. Purpose* stating the Executive Director, or in his absence the Deputy Director, is authorized to designate back up staff when necessary.

Member Sheena Wilson amended the motion to incorporate the delegation language. The motion carried.

Director Ewer provided an update on the properties owned by the Board. The appraisals are coming in and those received reflect values that are lower than book value. Staff will look at the accounting in relation to the possible acquisition process. The onsite camera project is continuing; BOI has signed the contract, which includes outside cameras and internal main lobby area cameras on each level.

Director Ewer advised staff is following up with local government entities that have not yet responded to requests for the new STIP Resolution.

Director Ewer also provided an update on the SIVs. It was determined to write off the SIVs at this time. The amount is currently about $24 million, which will go to $1.00. Any future payments received will go towards the STIP reserve balance. Approximately $7 million will remain in the reserve fund after the write down.

Chairman Satre advised the Audit Committee has been working on the Ethics Policy revisions. The Committee voted to recommend approval of the revised Ethics Policy to the full Board.

Committee Chairman Jon Satre made a motion to approve the revised Ethics Policy. Member Sheena Wilson seconded the motion.

Executive Director Ewer clarified, that if adopted, the Policy would take effect immediately.

There was no further discussion. The motion carried.

The Board agreed to defer the HR Committee report until tomorrow, day two of the Board Meeting.

Loan Committee Report

The Loan Committee met prior to the Board meeting. Committee Chairman Jack Prothero reported the Committee had several loans to discuss. INTERCAP loans approved included:

- a 5-year term loan to UM for $1,349,671 to complete interior of the Interdisciplinary Science Building, 3rd Floor;

- a $1.32 million loan to the City of Dillon, to refinance a $1.6 million 2009 general obligation (GO) bond. (The loan will lower the cost to the City for expenses related to the transfer of the City's police retirement system to the states' pension system.);
- a $1,876,000 interim loan to the Prairie County Hospital District in anticipation of federal long-term financing for hospital building improvements;
- a $3 million interim loan to Ruby Valley Hospital District in anticipation of federal long-term financing to build a new critical access hospital; and
- a $1,650,000 interim loan to Gallatin Gateway Water & Sewer District in anticipation of federal long-term financing for wastewater sewer improvements.

Chairman Prothero stated the Committee also considered four loans for the In-State Loan Program. The first loan is to Neptune Aviation Inc. (Neptune) a participation loan with the Bank of Montana, Missoula. The BOI portion is $14,680,000, 80% of the total loan amount of $18,350,000; the loan term is 7-years. The loan will be used to buyout current aircraft leases decreasing costs for Neptune. Collateral will consist of the existing planes. The loan will be guaranteed by Marta A. Timmons, President and 100% owner, and Chairwoman of the Board of Neptune Aviation Services, Inc.

> Loan Committee Chairman Prothero made a motion to approve the loan as presented. Member Quinton Nyman seconded the motion. Member Karl Englund advised he would abstain, due to a relationship with the participating bank, Bank of Montana, Missoula. The motion carried.

The second loan considered by the Loan Committee is to Sleeping Giant Beverage Company, Inc. dba Lewis & Clark Brewing Company for $3,990,000. BOI's 70% participation amount is $2,793,000. The loan term is 10-years and will be used to finance new brewing equipment. The Committee approved the loan, which does not need full Board approval.

The third loan combines two projects into one loan totaling $23,117,010 for locations in Missoula and Billings. A participation loan with the Bank of Montana, Missoula, the borrowers are Bretz, Inc., Tour America RV, Inc. and Teton Acceptance, LLC, a real estate holding company yet to be established. BOI's participation is $15,189,608 (66%), for the combined Missoula and Billings projects. The loan will be used to provide financing for purchase of additional land and construction of new buildings at each location to expand the RV dealership related to each project. The dealership was started in 1967 and has expanded to become the largest in the region. The Loan Committee is recommending full Board approval.

> Committee Chairman Prothero made a motion to approve the loan as presented. Member Kathy Bessette seconded the motion. Board Chairman Mark Noennig recused himself from the vote due to an attorney/client relationship. Vice Chairman Karl Englund abstained, due to his relationship with the participating bank, Bank of Montana, Missoula. The motion carried.

The fourth loan presented to the Committee is to Community, Counselling and Correctional Services, Inc. (CCCS) located in Butte. The loan is a participation loan with Opportunity Bank of Montana, Butte. BOI's 80% participation is $4,106,400 of the total loan amount of $5,133,000. Loan proceeds will be used as term financing for Galen Facility improvements and to refinance an existing loan BOI participates in with Opportunity Bank for $4,283,000. The loan has a term of 20 years and was approved by the Committee; it does not require full Board approval.

Member Wilson noted for the record, that all Board members attended the Committee meeting and conducted thorough discussions on the loans presented to the Committee.

<u>Public Employees' Retirement System (PERS) and Teachers' Retirement System (TRS) Updates</u>
Member Marilyn Ryan reported the TRS Board met May 13. The Board set the quarterly defined contribution retirement fixed income interest rate at 0.55%; it also renewed contracts with Ice Miller and with Cavanaugh Macdonald Consulting, LLC as actuary. Looking ahead to the legislature, the Board expects mostly housekeeping items. TRS has completed the collection of information for the Helena Independent Record (IR) request, which asks for the names of those who received benefits for the last four

years, the amounts received, as well as where the retirees worked. It has been a contentious issue, and many teachers are upset that their income/names could become public. TRS has compromised with the IR on all items except for the release of names. TRS does not know yet if the IR will take further steps to require revealing of names. Member response opposing the release of names was quite strong; and although it is public retirement, it comes partially from each individual financing of their own retirement. PERS Board President Sheena Wilson reported that PERS is dealing with same IR request, but have not acted yet. MPERA Executive Director Dore Schwinden and TRS Executive Director Shawn Graham will meet with the IR in two weeks, after which the Board will meet and discuss again. The meeting is expected to be contentious. The 30,000 PERS members will not be notified until final negotiations with the IR have been completed. Member Wilson stated if the Board releases names, they must notify the members, and added she believes the names of retirees is public information. The computer project go live date has been delayed and is now expected to occur the first pay period after June 30. Local government officials suggested that using the close of business day, which coincides with the close of the accounting year, would be helpful to local governments.

Legislative Liaisons Comments

Senator Bob Keenan stated the legislature is in sleeping mode now through the interim. Representative Kelly McCarthy was absent.

EXECUTIVE DIRECTOR'S REPORT

Overall Comments

Executive Director Ewer presented his Executive Director Report, including the following items:

- Follow up from prior meetings; all items from the prior meeting have been addressed.
- The quarterly cost report and snapshot are included in the packet.
- Staff have presented the Administration with the option to pursue purchase of BOI owned buildings, except for the Colonial Building. The issue will be researched; however, it would be a long process as part of the long-range building bill in the legislature.
- As part of the Systematic Work and Education Plan, the custodial banking relationship is reviewed every two years. Two memos are included in the Board packet, one from staff and the other from RVK. Any questions about State Street Bank or custodial banking in general are welcome.
- Ethics was covered earlier in the agenda as part of the Audit Committee.
- The Governance Policy requires staff to make recommendations on the budget submission. The one important thing this time is staff's recommendation to seek one additional full-time employee (FTE).

Executive Director Ewer stated staff is recommending to the Board that it make an official request for one FTE. It is an FTE BOI previously had and so it would be a recapture. Staff is asking for Board approval to pursue an additional FTE for an investment analyst, although it has not been determined whether the position will be used for fixed income or public markets. Half of the analysts on staff are currently private investments analysts.

Vice Chairman Englund added the issue was discussed thoroughly in the Human Resource Committee and all Board members (in attendance at the general meeting) were present for the discussions of staff reorganization.

> Vice Chairman Englund made a motion to authorize staff to pursue the request for an additional FTE. Member Marilyn Ryan seconded the motion. The motion carried.

Montana Domestic Equity Pool – Asset Class Review

Chief Investment Officer Joe Cullen stated the deep dive into domestic equity is part of the broader Work and Education Plan; staff plans reviews of other asset classes at future meetings. The Public Markets Manager Evaluation Policy and the new Public Retirement Plans Investment Policy are included in the packet for reference. Mr. Cullen reviewed the current pension allocation as of 3/31/16. Domestic equity is the largest slice at 37.5%. Clearly, the domestic equity pool plays a significant role in the pension plans in order to reach the actuarial return of 7.75% through growth of assets, and expected return is a major driver for pension plans. However, equity is expected to remain volatile, which has been factored in as part of the plan. The risk tradeoffs are weighed against the ability to achieve the expected goals of the plan. Public equities are liquid assets, even more so than international equities, and can be transacted on short notice to turn a position into cash. There are no liquidity concerns within the pool or within the plans. The main objective is to attain the highest possible total return within the risk guidelines as laid out in the investment policy statement. Staff expects to achieve long-term returns in domestic equity, spread across a broad spectrum of assets, industries and sectors, and utilizing different managers. Risk is analyzed for a number of aspects for both the pool and the plans. Although most domestic equity is based in the U.S., it has a global reach that generates revenues and provides a wider economic exposure.

Mr. Muffick reviewed the asset class details of the pool structure. The theme that drives structure starts with diversification; making sure too much risk is not placed with any group of stocks or a particular manager. There are certain parts of the equity market where it is easier or more difficult to add value with external managers, and therefore staff chooses to pay managers/fees where we believe they can add value. Mid and small caps are isolated by design. The strategy is to actively manage them if we can identify active managers that can add value, which is a cost effective approach to fees. By utilizing technology there is a lot of information available on large caps, therefore we typically index large caps and overweight small and midcaps.

The current pool structure is dominated by large caps and includes small and midcaps; the benchmark is the S&P 1500, which is standard. The goal is to perform at least as well as the benchmark; otherwise we would just index assets. Market capitalization ranges and manager style diversification are also used to reduce risk. The diversification can be seen when the sector exposures are rolled up.

The domestic equity pool is about 42% actively managed, including managers, and 58% passive. Midcap allocation is more than small caps and the pool is diversified by manager.

Member Satre asked how long the overweight in small and midcaps compared to the benchmark has been in effect and whether that overweight has paid off.

Mr. Muffick for about 3-4 years, since the restructure was done, although prior to that time the pool also leaned overweight. Over the long term it generally pays off, and although volatile, small/midcaps will provide a higher rate of return. This is true particularly with midcaps, which have grown up from small cap companies, but generally, they have more growth potential than large caps, or can be takeover candidates.

Director Ewer asked what the company size is for midcaps in the S&P 400.

Mr. Muffick stated between $20-25 billion for midcaps as fully matured companies.

Mr. Cullen pointed out the overweight in small and midcaps is for two reasons, the long term expectation for outperformance of midcaps relative to large caps, which is consistent with RVK's view; and beyond that, the belief that the managers using active selection within the small/midcap segment will add value.

Member Karl Englund asked Mr. Cullen if he was comfortable with the current strategy.

Mr. Cullen replied yes, and the themes are consistent with industry. Other plans may not feel as comfortable with the overweight of small and midcaps; however, staff is comfortable with the risk expectations and the need for returns.

Member Englund asked Mr. Jim Voytko if he concurred.

Mr. Voytko stated yes, and it is consistent with the market assumptions that RVK presented to the Board. Additionally, it has borne out over the longer term. Some plans may be market weighted if they do not want to make the bet, or if they are unable to tolerate the extra volatility. As a perpetual fund without liquidity constraints, BOI has the luxury of not worrying about it.

Mr. Cullen added valuation matters; although a longer-term philosophy, if staff thought small and midcaps were overpriced or too high risk, allocations would be adjusted.

Member Satre asked what the typical size is for a private equity company.

Mr. Cullen stated it varies on a wide spectrum from small to mega-cap range.

Member Satre asked if the small and midcaps held in private equity result in a higher BOI overweight in small and midcaps due to the private equity holdings.

Mr. Cullen stated if included in total equity, which includes private equity, it probably does increase the space in small and midcaps; however, staff is comfortable with the risks taken in those spaces. As Mr. Muffick stated on the public market side, when dealing with the largest firms in the world, you need to ask, what do you know that other people do not and when exiting, who is the natural buyer? Small and midcaps may be acquisitions of those large caps. Staff can look through the portfolios and are aware of where companies are represented in the market.

Mr. Voytko agreed, adding to keep in mind if a small cap is bought by a private equity firm and moves it into the private equity universe, there may be a small increase in private equity holdings. The overweight in small caps within the public and private universe is an additional overweight, but it is not significant.

Director Ewer stated in identity terms, a small cap is still small with under a $3 billion market cap, and asked Mr. Hurley how that relates in terms of a buyout.

Mr. Hurley stated it ranges typically between $20–25 million.

Director Ewer noted a small cap is much bigger than private equity firms' typical buyouts with revenue of $25 million dollars.

Mr. Voytko added in public markets for small cap investments, your manager has to select one company over another; in the private equity world, you have the power to change the company, so an additional source of return is available.

Mr. Muffick stated that for small caps vs. private equity, the cutoff is $3 billion between small and midcap; therefore, within small caps we do have some microcaps.

Mr. Voytko stated BOI was previously significantly overweight in mega caps and very dependent on large cap companies. Over the years, the policy has evolved.

Mr. Muffick reviewed the types of portfolios within MDEP. There are investments in comingled funds and separate accounts within the pool; separate accounts are the active managers. Managers are hired and they adhere to BOI investment guidelines and are managed like portfolios. Comingled funds occur when Montana is invested into one fund, and BOI is just one of several investors in that fund. Staff prefers separate accounts, which allows more say in the investment guidelines, which provides more control.

Member Satre asked if separate funds charge higher fees.

Mr. Muffick replied, generally yes, the fees are somewhat higher.

Mr. Cullen noted the higher fees come with the benefits of separate accounts, such as greater control.

Mr. Muffick stated for different types of portfolios, a manager could mimic an index such as the S&P 500, or an enhanced index, which is a variation of it. Managers are very cognizant of the benchmark; however, it requires taking some risk to decide what stocks will do better than the index. There is a 90% chance that a manager will be within a 150 basis point deviation, but they should still be close to the benchmark. For long only portfolios, most is in active management. There are two different disciplines: fundamental and quantitative.

Fundamental managers look at the fundamentals: balance sheets, income statements, markets, competitive positions, and calculated earnings estimates. Quantitative managers take a mathematical approach and manage by computer models; MDEP has approximately 20% of the pool assets invested in quantitative strategies. They look at the factors such as earnings and price to book, and then computers are programmed to pick stocks. The system can be based on price movements of a certain stock over time.

Member Prothero asked if the 20% quantitative is too high.

Mr. Muffick stated he is comfortable with that level; quantitative can add value. When you have a consistent economic environment, such as a long economic expansion/bull market, the models work well. When markets are volatile such as the great financial crisis (GFC) or a terrorist attack, then the models do not work as well. Models do not adjust to big market changes, but they do manage well for the long term. Pre-2008, BOI's quantitative level was higher; it has been reduced to the current level of 20%.

Mr. Cullen added the strategy agrees with staff's conviction in the process over time, as well as the value of not putting all your bets into one thing. It takes careful analysis and judgement.

Member Englund asked Mr. Cullen if he agreed with the philosophy of the 80/20 split.

Mr. Cullen stated the right split is based on a forward-looking view. The more the market heads in one direction, the more these managers will do well; but if you think the market will be more volatile, you would tend to lower your exposure to quantitative. The percentage is dynamic and will change over time.

Member Englund asked what the expected level of fluctuation is over time.

Mr. Cullen stated it is more on the margin; staff does not expect to make big changes. Staff conducts the manager research to determine whether we think they can add value over the benchmark.

Mr. Muffick added investing is more art than science. When it comes to quantitative vs. fundamental, staff is flexible and works through a process and know we want more fundamental than quantitative.

Mr. Cullen added fundamental and quantitative are not that different; quantitative looks at what you can build into the numbers, although often the lines are blurred from day to day.

Member Satre asked if we have any high frequency traders.

Mr. Muffick stated no, although Intech resembles one, they are not high frequency traders.

Mr. Cullen stated managers use very advanced trading techniques and staff bias is to look at many different factors for managers.

Mr. Muffick reviewed the last type of portfolio used, which is partial long/short. Used in the large cap area, these managers have long positions and short some stocks to take advantage of both sides of the market. It has worked well in large cap areas; value can still found within large caps in this type of approach.

BOI uses BlackRock for three index funds, large, small and midcaps, and uses BlackRock iShares instead of an index fund as it offers better liquidity within the small caps. For the active portfolio mostly in the long-only staff uses value, core and growth. Currently there is an even balance between managers.

Mr. Muffick stated diversification is key, using both index and active management with a complementary mix of active within style, methodology, and market capture profiles, as well as how managers are grouped.

Some do well in down markets, some better in up markets, and staff reviews the correlation of return history comparing managers to each other over time. Guidelines within the pool restrict cash to no more than 5% and can be raised at the plan level. Currently the cash level of the pool is 2.9%; however, that does not take into account the manager cash levels.

Mr. Muffick reviewed fees and costs and noted fees have been reduced substantially; and those remaining are mostly in small, midcap and long/short managers. CEM monitors BOI fees and the most recent study showed below average fees with above average returns. Mr. Muffick thanked Eron Krpan for compiling fees by market cap. At 3/31/12, the expense ratio was 36 basis points and at 12/31/13 when changes were implemented that declined to 24 basis points. While it does not sound like much, on a $3.7 billion equity pool it adds up. Fees are the same now as when the last deep dive was completed, two years ago. Costs have been maintained very well since the cost structure was put into place.

Member Englund asked if Mr. Muffick, Mr. Cullen and Mr. Voytko were satisfied with the value/bang for the buck.

Mr. Cullen stated yes, but we always strive to do better. Staff realizes fees must paid for active strategies, but the net of fee performance is expected to be greater than for index funds.

Responding to questions from Member Englund, Mr. Muffick stated staff was a bit surprised that fees remained exactly the same as two years ago, although thought it would be close. Portfolio fluctuations also have an effect on fees paid. A further reduction in fees is not necessarily the goal, but rather adding value with manager selection.

Mr. Cullen added that costs are driven by index vs. active strategies; a year from now, if active management has a higher weighting, fees will be slightly higher. It is a key component always considered.

Mr. Voytko added there are boards where lower cost is always preferred, but you cannot run a portfolio on low fees only. If so, you would purchase only treasury investments; and while you would have low fees, returns would be incredibly low. Fees and returns are connected. If you pay fees above the passive fee returns, you want that reflected in return. Never pay more for an investment product than a similarly situated investor is paying. Factors include how big the pool is, as there are volume discounts, and what restrictions you place on managers.

Member Sheena Wilson stated we read about negotiating fees, but how much is actually possible.

Mr. Voytko stated it is possible, but only up to a point.

Mr. Cullen added with comingled funds, while they may have discounts, you really do not have room to negotiate. On separate accounts, the mandates are the same as other large pension plans. Our ability to negotiate is limited. However, it is still important to monitor fees and you can always ask for lower fees.

Mr. Voytko noted one thing RVK can help on is the spectrum of fees, since some of the 200 clients have the same mandate as BOI. Fees can be worked on continually, and if a manager fears an outflow of assets due to poor performance, it is worth discussing with them, as you may be able to take advantage of an opportunity.

Member Englund asked about the mechanism for doing so; to negotiate for lower fees.

Mr. Cullen stated BOI uses fixed fee structures, and generally fees go down with more invested assets. However, there are also performance-based fees. Private equity fees are mostly performance-based. With equities, you could option for performance-based fees to negotiate lower rates, but then you share if there are big upside gains.

Mr. Voytko added some managers do not do performance fees in the public market.

Mr. Muffick reviewed due diligence and monitoring of managers. Staff monitors on a daily basis; when a manager is hired staff sits down and hammers out criteria for the investment guidelines. Managers are given basic latitude but also have certain limits such as American Depository Receipts. Although trading is allowed, ADRs are limited for foreign companies they are invested in; the same as exchange traded funds, limits are set, usually at 5%. Managers use them to sell a stock but if they do not want to buy another stock, to stay fully invested, ETFs are allowed. Derivatives are prohibited, but futures are allowed in partial long/short, and prohibited in long only portfolios and there are limits for managers on cap size. The current manager investment guidelines fit in with the contract.

Mr. Muffick reviewed the evaluation process for managers. Using the Public Market Manager Evaluation Policy, staff evaluates managers using a scorecard, which has evaluation criteria. Analysts score the managers after quarterly reviews; and although not a numerical score, staff does look at it. All managers are reviewed quarterly and staff has a discussion with them.

Useful resources such as FactSet are used, an attribution of how a manager is doing, and staff develops a chronology of events, keeping track of when they were added or if there are changes in managers. Onsite visits will be increasing and the idea is to develop a bench of managers, making it easier to change from one manager to another if it becomes necessary. RVK also has a database of managers, which is a good reference for staff.

Member Marilyn Ryan asked what staff looks for during an onsite visit.

Mr. Cullen stated it comes down to execution, to see how their process works and the culture of the firm, which is only visible when you go there. You follow through on their process, how much is judgement and how much is mechanical. An on-site visit is usually a confirmation of what has already been discerned.

Responding to a question from Member Englund regarding frequency of visits, Mr. Cullen stated visits are ad hoc as needed or when there may be an issue; it could be each year or every two years. For all public market managers, execution is what differentiates them from each other.

<u>Bloomberg Demonstration</u>

Mr. Muffick provided a brief demonstration of the Bloomberg system and how staff uses it as a monitoring tool. Bloomberg has a plethora of options; providing information on where the markets are, both in the U.S. and other parts of world, and all kinds of information, including headlines. If we know a manager owns a stock and there is an issue, staff can access the latest information, rather than calling on the manager; those things are covered on the quarterly calls.

Mr. Cullen stated Bloomberg is worth the high price, and is a very efficient way to gather information.

Mr. Muffick added it allows staff to check on any publicly traded managers.

Mr. Cullen explained on the equity side, staff does not load the individual manager holdings on Bloomberg, although some fixed income managers are loaded on Bloomberg. It is very useful for providing information relevant to economies and the market.

Mr. Muffick added it is useful to see earnings announcements as many companies wait until the market closes to release them.

Member Satre asked which staff has Bloomberg at their desk.

Mr. Cullen stated not all of the investment team has Bloomberg at their desk, although Mr. Muffick, Mr. Zarling, Mr. Tim House and Mr. Eron Krpan all need it from a compliance standpoint. The private equity team members do not have it.

Executive Director Ewer stated Bloomberg has more information than you could ever possibly need.

Mr. House stated Bloomberg cost is $400,000 per year, or $1800 a month per machine. It can be used to set up compliance rules, for example, no single issuer above 3%; the system will flag it and send a notice to someone on the compliance team to override. Investment policy ratings can also be programed in.

Mr. Cullen added limits can be placed on the level of access for each staff member; for instance on the fixed income side ratings or specific information on bonds can be accessed. Staff will present a more in depth look at the internal fixed income team's investment process later in the year; it is important to note staff could not manage fixed income in house without Bloomberg.

Responding to a question from Member Englund, Mr. Cullen stated Bloomberg training and online help are great, and service is top notch. There are other options, but Bloomberg is the leader.

Mr. House added he has been talking to his Bloomberg contacts each day with new compliance questions and he agreed it is the industry standard.

Mr. Muffick summarized future considerations for MDEP. It is such a large pool, it is usually the source for funds when liquidity is needed. Stocks and index funds are very liquid and cash is taken mostly from index funds, but that may change. When a manager gets close to their ceiling, sometimes manager funds will be sold to bring them back within range.

Mr. Muffick stated for the ongoing manager selection process, staff is looking forward to looking at prospective managers, along with possible site visits. The new pension policy statement was approved by the Board in April, and staff will be looking at broader categories of active/passive and small/midcap.

Member Englund asked if there is anything we are not doing.

Mr. Cullen replied, quite a bit, but that is by choice. With the ongoing manager selection, you want to always be aware of what you are not doing, and possibly should be. There is a long list of managers and strategies BOI is not doing. If staff finds something that would add value, steps would be taken to implement it and bring it to the Board.

Director Ewer added he and Mr. Cullen have discussed the outlook and one thing Mr. Cullen brings is attention to the process. It costs money to do due diligence, which has implications on the budget, such as travel requests. Staff has an obligation to visit managers who are managing millions of dollars in assets.

Mr. Cullen noted staff will address asset classes and asset allocation at future meetings. We expect to remain within policy, but will look at strategies, and whether there are managers that are better suited to our strategies. Some may be complementary to managers we currently have. Staff will look at whether we need to make changes by strategy, and we will explore managers. Staff is also looking at both active and indexing approaches; if we want to go to 100% index we could. Monitoring managers is key; staff will likely stay index focused in the large cap area, and do not expect much change in the small/midcap allocation. A review of international will take place at a future meeting; such as whether there are active strategies staff should be looking at.

Montana In-State Loan Program

Mr. Doug Hill provided a recap of the In-State Loan Program. The commercial loan portfolio balance as of April 30, 2016 was $104,760,459 made up of 104 individual loans. Loan reservations decreased due to the loans approved today, and commitments increased from $25 million to $61 million. The portfolio yield is 3.75%; with under $9 million past due. There are four loans 30 days past due, although BOI has very little exposure. Shoot the Moon is in bankruptcy and Mr. Hill added he talked to the lender yesterday. The lender is going to petition the bankruptcy court to remove one of the properties; the one that BOI is participating in. If the property is removed, BOI can foreclose and obtain the property to sell. BOI has a potential loss of $100,000 to $200,000, depending on the amount it sells for; the property is in Great Falls. The other two past due loans are guaranteed by Rural Development.

Mr. Hill noted he and Mr. Kulow traveled to Butte, which was a great opportunity to meet contacts. Mr. Kulow received recognition from the economic development community and added Mr. Kulow has laid out important groundwork for BOI programs.

Mr. Hill reviewed the Residential Loan Program. As of April 30, 2016, the portfolio has a balance of just over $8 million; the program not being used as program interest rates are above the current low market rates. There are three loans over 90 days past due, two are FHA insured, and the other is a conventional loan with a low balance.

Mr. Hill reviewed the Veterans' Administration (VA) Loan Program. The portfolio balance is just over $30 million and there are seven reservations totaling $1.4 million. No loans are past due.

Member Englund asked if activity for the VA Loan Program has slowed down.

Mr. Herb Kulow responded it has; the portfolio balance has hovered around $30 million for the past few months. Payoffs per month total about $200,000, which is enough to fund one loan per month and activity has slowed a lot over the last year. Most individuals that were eligible have applied already. About $9 million of a total of $40 million is currently available.

Mr. Englund asked if the Board of Housing administers the program and if they actively market it.

Mr. Kulow stated yes and yes. There is a meeting planned in Kalispell where they will bring lenders in and talk about the programs a little bit. Mr. Kulow stated the third week of June he and Mr. Hill will meet with First Interstate Bank and other lenders in Billings, Stockman Bank in Billings, and in Miles City they will meet with Stockman Bank's corporate office and credit analysts. Mr. Hill made a presentation to the Great Falls Association of Realtors in Great Falls and met with the Great Falls economic development organization; he also visited Loenbro and ADF. This has made the transition easier and promoted BOI products.

Mr. Hill stated he toured the Garnet mine three weeks ago and included in the Board packet is an article, which mentions BOI. Mine staff is happy with the progress.

Member Sheena Wilson asked if ADF is feeling the effects of low oil prices.

Mr. Hill responded that Loenbro is, but they are managing with a lot of work, are making money and they are bidding on new projects.

Mr. Kulow added with ADF, BOI financed the manufacturing, and ADF financed the paint shop. They are winding down the paint shop, but the main facility is going strong.

BOND PROGRAM REPORTS

Activity Report

Ms. Louise Welsh reviewed the quarterly Activity Summary Report and staff approved loans as of March 31, 2016. This quarter FY16 commitments have jumped up, and staff is busy. Staff approved loans included five new borrowers to the program this quarter, including Rapelje Water & Sewer District to refinance an existing federal loan to install a water pump, and Hungry Horse Rural Fire District to refinancing an existing loan on two fire engines. Another loan was to Lockwood Rural Fire District, for a new fire engine.

Director Ewer noted Lockwood was a private fire district that converted to public.

Member Satre asked why the increase in new clients.

Ms. Welsh stated staff has been doing a lot of outreach. There is always a turnover of trustees so it is beneficial to get out and conduct education on an annual basis.

The meeting adjourned for the day at 4:01 p.m.

CALL TO ORDER

Board Chairman Mark Noennig called the regular meeting of the Board of Investments (Board) to order at 8:30 AM. 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.

ADMINISTRATIVE BUSINESS

Human Resource Committee Report

The Human Resource Committee met yesterday prior to the Board Meeting. Committee Chairman Karl Englund noted most Board Members were present. The Committee discussed two matters that need Board decisions. Each year the Committee updates the salary ranges in the Exempt Staff Pay Plan in accordance with the McLagan Public Funds Compensation Survey and The Montana/Wyoming Bank Salary Survey. The Committee is recommending the new salary ranges be adopted into the Exempt Staff Pay Plan.

> Committee Chairman Englund made a motion to implement the new salary ranges into the Exempt Staff Pay Plan. Member Marilyn Ryan seconded the motion. The motion carried

In accordance with the new pay ranges, the Committee performed their annual review of exempt staff and implemented pay increases for existing exempt staff (except those newly hired), effective at the beginning of the next pay period.

> Committee Chairman Englund made a motion to adopt the new pay rates. Member Ryan seconded the motion. The motion carried.

On behalf of the HR Committee, Chairman Englund thanked Mr. Cullen, Director Ewer and staff for all their hard work. The annual process takes a lot of time to carefully review the surveys and analyze the staff positions.

CONSULTANT REPORT

RVK, Inc. – Mr. Jim Voytko

Mr. Voytko presented the RVK quarterly performance report for the quarter ending March 31, 2016. Mr. Voytko explained the new format for performance is divided into two parts, the executive summary and a deeper dive into the composites of the fund. The executive summary is at a higher level, reviewing general market themes. The fund is doing very well, and has consistently done quite well once it embarked on a turnaround several years. We are entering a new phase now, capital markets harken back to those we discussed during the great financial crisis. With only one exception, asset classes have not returned for institutional investors. For one year, only real estate exceeds the actuarial rate of 7.75%. The Board took the move to get into real estate; both the decision and the Board's patience are paying off. In years like the last one, real estate is the only asset that provided substantial returns.

Going back to Mr. Muffick's comments, inside domestic equity, the S&P 500, Russell 2000 and trailing small caps, we have increased the outlook for small caps due to the trailing differential. The vast majority of domestic equity, the largest part of the growth engine of the portfolio, falls significantly short of the fund actuarial investment rate of return. To summarize, it has been a difficult year. This has created a situation which, if it continues for a couple of years, there could be actuarial losses. The contribution policy may come into play, although the legislature determines any adjustments to contributions. For large cap equity, the domestic equity market is selling at close to all-time highs. For funding expectations of the plan, the news is better when looking at the 5-year return; however, that includes the recovery from a great bull market. Corporations reduced their borrowing for several years after the GFC, but they have increased it as of late and are buying back shares. Opportunities for substantial absolute increases in asset class values and the fund in general look uncertain today.

Mr. Voytko reviewed the MBOI Total Fund Performance, and noted the fund is doing very well for the 3, 5 and 7-year numbers, net of all fees, as returns are right on or very close to the actuarial rate. The portfolio has done its job in supporting the need and the ability to pay benefits. The trailing one-year return is not as impressive, and although it is just one year, it is a factor in the scheme of things looking forward. However, the plan has done well over quite a few years.

Member Satre asked Mr. Voytko to explain the Actual Allocation Index.

Mr. Voytko explained the Actual Allocation Index looks at performance of absolute returns, what is expected for the plan as a whole and relative to the benchmark, as well as how well the program is structured and how performance compares vs. benchmarks vs. composites. You have the least control over absolute returns.

Actual Allocation Index reflects how well manager selection and mandate creation have performed. You can see how well the fund would have performed if we had hit the index or median return for each asset class. Most other funds use a policy portfolio; a policy portfolio would have its own, imaginary, return. The difference can be in the ranges, the amount of money you have, the actual allocation vs. policy allocation. Actual Allocation Index measures mandate creation and manager selection, which can be mathematically separated to determine how the fund performance has been hurt or helped by asset values or manager choices.

Chairman Noennig asked if the rate of return is based on the actual allocation.

Mr. Voytko stated the actual allocation is used as a measure to create the benchmark, which then compares the difference between the benchmark vs. the plan "policy portfolio" changes.

Director Ewer asked if that is the same as the composite benchmark.

Mr. Voytko explained the composite benchmark relates to a particular asset class; the policy portfolio allocation vs. the actual allocation when measured at any given time. If you knew nothing at the total fund level, performance of the portfolio vs. expected for that particular asset class mix. Because you have a lag in the portfolio, it is not exactly reflective, although it starts to converge over the long term. However, at any given quarter, private equity can fall behind simply because the public markets have moved ahead and they are marked to market daily. Over 10 years it shows manager selection and performance have harmed the fund a bit over time.

Mr. Voytko noted part of the policy benchmark or actual allocation benchmark is driven by BOI expectations for various asset classes, such as the 400 basis points hurdle that private equity has to jump over to produce a positive effect. RVK has said a number of times, the 400 basis points is a big hurdle to jump over, particularly over last 3, 5 and 7 years when public equity markets have done very well. If you run private equity at just 200 basis points over the public market, then actual performance for actual allocation would come down, and relative performance would go up. BOI's aspirations account for a large part of it.

Director Ewer observed it is the identical benchmark we have seen for years, the public employees benchmark is the same, and all benchmarks are applied to whatever the portfolio is; the PERS benchmark is the same. The actual allocation index is identical to the PERS benchmark, the Boards' chosen benchmark by asset type applied to the actual mix.

Mr. Voytko stated yes, that is correct, the pension funds function with almost identical asset allocations. You are unable to see the effect of fund performance, for example, whether or not the underweight of fixed income has helped or hurt the portfolio. BOI may want to consider going to a policy portfolio that is driven by the center point of those ranges.

Director Ewer stated that while he does not disagree with the concept, CEM is effectively a policy benchmark tool, which staff has used annually for the past five years. A policy benchmark would change the focus of the CIO. The status quo is that CEM does have a policy benchmark frame of reference. You would not have the benefit of drifting past the midpoint, a fixed policy weight is controlling.

Mr. Cullen stated that later this year staff would review the topic of ranges vs. recognized midpoints vs. ranges with targets. One could argue targets would be more useful for private equity and real estate; although the fact the portfolio is under or over weighted would be a tradeoff. The current structure does not allow use of the target method.

Mr. Voytko reviewed the highlights of total fund performance. Comparing absolute returns vs. the expected absolute returns, how is performance vs. our personal aspirations and vs. other institutional investors who may be of similar situations? We are finding within the public fund universe that individual boards are pursuing their own paths driven by their asset allocations, funded ratios, liquidity needs and risk preferences. For public fund universe peer comparisons, although none match precisely, when compared to funds of similar size and purpose, BOI is doing extraordinarily well. BOI peer rankings show an astounding record in the top percent over 1, 3 and 5 years, and the top decile for 7 and 10 years. BOI is succeeding greatly on a risk/reward basis.

Mr. Voytko presented an overview of U.S. active management, which is doing more poorly vs. passive benchmarks over time. As a general rule, active management has an improved chance of beating the benchmark. For active managers as a group compared to the benchmark, the group of outperformers has been smaller and underperformers larger. This differs substantially according to type of manager; small cap managers have not done so well, while international active managers have done better.

Member Prothero observed it seems active managers are unable to beat the benchmark.

Mr. Voytko stated it is not necessarily a blanket statement; and you must consider what works best for the portfolio, whether active or passive. When you look at the sub-asset classes there are vast differences. Most studies have been done on mutual funds, net of fees; the median is north of 100 basis points, which institutional investors do not pay. It is a challenge to beat the benchmark; when you use active management, you want the odds in your favor. The goal is to create a selection and decision-making process that makes your process better, then you monitor and make exit decisions carefully on who to keep and who to fire. BOI is better than its peers are for making manager selections.

Member Satre asked if there is still the belief that active managers perform better in a down market.

Mr. Voytko replied while that used to be the case, things have changed. Over the last 10 to 15 years, institutional investors have curbed managers' ability to hold cash, since the index has no cash. Investors tell managers not to try to time the market, but to invest according to the mandate. Managers used to have more latitude to "time the market" but there is less of that now and it is not as pronounced as it was.

Mr. Voytko noted the issue of active vs. passive management is a hot topic and added he will serve on an upcoming panel in Chicago with CIOs, some with active management and others with up to 80-90% passive management. Private equity has the performance lag and the 400 basis points hurdle. Private equity should provide higher than expected returns over time for taking blind pools and investing money for a 10-year plus commitment; however, whether it amounts to 100 or 400 basis points, there is no algorithm of what it should be. BOI is on the high side.

To recap: absolute returns are trending lower, fund performance vs. aspirations shows a shortfall, but it is against your own aspirations. As best in its peer group, BOI is doing an outstanding job. The 1, 3, 5, 7 and even 10-year numbers look good. If you recall, the 10-year number was not so good for a long time.

INVESTMENT ACTIVITIES/REPORTS

STIP Investment Policy Statement Review – Joe Cullen CFA, CAIA, FRM

Mr. Cullen stated staff would first present proposed revisions to the STIP Investment Policy, followed by the investment presentation materials. In the past staff has presented by groups: equity, fixed income, private equity, etc. With the new format, staff will use a breakdown more in line with the annual report and the clients BOI manages money for, such as state operating funds, pension funds, trust funds and insurance funds. The main focus is not just pension assets. Additionally, there are changes in the details of the written materials. The below investment grade names will be included more infrequently, rather than each quarter. Presentations will allow more time for questions from Board members. Staff will not be reading from or reviewing all written materials included in the packet.

Mr. Cullen presented the highlights of the revised STIP Investment Policy. Many changes are format changes to align with the policy updates approved at the April meeting and to simplify the policy. Changes in the first eight pages are mostly formatting and condensing of materials.

Member Satre noted one item he would like to see included is on the reserve fund, which was discussed in the Audit Committee. The STIP policy should include a formula, or spell out what the purpose of the reserve fund is, what it should be used for, and what amount it should be.

Mr. Cullen stated he agreed. Staff wanted to update the investment guidelines, given the recent use of the reserve fund, which should be spelled out from a policy standpoint. Currently, the policy includes a general reference to the reserve; staff expects to propose changes outlining more detail. Although new guidelines will be implemented, staff judgement will still be a consideration for use of the reserve; staff is currently working on the revisions.

Mr. Cullen reviewed highlights of changes in the STIP policy *Appendix I: Investment Objectives and Guidelines*. The changes allow for slightly increased risk and more flexibility, while some areas are more conservative. The Policy previously allowed institutional money market funds, but broader industry funds are being relabeled and grouped more as U.S. Treasury and government only funds. BOI has used prime oriented funds. The change restricts to government and treasury only, rather than face the risk of prime funds, which could restrict getting money back in a crisis.

Mr. Cullen reviewed other new restrictions, which revise guidelines on maximum holdings and credit ratings. Previously, the focus was on ratings at the time of purchase. Securities that are downgraded are not automatically sold, but there is a limit on how many can be held. Changes to Asset Backed Commercial Paper (ABCP) are minor, although are now limited to maturities of 90 days or less. The amount and duration allowed in Repurchase Agreements was reduced from a maximum of 30% to 10% and a term of 30 days from 90 days; the maximum in Reversed Repurchase Agreements was reduced from 15% to 10% to lower risk.

Maturities on Non-Governmental Variable Rate securities were increased from one year, to 397 days, which adds a little more risk, but is prudent; and the maximum exposure to any one issuer was increased from 2% to 3%; however, risk does not increase substantially.

Member Englund asked how often the ceiling of 2% is an issue.

Mr. Cullen replied it is a regular occurrence. Staff is not looking to go to above 3%, but it does allow more flexibility when assets change over a short period.

Mr. Cullen stated the guidelines to ensure liquidity for cash needs increased from 5% to 10% on daily liquid assets and from 10% to 15% for weekly liquid assets. This revises the policy to align with current practices; increased liquidity is a good thing.

Member Englund asked Mr. John Romasko what liquidity number he uses from day to day.

Mr. Romasko stated it fluctuates by a couple of percentage points depending on the ability to fill the residual ladder of maturities needed, although 10% is the goal. The change to government money market funds will improve the process over money market funds. Staff will work on better defining the Policy regarding the reserve fund. Staff is asking for Board for approval of the new STIP Investment Policy.

Executive Director Ewer noted in fairness, we should acknowledge that the policy allows for up to 10% of illiquid assets. Policy allowed the SIVs, and although staff does all it can to avoid similar situations, keeping it in the policy allows for a safety valve.

Mr. Cullen noted the only change is in the definition of illiquidity as "a security that cannot be sold or disposed of in the ordinary course of business within seven calendar days at approximately the value ascribed to it by STIP." This is in line with how the industry money market defines it, so it moves us closer to a uniform definition.

Director Ewer reminded the Board STIP now uses a Net Asset Value.

Chairman Noennig asked what the prior definition of illiquid was.

Mr. Cullen stated in the previous STIP policy "illiquid securities shall include repurchase agreements." The new definition defines illiquid as not being tradable; the SIVs originated as liquid, high quality assets, although that changed.

> Member Jack Prothero made a motion to approve the new STIP Investment Policy as presented. Member Jon Satre seconded the motion. The motion carried.

<u>State Operating Funds – John Romasko, CFA</u>

Mr. Romasko presented the Short Term Investment Pool (STIP) portfolio as of March 31, 2016. The pool remains within guidelines; the level of agencies has increased from 10 to 17%.

Member Prothero asked if the pool was outside of guidelines, how big of a deal it would be.

Mr. Romasko stated it would be a big deal; staff is implementing the flagging of any security outside of policy. The goal is to not purchase anything that is outside of policy and to flag changes if a holding moves outside of policy guidelines.

Mr. Cullen added if a security were downgraded, pushing it outside of guidelines, staff would take measures to address it and would present an action plan to the Board.

Mr. Romasko stated the pool remains above guidelines for liquidity. A review of participants tracked by staff shows that close to 30% of participants are local governments, up slightly from last quarter. STIP net daily yield was 52 basis points for the quarter, compared to the one-month LIBOR rate of 43 basis points, aided by timing and some good rates. Some securities reset at higher rates. It has been a while since the fund was above the LIBOR.

Director Ewer added not only does staff track liquidity, expenditures by the state are also tracked to ensure sufficient liquidity.

Member Marilyn Ryan thanked Mr. Romasko and stated the report is very informative.

Mr. Romasko reviewed the Treasurer's Fund for the quarter ending March 31, 2016. There were no new securities purchased; the General Fund did decline, which limits the ability to buy securities for the fund. The projected total General Fund FYE balance is provided monthly by the Department of Administration and staff can invest only half of that amount in securities holdings.

Director Ewer asked Ms. Feldman how the projected general fund balance is calculated.

Ms. Feldman stated the inflow of possible payments is taken into account to project the fund balance, which is based on estimates of information supplied monthly by the agencies.

Mr. Cullen added 50% is the liquidity threshold. As of March 31, 76% of the Treasurer's Fund was in STIP, but no more than 50% can be in securities outside of STIP. Other individual securities can be purchased for a longer term, it is a risk control for liquidity; there can be day-to-day or week-to-week changes.

Director Ewer added it helps to get some additional yield pickup for the Treasurer's Fund.

<u>Pension Plans Investment Activity and Performance – Joe Cullen CFA, CAIA, FRM and Eron Krpan, CFA</u>
Mr. Cullen explained staff has a new report showing the pension plan performance. For asset allocation over the quarter, staff reduced equity risk and moved it into fixed income and STIP at the beginning of the quarter. Otherwise, there were no meaningful asset allocation changes.

Member Prothero asked Mr. Cullen if he anticipated any future changes.

Mr. Cullen replied no, staff expects no major shifts in the short term; a STIP cash level of 3% and total equities should maintain a similar profile.

Mr. Eron Krpan presented pension performance for the quarter ending March 31, 2016 including the average monthly weights of the different pools and their contribution to the combined total fund performance. PERS and the remaining plans all have similar asset allocations, meaning returns should be comparable, although varying levels of cash can show slight variations.

Mr. Cullen stated the total fund return for the quarter was 1.24%. The new information presented shows the absolute return of the pension portfolio and what drives it. For example, domestic equity will usually have a meaningful contribution to return due to its large allocation.

Chairman Noennig noted the comparison of the domestic equity contribution to return, vs. the bond pool shows that although domestic equity is the largest, the bond pool contribution is 40 basis points higher.

Mr. Cullen replied yes, for the quarter to date return, the domestic equity pool was up 62 basis points while the bond pool was up 327 basis points. Bonds did well during the first quarter. Domestic equities allocation for the quarter was 37%; bonds were 23%. If you multiply returns by allocations during this quarter, bonds were the largest contributor to the 1.24% total return.

Member Sheena Wilson observed that money in cash and bonds in January was a good move.

Mr. Cullen agreed, although cash returns were lower; staff opted for longer term. He added that whatever position staff takes, it is an active position. Staff made changes from a long-term perspective, knowing the market was volatile; therefore, the STIP level was raised.

Member Englund asked what that added information tells us.

Mr. Cullen stated often we ask what helped and what hurt; it depends on investment type, return and what the weighting of each asset class. We look at how the different factors combined to drive overall pension returns and compare the absolute return relative to the benchmark.

Looking at the PERS benchmark actual allocation and components, the relative return minus the benchmark enables the comparison of how each asset class performed vs. its benchmark. The value added is the relative return times the monthly average weight. The total pension plan return of 1.24% shows the pension plan underperformed the benchmark return of 2.36%. The underperformance factor is due primarily to private equity managers, which returned minus 6.8% compared to the benchmark; however, this is a result mostly of the S&P 1500 + 4% premium. Therefore, over the short term, the pool did not keep up with the benchmark premium, although it is not a concern.

Member Prothero asked if the focus is more on long-term trends.

Mr. Cullen replied yes, staff looks at the trends over time, which is more meaningful. Looking at the 10-year annualized return, the total fund underperformed by 29 basis points. The private equity return detracted 3 basis points over 10 years relative to the benchmark, however, the private equity return over the 10-year period did significantly better than the other asset classes.

Member Englund stated at this level of detail, the benchmark is always going to be a gross of fees number, but returns are always net of fees. How do you calculate over 10 years to determine how much of that would be fees; is the information contained in the annual CEM report?

Mr. Cullen stated yes, some of the information would be in the annual CEM Report. The CEM Report will be presented at the August Board meeting, and will show how much return is, net of fees. When performance is relatively close to the benchmark, we have reached those aspirations. The active cost of managing the portfolio will show about 50 basis points in the CEM Report.

<u>Montana Private Equity Pool (MPEP) - Ethan Hurley, CAIA</u>
Mr. Ethan Hurley presented the Montana Private Equity Pool report for the quarter ending December 31, 2015. It was another positive cash flow quarter; there were no significant changes in the portfolio over the quarter. Staff made two commitments, both re-ups, with HarbourVest, Dover IX, and Centerbridge, Special Credit Partners, III. The private equity briefs on both are included in the Board packet.

Fund Name	Vintage	Subclass	Sector	Amount	Date
Dover Street IX, LP	2016	Secondaries	Diversified	$20M	2/1/16
Centerbridge Special Credit Partners III, LP	2016	Distressed Debt	Diversified	$35M	5/5/16

In the future, staff will begin bringing individual analysts before the Board to answer specific questions on new commitments.

Member Prothero asked Mr. Hurley why he made the choice to re-up with HarbourVest.

Mr. Hurley explained secondaries involve a General Partner (GP) going out and obtaining interests in Limited Partnerships (LP). HarbourVest is a bit unique, they do some LP interest acquisition, but also enter into more complex deals, such as banks wanting to divest of direct investments or spinout an internal team.

Member Prothero asked if the net IRR performance for Dover Street VIII of 31.6% was a factor and if he would still invest if a manager had a negative net IRR.

Mr. Hurley stated staff looks at performance, but also considers the manager team; many factors are taken into account. Mr. Hurley stated generally no, staff would not invest if there was a negative net IRR; however, staff would look at the J Curve factors; in many cases, the GP comes back to market before the prior fund is showing a positive return; this is not viewed in isolation for re-up decisions. Any re-up in a firm is one of very high conviction. Staff looks at a multitude of things, not the least of which is our relationship with the team. If there are any doubts the relationship has gone south, it is an important consideration. Private equity is a relationship business and we place great emphasis on those relationships when we make those investments.

Member Englund stated if you take as an example HarbourVest, with a commitment of $20 million, we have given them $17 million so far, and of that, $1.47 million is management fees.

Mr. Hurley stated yes, with $17.6 million invested and $1.4 million in capital for management fees, BOI received back $20.5 million and the market value in the fund is $8 million with an 11.73 Net IRR. The total exposure is $8.3 million plus $850,000 remaining to be committed.

Member Englund asked why the market value is so low.
Mr. Hurley stated with exposure to markets, there can still be a loss.

Member Satre asked Mr. Hurley what portion of private equity investments are new commitments and how many are re-ups.

Mr. Hurley stated the breakdown is about 60/40 re-ups vs. new commitments.
Mr. Cullen added that even when staff does a re-up, a lot of analysis goes into it. Staff looks at the existing portfolio and any changes we may want. Diversification is important, but we do not necessarily need as many funds as we have. Staff wants increased concentration with managers that we have done well with. Staff may choose to not to re-up with some managers we have history with. We are not trading off on diversification with strategy and managers, but it will allow staff to focus on fewer managers.

Member Englund asked if staff has a set target number of managers.

Mr. Cullen stated there is not a specific target; staff is looking for continued strong consistency of performance, to position the portfolio in the higher conviction areas. BOI originally started with fund of funds, but there will be fewer and fewer as time goes on. Quite a few historic funds will continue to roll off.

Chairman Noennig asked if the change is a product of the desire to keep track of fewer managers, or the disparity between managers we like vs. those we really like, or other reasons.

Mr. Cullen replied both of those reasons; fewer managers allows staff to spend more on each. As the portfolio has evolved, we know the firms very well and the comfort level has increased. There can be a benefit of putting more assets into the hands of those GPs. This will evolve as we go forward.

Mr. Hurley added generally the secondary market is always available to us, and we may take advantage of it in the future.

Mr. Cullen noted whether you are taking action or not, staying with what you have is an active decision.

Director Ewer added his bias is to encourage fewer names, with more money in each manager. Half the BOI analysts are for private equity. In addition, the time and effort at the accounting level has been reduced by retaining long-term accounting staff. There are collateral benefits of the strategy for all of BOI.

Mr. Cullen stated staff needs to spend time with all managers onsite, public and private, which becomes more feasible with fewer managers. Due diligence consumes staff time. If the number of managers is cut in half, that still allows for sufficient diversification.

Member Englund asked Mr. Hurley with the recent departure of a private equity analyst, if the workload has increased for staff.

Mr. Hurley stated staff redistributed the relationships covered by Mr. Craig Coulter, and assigned them back to the original analysts before the arrival of Mr. Coulter. Other work was also distributed to the team. No timeline has been set yet to hire the replacement analyst. Staff hopes to have someone no later than the fall. Although staff is managing, Mr. Coulter was highly valued and will be missed.

Member Englund asked Mr. Hurley with his experience, how difficult it will be to replace Mr. Coulter.

Mr. Hurley explained when the position was originally open, we failed to fill it and had to restart the process. On the second attempt, staff chose to hire a less senior individual, and looked for a junior individual. Mr. Coulter was hired and worked out well. Staff is currently considering which path to take, whether we should look for a junior or a more senior individual this time.

Member Englund asked if you go with a junior person, do you again face the prospect of them leaving.

Mr. Hurley stated perhaps there is a risk.

Mr. Cullen added the risk exists at any level. You do not reduce the risk by hiring a more senior individual and there are benefits with either approach. The position will be posted in near future.

Montana Real Estate Pool (MTRP)
Mr. Hurley presented the Montana Real Estate Pool for the quarter ending December 31, 2015. There was a negative cash flow for the quarter, largely driven by two significant contributions of $10 million and nearly $15 million. There were no new commitments for quarter.

MONTANA PUBLIC EQUITY MARKETS

Montana Domestic Equity Pool (MDEP) – Rande Muffick, CFA
Mr. Muffick presented the MDEP report for the quarter ending March 31, 2016 and noted there were no major strategic changes; however, the pool was affected by raising cash at the plan level in January. It was a wild quarter and returns went down then up 10%. The active managers struggled; JP Morgan has had trouble and experienced a difficult first quarter, which contributed to pool underperformance. The bigger concern now includes taking a look at all managers that have struggled. Midcap managers in particular have struggled.

Member Prothero asked Mr. Muffick if there was a particular midcap manager he was concerned with.

Mr. Muffick stated his biggest concern at this point is Nicholas; it is important to have managers who do well.

Mr. Cullen added you always want to be proactive; Mr. Muffick and the team are working with RVK in the midcap equity space, taking a proactive approach.

Mr. Muffick reviewed the public equity external managers watch list. Artisan had a good quarter and outperformed the benchmark by 200 basis points; staff believes in them. Artisan still has the same team, and they are sticking to their style. Alliance Bernstein had a difficult quarter; they underperformed by 300 basis points. They do have the same team; staff will have a discussion with the portfolio managers next month. Both managers are sticking with their style and staff believes in the management teams.

Montana International Equity Pool (MTIP) – Rande Muffick, CFA
Mr. Muffick presented the report for MTIP for the quarter ending March 31, 2016. There were no changes in the pool allocation for the quarter. MTIP performed similarly to the U.S. markets. The international market had a big correction in February, then made its way back, but did not bounce back as well as U.S. markets. When markets did rebound, international emerging markets recovered the best, which has not happened for a while. Managers are taking on more risk with emerging markets.

Less than half of international managers in large cap outperformed the benchmark and two thirds of small caps did not beat the benchmark. It seems like an aberration this quarter where two thirds underperformed. BOI small cap struggled as a whole but large cap managers did well; staff is happy with the three managers hired last year. Staff added to two of those managers this month, $25 million to Invesco and $25 million to Lazard.

Retirement Funds Bond Pool (RFBP) – Rande Muffick, CFA
The RFBP had one change in allocation; staff added $15 million to Post Advisory high yield and are looking to do at least $100 million in the assets they are managing. Staff added $15 million in March, reasoning that high yields reflected good value in the market. In April, staff added another $25 million. Even fixed income management had difficulty in the quarter; a little more than half outperformed their benchmarks; and 87% of high yield active managers underperformed.

Director Ewer asked if the high yield benchmark is investible.

Mr. Cullen stated no, not to replicate, but you can mirror and come close to an index approach, although it can result in significant tracking error.

Mr. Voytko added high yield is difficult to trade, therefore trying to stay within an index would be very difficult.
Mr. Muffick stated high yield can often add value; staff is exploring it further as a way to add value. BOI external managers did moderately well, both Reams and Neuberger outperformed the benchmark; Post lagged, but did not have energy and materials exposure, which led the high yield market this past quarter. Staff is satisfied with the external managers.

Internal Fixed Income – Nathan Sax, CFA
Mr. Sax explained the reports have a different format this time around and he reviewed the fundamentals for internally managed fixed income. The yield curve was down and the annual rate of inflation moved from 1.3% to 1.6% and credit spreads narrowed. Spreads in industrials had gotten wider until February, when investors came in to take advantage for some additional income. Spread represents the credit risk of industrial bonds vs. treasury. When spreads widen, investors consider the risk of default has increased. For some time in the bond market there has been a tug of war with risk on/risk off; when spreads tighten it is risk on, when risk is off, spreads widen and investors buy safer, treasury bonds, etc. Inflation is expected to rise and create growth, but others think there will be a low growth/low inflation environment (Mr. Sax included). BOI has benefited by not shortening the duration since higher interest rates have not materialized. There has been a rally in commodities recently, the price of oil drives a lot of that; oil is almost $50/barrel now. Copper has gone up, and commodity indices have gone up.

There are negative interest rates around the world. For example, for 2-year notes in France the yield is -43 basis points; -6 basis points in Italy, -51 basis points in Germany and -99 basis points in Switzerland. A number of countries are showing negative interest rates and banks are moving them further negative to fight deflation. When deflation takes hold, cash is hoarded and consumption deferred, awaiting falling prices. In Japan, the sale of safes has gone up; savers want to save their cash at home. Fortunately, the U.S. has low inflation rates, but not deflation. The desired goal in the U.S. is an inflation of 2%; currently inflation is 1.5%.

Chairman Noennig asked how negative interest rates work.

Mr. Sax stated paying financial institutions to store money or buying a bond at a premium so that the effective rate of interest over the life of the bond is less than zero.

Member Satre asked with the motivation so onerous to save, if the goal should be to encourage spending.

Mr. Sax replied yes, the goal is to encourage spending, investment and borrowing; however, we are experiencing a "liquidity trap," meaning that the normal incentives used via monetary policy are not eliciting the desired response.

Mr. Cullen added rates have gone down, and individuals are feeling the pain, but they fear investing as they may lose more. The world banks can provide motivation, but they cannot dictate behavior and would rather deal with inflation.

Mr. Voytko noted there is an attempt to get individuals to purchase assets, such as houses. Banks are the target; they are sitting on cash and are unable to put it out on loans. Ten trillion dollars in Japan and Europe is bringing moderate negative interest rates.

Director Ewer added the demographics of Europe and Japan are working against them. The U.S. has been successful with monetary policy. It is not working in Japan; Japan has a very low unemployment rate. In France, once you are hired, it is unlikely you will be let go; people do not job hop.

Mr. Sax stated the increased savings are due to more people being close to retirement age; they are far short of the retirement savings they require and are attempting to bolster their supply of funds through increased saving. Western or developed nations have built up historically high levels of debt. They owe far more in obligations than they can ever hope to afford. This includes pension schemes and entitlement programs.

Core Internal Bond Portfolio (CIBP) Nathan Sax, CFA
Mr. Sax reviewed performance of the Core Internal Bond Portfolio as of March 31, 2016. Staff is maintaining a neutral position; the effective duration is 5.59 vs. the Merrill U.S. Broad Index at 5.51, and yield to maturity is 2.38% vs. 2.09% for the benchmark. The average credit quality is Aa3 vs. Aa1 for the index, so the portfolio is very high quality, partly due to the desire for increased liquidity. It is difficult to get to Aa1 as treasuries make up less in the portfolio; therefore, it will never reach the level of treasuries the index has.

Trust Fund Investment Pool (TFIP) Nathan Sax, CFA
Mr. Sax presented the Trust Fund Investment Pool for the quarter ending March 31, 2016. Quarter to date, the portfolio is up 3.23% on an absolute return basis and the underlying asset classes are all positive. Fixed income makes up just over 85% of the portfolio, therefore it accounts for 2.89% of the total 3.23% return; a solid return for the quarter. Reviewing the different asset classes vs. the benchmarks, relative returns show three out of four asset classes are outperforming; high yield is slightly below the benchmark. The portfolio is consistent with policy and in good shape.

Insurance Funds – State Fund
Mr. Cullen stated State Fund was positive for the quarter except for international equity; the largest contribution to return is fixed income.

Mr. Jon Putnam presented the State Fund portfolio for the quarter ending March 31, 2016. There were no significant changes to asset allocation. Staff reduced equity exposure from 11% back down to the target range of 10% by taking $15 million out of the BlackRock S&P Equity Index fund.

There was $84 million in purchases and $72 million in maturities. Staff tried to take advantage of widening spreads, while maintaining quality; there is a quality restriction in the portfolio. One sale of PSEG Power with a 7-year maturity was completed; they were getting set to spin off a unit which would likely result in a downgrade; the security was sold at above par. Mr. Putnam reviewed the portfolio characteristics. This was the first quarter as State Fund changed from a fiscal year to a calendar year; positions stayed the same. The credit quality of Marathon Oil dropped down to BB, but there is no real concern there. They have sold some equity and assets are in good shape; BOI's maturity is two years.

The portfolio is based on income stream more than on total return; the income return has been above that provided by the index. Price return is more volatile than total return; there is a bit more volatility since the portfolio contains equity.

Member Englund asked if Mr. Putnam had met with State Fund since he took over managing the portfolio.

Mr. Putnam replied he had met with them several times and he and Mr. Cullen made a presentation to their Board last week.

CONSULTANT REPORT

RVK, Inc. – Mr. Jim Voytko
Mr. Jim Voytko presented the highlights for the quarter ending March 31, 2016. Reviewing the cloud chart for risk/return of absolute return vs. peers, BOI is seeing better returns over peers while taking less risk over both the 5 and 10-year. The incremental changes have produced long-term benefits and the execution of strategy has been favorable.

The Retirement Funds Bond Pool (RFBP) has been a consistent good performer and the Montana Real Estate Pool is producing substantial absolute returns, more so than the equity market.

Returns are reported net of fees; however, gross of fees allows us to look at peer rankings. The Domestic Equity Pool ranking for 1, 3, 5, 7 and 10 year, is below the policy benchmark, but outperforming peers. Institutional investors are having trouble keeping up with the benchmark.

Member Prothero asked if Mr. Voytko was concerned with the MDEP ranking of 71 for the quarter.
Mr. Voytko replied no, short-term volatility over a quarter is not of concern. The success of portfolio restructuring is apparent, and ranking has steadily improved over the past 10 years. The BOI process is working much better than its peers.

Mr. Voytko reviewed the total fund beta, sensitivity of the total fund to the domestic equity stock market, the most volatile asset. Sensitivity has been steady over the years and has even declined recently, which is fundamental to risk management.

The challenging area is domestic equity midcaps where performance has not been up to benchmark standards, although it is reasonable to expect you can outperform the benchmark. Mr. Cullen has set in motion preparations to explore whether BOI should make changes. It is good to have options in place if the decision is made to exit a manager or a mandate.

Bond portfolio yields are very low vs. the actuarial assumption to pay benefits. Continued lower yields over the long term will produce a return drag on the portfolio relative to expectations. Some investors have taken other risks; BOI has not and it has worked out well, including incrementally adding more to high yield. On methodological diversification, quantitative vs. fundamental investments, anyone can be effective but a risk-mitigated portfolio should be exposed to all.

Mr. Voytko briefly reviewed manager Intech, which has had positive returns since inception. For 56 months the market was up, averaging 3.54% in those months. Although they did not keep up in rising markets, in the 28 down months they stayed above market levels. This helps preserves capital so they have more assets invested when markets go back up. Thus, returns are higher by losing less.

Mr. Voytko added TimesSquare also has lagged in up markets, however were able to preserve capital during the 31 down months allowing them to make more money than they would have.

Mr. Voytko reviewed Post High Yield performance; they are conservative with high yield and do not keep up in up markets, but also preserve capital in down markets. The methodology to protect capital in down markets can add value.

RECAP OF STAFF TO DO LIST AND ADJOURNMENT

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

1. Staff will work on language in the STIP policy regarding the reserve fund.
2. Staff will ask Board members to provide input on subjects for future deep dive reviews.
3. International equity will be presented at the August meeting.
4. Chairman Noennig asked that a future Board meeting in Billings be considered.
5. A joint PERS/TRS meeting will be explored for the Board's October 6 meeting.

Being no further business before the Board, the meeting adjourned at 11:55 a.m.

Next Meeting
The next regular meeting of the Board will be August 16-17, 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
Mark E. Noennig, Chairman

ATTEST: David Ewer
David Ewer, Executive Director

DATE: August 16, 2016

BOI:drc 7/15/16