

**REGULAR MEETING OF THE
MONTANA BOARD OF INVESTMENTS
2401 Colonial Drive, 3rd Floor, Helena, Montana**

**April 3, 2012
AGENDA**

- | | | |
|-----------|---|-----------------|
| 1. | CALL TO ORDER
A. Roll Call
B. Approval of the February 21-22, 2012 Meeting Minutes
C. Investment Consultant Sub-Committee Membership
D. Public Comment – <i>Public Comment on issues with Board Jurisdiction</i> | 9:00 AM |
| 2. | Executive Director General Comments - David Ewer | 9:10 AM |
| 3. | BOI's Hierarchy of Responsibilities – R V Kuhns
- Handout | 9:15 AM |
| 4. | Pension Asset Allocation Discussion - Cliff Sheets, CIO and R V Kuhns
- Handout

<ul style="list-style-type: none">• Evolution of Current Allocation Mix• Risk and Return Considerations• Strategic Allocation vs. Tactical• Allocation Alternatives – Pros & Cons | 9:45 AM |
| | Lunch | 12:00 PM |
| 4. | Continue Pension Asset Allocation - Cliff Sheets, CIO and R V Kuhns | 12:30 PM |
| | Break | 2:00 PM |
| 5. | 2012 Work Plan – David Ewer, Cliff Sheets, Senior Management Team | 2:15 PM |
| 6. | Update on Pension Costs, FY 2011 and To-Date – David Ewer
- Handout | 3:30 PM |
| 7. | Manager Additions

<ul style="list-style-type: none">• Staff Report on New Public and Private Equity Managers• Public Manager Due Diligence Checklist | 4:00 PM |
| 8. | Announcements – Next Meeting, Logistics | 4:15 PM |
| | ADJOURN | 4:30 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.

Minutes

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

**MINUTES OF THE MEETING
February 21-22, 2012**

BOARD MEMBERS PRESENT:

Gary Buchanan, Chairman
David Ageson
Bob Bugni
Karl Englund
Mark Noennig
Quinton Nyman
Jack Prothero
Jon Satre
Jim Turcotte (via telephone)

LEGISLATIVE LIAISONS PRESENT:

Senator Joe Balyeat
Representative Franke Wilmer

STAFF PRESENT:

Carol Ann Augustine, Board Secretary	Rande Muffick, CFA, Portfolio Manager, Public Equities
Jason Brent, CFA, Alternative Investments Analyst	Jon Putnam, CFA, FRM, Fixed Income Investment Analyst
Geri Burton, Deputy Director	Nancy Rivera, Credit Analyst
Richard Cooley, CFA, Portfolio Manager, Fixed Income/STIP	John Romasko, CFA, CPA, Fixed Income Investment Analyst
David Ewer, Executive Director	Nathan Sax, CFA, Portfolio Manager, Fixed Income
Tim House, Investment Operations Chief	Clifford A. Sheets, CFA, Chief Investment Officer
Ethan Hurley, Portfolio Manager, Alternative Investments	Steve Strong, Equity Investment Analyst
Ed Kelly, Alternative Investments Analyst	Louise Welsh, Bond Program Officer
Herb Kulow, MCMB, Portfolio Manager, In-State Loan Program	Dan Zarling, CFA, Director of Research
Gayle Moon, CPA, Financial Manager	

GUESTS:

Norma Buchanan
Becky Gratsinger, RV Kuhns and Associates
Mark Higgins, RV Kuhns and Associates
Pat Hurley
Chuck Johnson, Associated Press
Mike Manion, Attorney, Department of Administration
Dore Schwinden, Director, Department of Commerce
Jim Voytko, RV Kuhns and Associates
Kris Wilkinson, Legislative Fiscal Division

CALL TO ORDER

Board Chairman Gary Buchanan called the regular meeting of the Board of Investments (Board) to order at 1:09 PM in the Board Room on the third floor at 2401 Colonial Drive, Helena, Montana. As noted above, a quorum of Board Members was present.

Chairman Buchanan introduced new Board Member Bob Bugni; Member Bugni previously worked for the Board of Investments for several years and is well known to the Board and staff. He also introduced Dore Schwinden, Director of the Department of Commerce. Director Schwinden commented on the close working relationship that has been established between the Board of Investments and the Department of Commerce.

Chairman Buchanan reported that Board Member Karl Englund has accepted the position of Vice Chair of the Board.

Board Member Jack Prothero made a Motion to approve the Minutes of the November 15-16, 2011 Board Meeting; Member Jon Satre seconded the Motion. The Motion was carried 9-0.

ADMINISTRATIVE BUSINESS

Audit Committee Report

Audit Committee Member Jon Satre reported that the Board's Audit Committee was scheduled to meet upon adjournment of the November 15-16, 2012 Board meeting to discuss the Board's fiscal year 2011 financial audit report which is prepared by the Legislative Audit Division; however, the Legislative Audit Division had to reschedule because they had not yet completed the audit.

The Legislative Audit Division concluded their audit and scheduled an Exit Conference meeting with the Board's Audit Committee on Thursday, December 15, 2011.

Ms. Tori Hunthausen, the State's Legislative Auditor, reported that the Legislative Audit Division completed its Financial Audit for the Fiscal Year Ended June 30, 2011 and the report contained an unqualified opinion for the Board's Consolidated Unified Investment Program and Enterprise Fund. In addition, she reported that the audit did not contain any recommendations to the Board.

Human Resource Committee (HR) Report

HR Committee Chair Karl Englund reported that 1% and 2% annual pay increases were recently granted for classified employees within the Department of Commerce. The HR Committee now recommends providing a 1% pay increase to all exempt employees, except the Executive Director. The 1% pay increase would take effect January 1, 2012.

HR Committee Chair Karl Englund made a Motion to approve a 1% annual pay increase for exempt staff, except the Executive Director; Member Quinton Nyman seconded the Motion. The Motion was carried 9-0.

HR Committee Chair Englund reported that the Committee reviewed and approved the proposed changes to the Organizational Chart, that include transitioning supervision of the INTERCAP Manager and the Network Administrator from the Executive Director to the Deputy Director.

HR Committee Chair Englund made a Motion to adopt the new Organizational Chart; Member Jack Prothero seconded the Motion. The Motion was carried 9-0.

Loan Committee Report

Loan Committee Chair Jack Prothero reported that the Committee discussed Tax Increment Financing (TIF) and concurred with staff's recommendation to continue to preclude TIF bonds or loans in the INTERCAP Program. Also, it was reported that the Committee considered a \$4,983,011 loan request from Anaconda School District to finance the renovation of their football stadium over a 10-year term. The Committee concurred with staff's recommendation to deny the loan based on their earlier discussion of TIF.

The Loan Committee is authorized to approve BOI loans from \$1-5 million. They authorized staff to proceed with processing and closing the following loan using the Board's standard Bond Program office procedures.

Borrower:	State of Montana Department of Transportation
Purpose:	Purchase replacement vehicles for the State Motor Pool.
LC Approval Date:	December 19, 2011
Board Loan Amount:	\$2,100,000
Other Funding Sources:	
Total Project Cost :	\$2,100,000
Term:	7 years

The Loan Committee also authorized a loan increase to the Town of Whitehall; the total amount of the interim loan is now \$3,300,000 in anticipation of USDA Rural Development long term financing its wastewater project.

2012 Meeting Schedule

Mr. David Ewer proposed adding two Board Meetings to the schedule for a total of six meetings in 2012. Mr. Ewer suggested the agenda for the two additional meetings should differ from the quarterly performance meetings. He also asked to reschedule the October 2, 2012 meeting; it will be held October 4, 2012 instead. There was discussion regarding a possible Joint Board of Investments', Public Employees' Retirement System (PERS) and Teachers' Retirement System (TRS) Board Meeting in October. Staff will follow-up with PERS and TRS staff regarding this meeting and report back to the Board.

Public Comment

Chairman Buchanan called for public comment on Board issues. There was no public comment.

EXECUTIVE DIRECTOR'S REPORT

Overall Comments

This was the first Board Meeting for Mr. David Ewer as Executive Director of the Board of Investments. Mr. Ewer addressed the Board regarding his management style and emphasis, and affirmed that we work for the people of Montana. He also noted that the Board's senior management, Cliff Sheets, CIO, Geri Burton, Deputy Director, Gayle Moon, Finance Manager, and Herb Kulow, Loan Portfolio Manager, now meet every week.

Agendas Going Forward

Mr. David Ewer told the Board that having six meetings during the year will give the Board an opportunity to look at subjects other than performance, including the Short Term Investment Pool, operations, accounting and State cash management. Board Members are also encouraged to bring subjects of interest to the meetings.

Changes to Governance Policy

Mr. Ewer introduced Mr. Mike Manion, Chief Attorney for the Department of Administration. They spoke to the Board about suggested changes to the Governance Policy relating to our procurement process. The changes will serve to reassert the Board's authority over the type of investments to be made. The Departments of Administration and Commerce agree with the recommended changes.

Board Member Karl Englund made a Motion to adopt the recommended changes to the Governance Policy; Member David Ageson seconded the Motion. The Motion was carried 9-0.

Investment Consultant RFP

Executive Director David Ewer recommended that the Board begin the request for proposal (RFP) process for a general investment consultant, as it is now considered 'best practices' within the fiduciary responsibilities of pension boards. RV Kuhns & Associates, Inc. is the Board's current consultant; their contract will expire in November 2011.

Member Jon Satre made a Motion to proceed with the RFP process for an investment consultant per staff's recommendations outlined in Mr. David Ewer's memo; Member Mark Noennig seconded the Motion. The Motion was carried 9-0.

Permanent Coal Trust Fund Investment Policy Statement

Mr. Ewer presented the new investment policy statement for Board review and approval. The new policy replaces four current policies and will cover the Permanent Coal Trust; Treasure State Endowment Regional Water System Fund; Treasure State Endowment Fund; and Big Sky Economic Development Fund. Staff recommends Board approval of the new policy.

Member Jack Prothero made a Motion to approve the Permanent Coal Tax Trust Fund Investment Policy Statement; Member Karl Englund seconded the Motion. The Motion was carried 9-0.

Tax Increment Financing

Mr. David Ewer spoke to the Board about Tax Increment Financing (TIF) and the Board's 1992 decision not to allow the INTERCAP Loan Program to be used for such loans, stating it falls outside the risk parameter for INTERCAP. Staff recommends approval of the revised INTERCAP Loan Policy that precludes TIF bonds or loans in the program.

Member David Ageson made a Motion to approve the revised INTERCAP Loan Policy; Member Karl Englund seconded the Motion. The Motion was carried 9-0.

Performance Audit

Mr. Ewer reported that the Board is currently number five on the Legislative Audit Committee's list for a performance audit. The Legislative Audit Committee has never conducted a performance audit on the Board. Mr. Ewer believes the performance audit will take place sometime this summer.

April Meeting

Mr. Ewer suggested the agenda for the April Board Meeting include asset allocation, private equity and costs. Chairman Gary Buchanan suggested Board travel and educational opportunities as agenda items. Chairman Buchanan encouraged Board Members to pursue training opportunities, including bringing the training to the Board. The Board's long range plans and goals could also be discussed. Several other Board Members offered ideas and suggestions to be covered at the April or other Board Meetings.

MONTANA LOAN PROGRAMS

Commercial and Residential Portfolios Report

Mr. Herb Kulow reported that the commercial and residential loan portfolios continue to decline as a result of the uncertain economy; however, he does have several potential projects.

As of February 6, 2012 the commercial loan portfolio totaled \$145,747,241; this included five outstanding reservations in the amount of \$5,979,800 and four loan commitments in the amount of \$9,858,259. Our two past due loans are SBA guaranteed, totaling \$212,099 or 0.15% of the total portfolio.

As of January 31, 2012 the residential loan portfolio totaled \$23,179,920 with no outstanding reservations. Eleven loans were past due totaling \$712,830 or 3.08% of the portfolio. Of those past due loans, nine were past due over 90 days totaling \$652,144, six of those loans were guaranteed totaling \$374,607 and three were conventional loans totaling \$277,537.

The Veterans Home Loan Mortgage Program has funded one loan for \$172,830; there are currently 12 outstanding reservations totaling \$1,932,259.

Bond Program Reports

Activity Report

Ms. Louise Welsh reported on the remarketing of the INTERCAP bonds. The INTERCAP rate will be set on March 1, 2012 and the current loan rate of 1.95% is expected to drop one more time for borrowers.

Ms. Welsh presented the INTERCAP report for the period ending December 31, 2011. She told the Board that FY 2012 fundings are almost \$15 million and she expects that number to be \$24 million by the end of the year. Year to date commitments totaled \$19,474,393. Total loans outstanding are \$80,897,577; bonds outstanding are \$95,530,000.

Board Chairman Gary Buchanan commended Ms. Welsh on how well she handled the Anaconda School District loan request.

Staff Approved Loans Report

The Board reviewed this report for the period of July 1, 2011 through September 30, 2011.

Borrower:	Ravalli County Economic Development Authority (Hamilton)
Purpose:	Ravalli Entrepreneurship Center parking lot expansion
Staff Approval Date:	October 13, 2011
Board Loan Amount:	\$70,000

Other Funding Sources:	
Total Project Cost:	\$70,000
Term:	10 years

Borrower:	Teton County
Purpose:	Building purchase for an ambulance station
Staff Approval Date:	October 27, 2011
Board Loan Amount:	\$ 75,000
Other Funding Sources:	\$ 90,000
Total Project Cost:	\$165,000
Term:	10 years

Borrower:	Town of Geraldine
Purpose:	Purchase 1991 Sutphen TS 4-door pumper fire truck
Staff Approval Date:	October 31, 2011
Board Loan Amount:	\$30,000
Other Funding Sources:	
Total Project Cost:	\$30,000
Term:	7 years

Borrower:	Sweet Grass County
Purpose:	Emergency road and bridge repairs from flooding in anticipation of federal aid
Staff Approval Date:	November 7, 2011
Board Loan Amount:	\$995,000
Other Funding Sources:	
Total Project Cost:	\$995,000
Term:	15 years

Borrower:	City of Kalispell
Purpose:	Purchase a dump truck and compactor
Staff Approval Date:	November 16, 2011
Board Loan Amount:	\$172,000
Other Funding Sources:	
Total Project Cost:	\$172,000
Term:	5 years

Borrower:	Lone Rock Elementary School District #13 (Stevensville)
Purpose:	Install a new septic system
Staff Approval Date:	November 18, 2011
Board Loan Amount:	\$40,000
Other Funding Sources:	
Total Project Cost:	\$40,000
Term:	10 years

Borrower:	Town of Sheridan
Purpose:	Engineering services for wastewater improvements. Borrower reimbursed by USDA RD once the RD loan closes.
Staff Approval Date:	December 15, 2011
Board Loan Amount:	\$100,000
Other Funding Sources:	\$3,550,057–USDA RD Loan; \$3,190,249-USDA RD Grant; \$100,000-DNRC RR Grant; \$25,000-Borrower portion
Total Project Cost:	\$6,865,306
Term:	6 years



MONTANA UNIVERSITY SYSTEM

Borrower:	Montana State University – Billings
Purpose:	Remove/Replace Rimrock Hall (residence hall) roof
Staff Approval Date:	October 27, 2011
Board Loan Amount:	\$500,000
Other Funding Sources:	
Total Project Cost:	\$500,000
Term:	10 years

Borrower:	Montana State University - Billings
Purpose:	Remodel Union Bookstore
Staff Approval Date:	October 31, 2011
Board Loan Amount:	\$580,000
Other Funding Sources:	\$120,000
Total Project Cost:	\$700,000
Term:	10 years

CONSULTANT REPORTS

RV Kuhns & Associates

Ms. Becky Gratsinger, Mr. Mark Higgins and Mr. Jim Voytko presented an overview of the Investment Performance Analysis Report, Quarter Ended December 31, 2011. *(A complete copy of this report is kept on file with the documents of this meeting.)*

INVESTMENT ACTIVITIES/REPORTS

Retirement System Asset Allocation Report

Mr. Cliff Sheets presented the Retirement System Asset Allocation Report for the quarter ended December 31, 2011. Mr. Sheets noted total equity was up 2.1% from the previous quarter to 65.7%, primarily reflecting the bounce in public stock returns. The allocation to fixed income decreased 1.3% to 26.1%, in part due to the sale of approximately \$33 million of RFBP units during the quarter, and the dilution effect of higher stock prices. The allocation to real estate also decreased slightly to 7.6% due to this dilution effect. Cash was kept very low, near the 1% minimum, because it is essentially a zero return asset class and no larger reserves were deemed necessary at this time. There were no new purchases of the real estate pool during the quarter. Net long term investments of \$11 million went into the pools.

Comparison to State Street Public Fund Universe

Mr. Sheets reviewed a comparison of the two large pension plans to the State Street public fund universe in terms of relative performance and asset allocation as a supplement to the RV Kuhns public fund universe return comparison.

Mr. Sheets pointed out that the cash allocation is low, fixed income and public equities are close to the median weight, and real estate and private equity are above average, though not as much as indicated here when considering other surveys of public fund asset allocation.

Private Asset Pool Reviews

Private Equity (MPEP)

Mr. Ethan Hurley presented a comprehensive overview of the private equity portfolio for the quarter ended September 30, 2011, including total exposure by strategy; market value exposure by industry; geographic and investment vehicle exposure; and returns for the overall portfolio and by fund. The report also showed quarterly cash flow for the portfolio through December 31, 2011.

One new commitment was made since the November 2011 Board meeting:

Fund Name	Vintage	Subclass	Sector	Amount	Date
Gridiron Capital Fund II, LP	2011	Small Buyout	Diverse	\$15M	12/1/11

Mr. Hurley compared the performance of the private equity portfolio to the State Street Private Equity Index.

ADJOURNED

Chairman Buchanan adjourned the Meeting for the day at 5:05 PM.

CALL TO ORDER – Day 2
February 22, 2012

Board Chairman Gary Buchanan reconvened the meeting Wednesday, February 22, 2012 at 8:32 AM with seven members of the Board present. Board Members Quinton Nyman and Jim Turcotte were absent.

Public Comment

Chairman Buchanan called for public comment on Board issues. There was no public comment.

INVESTMENT ACTIVITIES/REPORTS, continued

Private Asset Pool Reviews

Mr. Cliff Sheets distributed a report of Real Estate Performance by Fund Category in response to a general question regarding real estate performance during the prior day. Mr. Sheets pointed out that the real estate market lagged stocks and credit-related bonds during the bear market and has also lagged on the upside during the rally in “risk” assets. There has been a lag in the performance of Value-add compared to Core since performance turned positive in early 2010 however we expect to catch up in relative returns in the higher risk real estate categories once core returns enter a more stable period.

Real Estate (MTRP)

Mr. Ethan Hurley presented a comprehensive overview of the following private edge reports for the third quarter: total exposure by strategy; market value exposure by property type; total exposure by geography; and time weighted return of the portfolio and internal rates of return by fund. The report also showed quarterly cash flow for the portfolio through December 31, 2011.

One new commitment was made since the November 2011 Board meeting. This was an add-on to a prior commitment.

Fund Name	Pool	Subclass	Sector	Amount	Date Funded (Core) or Date of Decision
Angelo Gordon Core Plus Realty Fund III, LP	MTRP	Value-add	Diverse	\$10 M	12/20/11

Partnership Focus List

There were no changes to the MPEP and MTRP Partnership Focus Lists since the November 2011 Board Meeting. Mr. Ethan Hurley reported that we are closely monitoring a limited number of managers; he will bring them before the Board if and when it is appropriate.

Public Asset Pool Reviews

Domestic Equity (MDEP)

Mr. Rande Muffick reported on the Montana Domestic Equity Pool as of December 31, 2011, including a summary of recent market trends. Mr. Muffick told the Board that domestic managers struggled while international outperformed. We currently have \$2.7 billion in the domestic equity pool. Being overweight in mid and small caps added to performance of the pool as both cap sizes outperformed large caps in the quarter; large cap managers continue to lag their benchmarks. The strategy is to continue to overweight mid caps and small caps and to diversify active management in these areas.

International Equity (MTIP)

Mr. Muffick presented the Montana International Equity Pool Report for the period ending December 31, 2011 and reviewed market trends during the quarter. We currently have \$2 billion in the pool and plan to increase small cap and emerging market allocations.

Public Equity External Manager Watch List

Mr. Muffick reported no changes to the Manager Watch List during the quarter. One manager, Artio Global, which had an international core mandate, was terminated due to poor performance. Mr. Muffick and Mr. Mark Higgins presented information about the managers currently on the Watch List shown below:

MANAGER WATCH LIST

February 2012

Manager	Style Bucket	Reason	\$ Invested (mil)	Inclusion Date
Western Asset	Domestic – LC Enhanced	Performance, Tracking Error	\$151	March 2008
Martin Currie	International – LC Growth	Performance, Risk Controls	\$89	February 2009
Columbus Circle	Domestic – LC Growth	Performance, Process	\$137	May 2011
TimesSquare	Domestic – MC Growth	Performance	\$99	August 2011

Montana International Equity Pool (MTIP) Transition

Mr. Rande Muffick presented a report on the transition of assets within the international equity pool as a result of the termination of Artio Global in January. The overall cost of the transition was \$145,931, or approximately 14 basis points of the market value.

Member Bob Bugni thanked Rande Muffick for his service to the MPERA Board's Employee Investment Advisory Council as BOI's representative. Mr. Muffick has played a key role in reviewing the recommendations of MPERA's consultant and advising their Board.

Prime Brokerage Transition

Mr. Cliff Sheets reported on the transition of prime broker assets from Citigroup to State Street's Enhanced Custody Model. No cost was incurred for the transition.

Manager Evaluation Policy

Mr. Cliff Sheets presented revisions to the Public Markets Manager Evaluation Policy for Board approval. The policy was changed to accommodate fixed income managers.

Member Jack Prothero made a Motion to approve the Public Markets Manager Evaluation Policy; Member Karl Englund seconded the Motion. The Motion was carried 11-0.

Mr. Sheets reported that staff are performing due diligence in order to add an external manager. Information about the manager, including the steps taken to reach the final decision, will be presented to the Board at the meeting following hiring of the manager.

Fixed Income

Mr. Nathan Sax presented the Fixed Income overview and strategy for the Retirement and Trust Fund Bond Pools. Mr. Sax noted that corporate bonds significantly outperformed treasuries and high yield spreads ended the year at 7.02%. There is now some optimism about the US economy and less concern regarding the European sovereign debt crisis.

Mr. Sax presented the Non-Investment Grade Holdings Report. He told the Board we are expecting to recover \$.26 on the dollar from the Lehman Brothers bankruptcy.

Fixed Income External Manager Watch List

Mr. Nathan Sax presented a manager watch list for the first time since the hiring of external managers in Fixed Income began in 2008. The first manager identified as one of concern is Post Advisors, as shown below:

Manager	Strategy	Reason	Amount Invested (\$ millions)	Inclusion Date
Post Advisors	Public High Yield	Performance	\$55 RFBP \$98 TFIP	February, 2012

Mr. Richard Cooley reported on the Short Term Investment Pool, State Fund Insurance and Treasurer’s Fund portfolios. Mr. Cooley noted that money market spreads continued to widen into early January 2012 producing a fair amount of yield for the STIP portfolio. Libor rates increased by 20.7 basis points for the quarter but have steadily gone down since the first of the year.

Mr. Cooley presented the State Fund Insurance report for the quarter ended December 31, 2011. Mr. Cooley stated that he and Mr. David Ewer recently had a very productive meeting with State Fund.

ADJOURNMENT

There being no further business, Chairman Buchanan adjourned the meeting at 11:18 AM.

Next Meeting

The next regular meeting of the Board will be Tuesday, April 3, 2012 in Helena, Montana.

Complete copies of all reports presented to the Board are on file with the Board of Investments.

BOARD OF INVESTMENTS

APPROVE: _____
Gary Buchanan, Chairman

ATTEST: _____
David Ewer, Executive Director

DATE: _____

MBOI:caa
3/9/12

Montana Board of Investments 2012 Meeting Schedule

2012	M	T	W	T	F	S	S
	26	27	28	29	30	31	1
Jan 2012	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	1	2	3	4	5
Feb 2012	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	1	2	3	4
Mar 2012	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	1
Apr 2012	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	1	2	3	4	5	6
May 2012	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
Jun 2012	28	29	30	31	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
Jul 2012	18	19	20	21	22	23	24
	25	26	27	28	29	30	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
Aug 2012	23	24	25	26	27	28	29
	30	31	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
Sep 2012	27	28	29	30	31	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
Oct 2012	24	25	26	27	28	29	30
	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
Nov 2012	29	30	31	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
Dec 2012	26	27	28	29	30	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	1	2	3	4	5	

February 21-22
(February 20th: State Holiday - Lincoln's & Washington's Birthday)

April 3

May 22-23 (possibly an out of town meeting)
(May 28th: State Holiday - Memorial Day)

August 21-22

October 4
(October 8th: State Holiday - Columbus Day)

November 13-14
(November 6th: State Holiday - General Election Day)
(November 12th: State Holiday - Veteran's Day)

**MONTANA BOARD OF INVESTMENTS
ACRONYM INDEX**

ADR.....	American Depository Receipts
AOF.....	All Other Funds
BOI.....	Board of Investments
CFA.....	Chartered Financial Analyst
EM.....	Emerging Market
FOIA.....	Freedom of Information Act
FWP.....	Fish Wildlife and Parks
IPS.....	Investment Policy Statement
MBOH.....	Montana Board of Housing
MBOI.....	Montana Board of Investments
MDEP.....	Montana Domestic Equity Pool
MFFA.....	Montana Facility Finance Authority
MPEP.....	Montana Private Equity Pool
MPT.....	Modern Portfolio Theory
MSTA.....	Montana Science and Technology Alliance
MTIP.....	Montana International Pool
MTRP.....	Montana Real Estate Pool
MTSBA.....	Montana School Boards Association
MVO.....	Mean-Variance Optimization
NAV.....	Net Asset Value
PERS.....	Public Employees' Retirement System
PFL.....	Partnership Focus List
QZAB.....	Qualified Zone Academy Bonds
QSCB.....	Qualified School Construction Bonds

**MONTANA BOARD OF INVESTMENTS
ACRONYM INDEX**

RFBP..... Retirement Funds Bond Pool
RFP.....Request for Proposal
SSBCI State Small Business Credit Initiative
STIPShort Term Investment Pool
TFBPTrust Funds Bond Pool
TFIPTrust Funds Investment Pool
TIF..... Tax Increment Financing
TIFD Tax Increment Financing District
TRS..... Teachers' Retirement System
VIX Volatility Index

BOI's Heirarchy

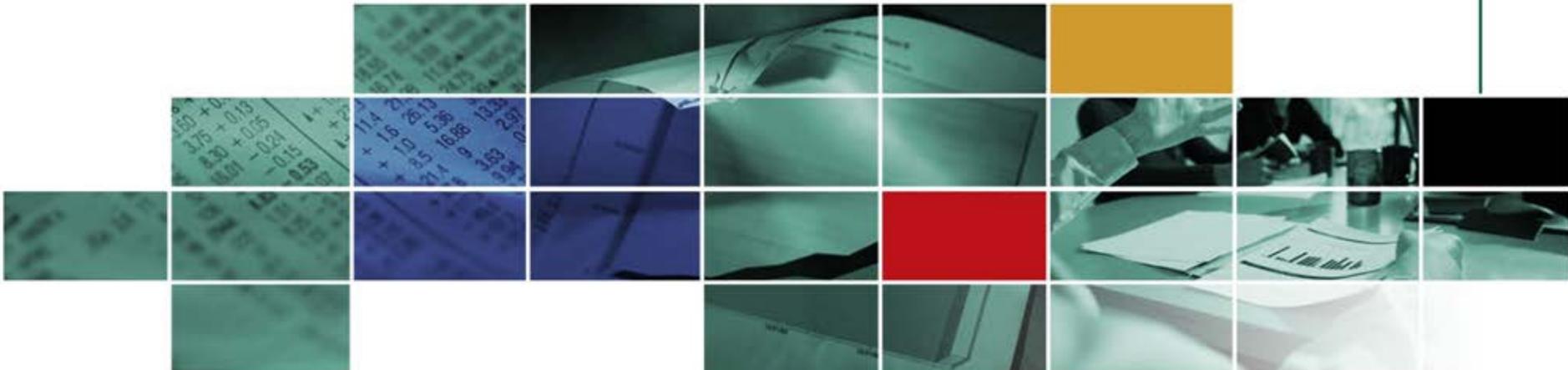
RVKuhns

▶▶▶ & ASSOCIATES, INC.

Montana Board of Investments

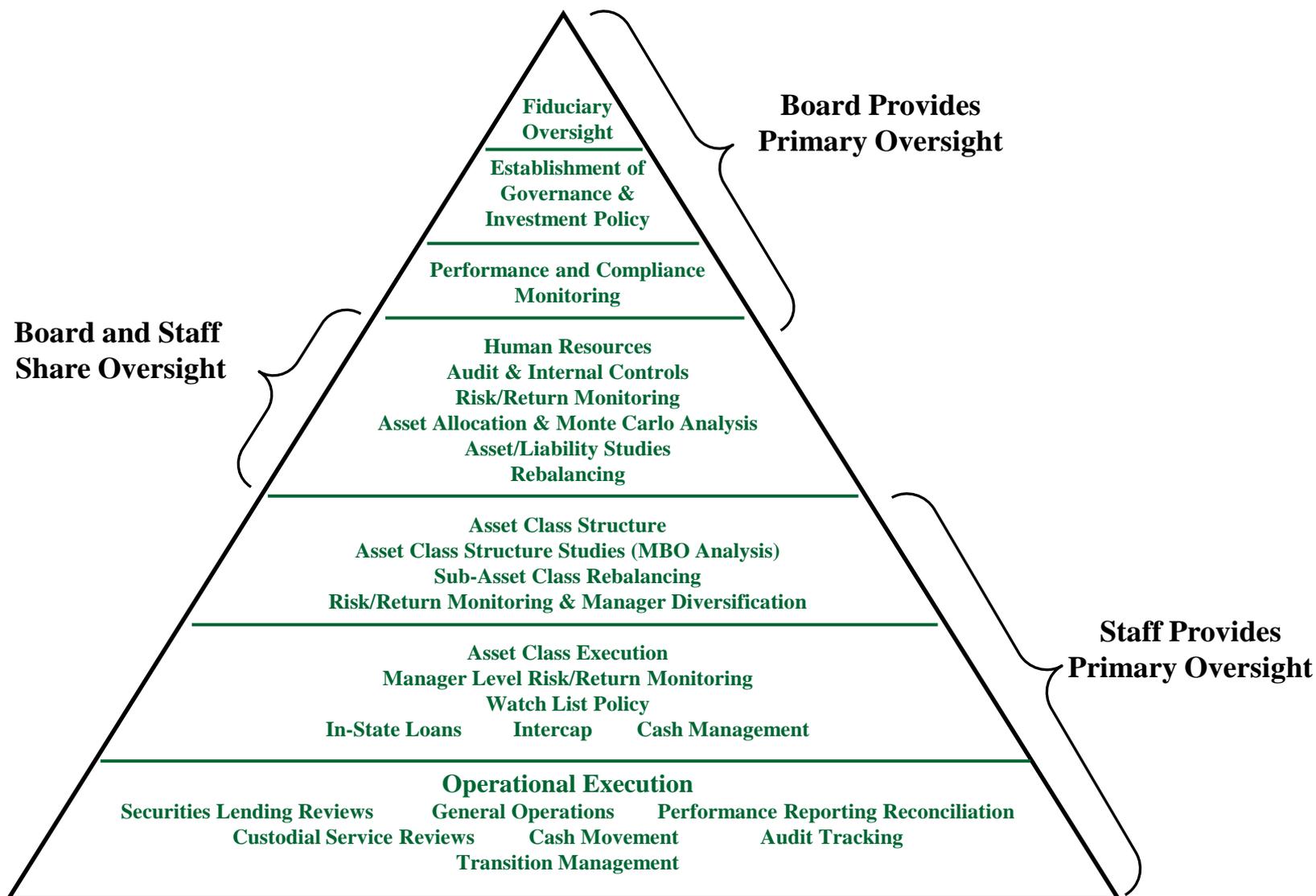
Hierarchy of Responsibilities

April 2012





MBOI Hierarchy of Responsibilities





RVK Has Supported Decisions at All Levels

Montana Projects



Board Focused

- Alternative Investments and Private Equity (2011)
- Asset/Liability Study (2010)
- Asset Allocation Study (2010)
- Assumed Rates of Return (2011)
- Board Education Policy (2011)
- Mean Variance Optimization (2009)
- Performance Reporting (Quarterly)
- Public Fund Survey (Annual)

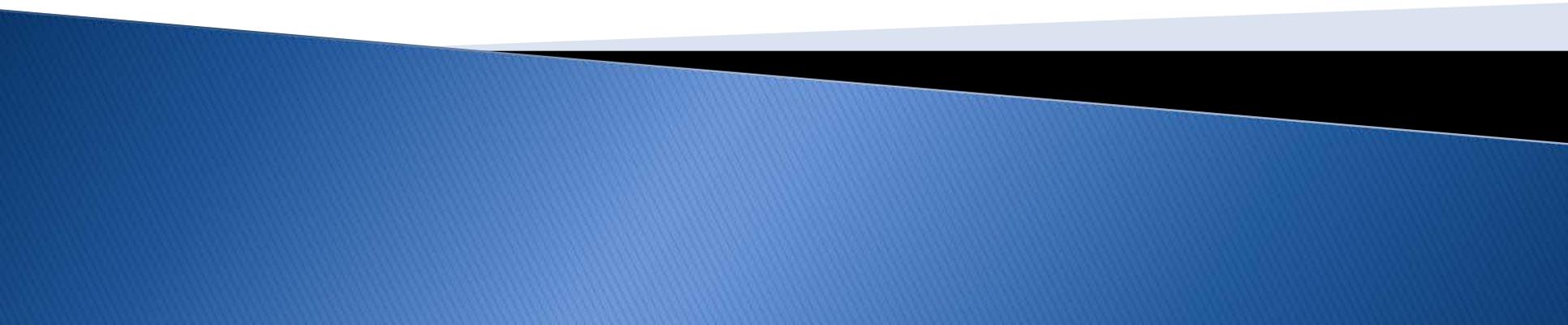
Staff Focused

- Cash Management Review (2008)
- Private Equity Pacing Study (2009)
- Real Return Investment Opportunities (2010)

Asset Allocation

Evolution of Asset Allocation Mix

April, 2012



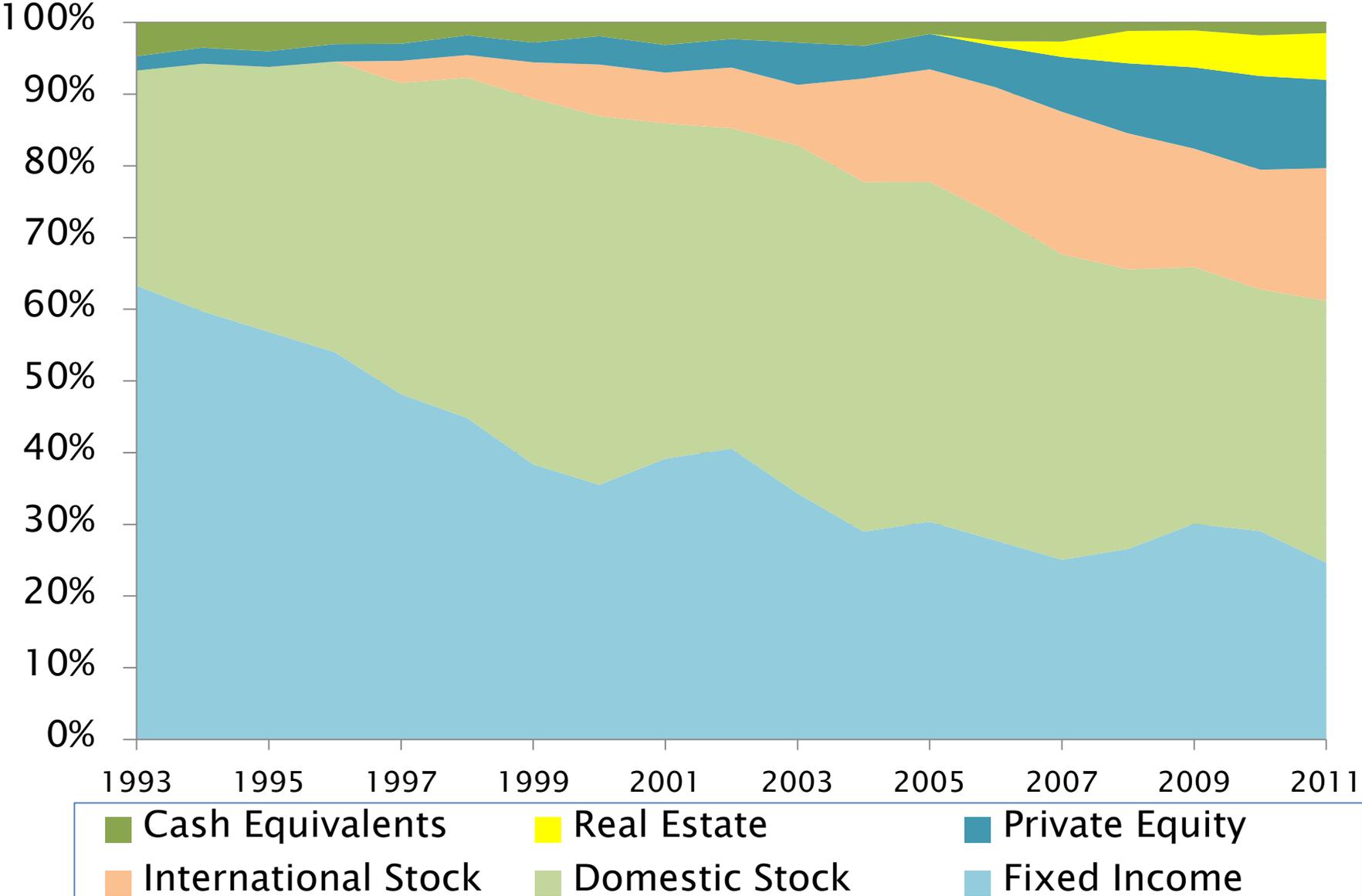
Evolution of Asset Allocation Mix

- ▶ The current asset allocation mix of the pension plans is a function of past Board decisions, after extensive deliberations
 - Decisions at the strategic level, embedded in policies at the plan level, and within the policies of the various investment pools
- ▶ The evolution of these decisions accelerated after the Operational Consultant report and the hiring of the General Consultant and the CIO in late 2005
 - Decisions were diversification-driven at all levels, the plan level and within the individual asset classes
- ▶ The following pages show the changes in the strategic asset allocation over time and show specific Board decisions with respect to the various asset types

Chronology of Asset Allocation

- ▶ The current asset allocation has evolved from a simplistic structure of very few asset types to a much more complex diversified asset mix
 - Primary weighting on fixed income in the early 1990's
 - Shift to a largely equity-centric emphasis in the late 1990's
 - Increasing exposure to alternative assets in the mid-00's: Private Equity and Private Real Estate

Pension Asset Allocation Changes from FY1993 to FY2011



Decision Timeline – Domestic Equities

- ▶ May, 2006:
 - Addition of enhanced index managers
 - Adding active management within the mid-cap sector and additional active management within the small-cap segment
- ▶ August, 2006: Changes to the policy ranges by market cap segment
- ▶ February, 2007: Enhanced Alpha Strategy (130/30) was approved as a new strategy
- ▶ May, 2007: Liquidation of internally-managed domestic equity portfolio approved
 - New mix by strategy categories for large cap within MDEP
- ▶ August, 2007: Transition of remaining assets from internally-managed portfolio (July) into five large cap style (growth & value) long-only managers; residual proceeds to the S&P 500 Index portfolio
- ▶ February, 2008:
 - New allocation recommendations approved for composition of pool within large cap portion
 - Transition of assets into 130/30 portfolios was completed in late February
- ▶ May, 2008: Public Equity External Manager Evaluation Policy was approved

Decision Timeline – Int’l Public Equities

- ▶ March, 2006: RFP for international equity managers issued for mandates including Value, Growth, Core and Small Cap
- ▶ April, 2006: Approved the plan to diversify the Board’s international equity exposure, referencing the March, 2006 RFP mandates to shift to a more active manager line-up and change the pool benchmark to the MSCI ACWI ex-US Index
- ▶ August, 2006:
 - Changed the structure of the pool to a broad international framework as opposed to the prior structure based on regional framework
 - New policy ranges for Core, Value, Growth, and Small Cap approved
 - Increase width of range (currently capped at 18%) within the pension plan allocation policy
- ▶ November, 2009: Remaining regional exposures eliminated and two active managers terminated; three others downsized slightly with all proceeds moving to the passive ACWI ex-US fund
 - New structure contains a higher allocation to passive and less to active strategies

Decision Timeline – Real Estate

- ▶ February, 2006:
 - RVK presented educational session on Real Estate (as part of a broader session on alternative asset types)
 - Board approved a preliminary allocation and manager search
- ▶ April, 2006: Decision to create an investment pool for Real Estate investments
- ▶ May, 2006: Endorsed a commitment to Real Estate with a minimum 5% allocation with the objective of getting to that level of exposure by the end of 2008.
- ▶ August, 2006:
 - RVK presented educational session on Real Estate
 - Initial investment policy approved
- ▶ August, 2008: RVK presented educational session on Real Assets, including Real Estate.
- ▶ February, 2010: Staff presents plan to increase the pension Real Estate exposure to a level approaching 6% over the course of 2010
- ▶ November, 2010: Investment Policy modified to address the inclusion of timberland allocation (up to 2% of pension assets) approved by the Board in August, 2010

Decision Timeline – Fixed Income

- ▶ August, 2006: Approved change in the policy ranges by market sector (increasing the mortgage-backed security range & decreasing the credit securities range)
- ▶ November, 2007: RVK presented educational session on Fixed Income
- ▶ February, 2008: Board approved the utilization of non-core sectors of the bond market
 - High Yield range 0–15%; Non-US range 0–10%; Total “plus” sectors 0–20%
 - RFP issued for external fixed income managers across Core, Core-plus, and High Yield mandates
- ▶ October, 2008: Initial funding of Core-plus allocation
- ▶ May, 2009: Initial funding of High Yield allocation
- ▶ August, 2010: TIPs were eliminated as a separate asset class given the ability to currently purchase TIPs within the existing Core Internal Bond Portfolio (CIBP) policy

Decision Timeline – Private Equity

- ▶ February, 2006: RVK presented educational session on Private Equity (as part of a broader session on alternative asset types)
- ▶ August, 2006: Approved increase in policy range from 4–7% to 5–10% (allocation as of June, 2006 was 5.7%)
- ▶ November, 2008: Approved a targeted allocation to private equity of 12.0%, plus or minus 3.0%, or a range of 9.0% to 15.0%
- ▶ July, 2011: RVK presented educational session on Alternative Investments & Private Equity

Decision Timeline – Hedge Funds/Absolute Return

- ▶ February, 2006: RVK presented educational session on Absolute Return (as part of a broader session on alternative asset types)
- ▶ November, 2007: RVK presented educational session on Absolute Return
- ▶ February, 2008: Two Hedge fund-of-funds managers presented to the Board in an “educational” context
- ▶ May, 2008:
 - Two public fund representatives discussed the pros and cons of investing in Hedge Funds as part of an ongoing educational effort
 - Approved issuance of RFP for fund-of-funds Hedge Fund strategies
- ▶ November, 2008: Hedge fund-of-funds RFP update
- ▶ February, 2009: Update on the status of the Hedge fund-of-funds RFP. Staff has been monitoring the respondents to determine any exposure to the Madoff situation or if they are freezing redemptions
- ▶ May, 2010: Decision not to make an allocation to Hedge fund-of-funds and that Hedge Funds be removed from the list of available assets in future Asset /Liability studies

Decision Timeline – Timberland

- ▶ November, 2007: Staff recommends that timber be considered as an appropriate asset class within either Real Estate or Real Return asset allocation
- ▶ August, 2008: RVK presented educational session on Timberland as part of a broader session on Real Return (i.e., inflation-protection) assets
- ▶ August, 2010:
 - Inflation Hedge Composite discussed in context of last category in Asset/Liability Study for consideration by Board (composition in that context was 60% TIPS, 20% Timberland, 20% Commodities)
 - Approved Timberland as an authorized investment to be made opportunistically over time and held in the Real Estate Pool
 - Maximum allocation to the Real Estate Pool increased from 8.0% to 10.0% to accommodate potential investments
- ▶ February, 2011: First commitment made to Timberland fund

Decision Timeline – Commodities

- ▶ August, 2008: RVK presented educational session on Commodities
- ▶ August, 2010:
 - Inflation Hedge Composite discussed in context of last category in Asset/Liability Study for consideration by Board (composition in that context was 60% TIPS, 20% Timberland, 20% Commodities)
 - Board decided not to make an allocation to commodities

Decision Timeline – Pension Policy Changes

- ▶ August, 2006: Board approved changes in the asset allocation ranges for TRS, and other plans until distinct asset allocation policies are advisable
 - Fixed Income: from 25–35% to 22–32%
 - Domestic Equity: from 40–50% to 30–50%
 - International Equity: from 12–18% to 15–30%
 - Private Equity: from 4–7% to 5–10%
 - Real Estate: from 0–5% to 0–8% (later changed to 4–8% once exposure grew into range)

- ▶ November, 2010: Creation of a master Retirement Funds Investment Policy Statement
 - Board approval of this policy will complete implementation of recommendations made by Independent Fiduciary Services (IFS), the consulting firm that conducted a thorough study of the Board’s operational and investment policies and procedures
 - Intended to serve as a master template for all nine retirement funds until such time as individual fund objectives/liquidity requirements necessitate individual statements

Pension Fund Asset Allocations 60 -70% Equities Range			
<u>Domestic Equity Pool</u>			
<u>Investment Type</u>	<u>Range</u>		
Large Cap Core (passive)	10% - 30%		
Large Cap Enhanced	20% - 30%	30% - 50%	4% - 10%
Large Cap Style-Based (long-only)	20% - 30%		
Partial Long/Short (130/30)	10% - 20%		
Total Large Cap	<u>82% - 92%</u>		
Mid Cap	5% - 11%		
Small Cap	3% - 8%		
<u>International Equity Pool</u>			
<u>Investment Type</u>	<u>Range</u>		
Large Cap Core (active & passive)	50% - 70%	15% - 30%	9% - 15%
Large Cap Growth	10% - 20%		
Large Cap Value	10% - 20%		
Small Cap Core	5% - 15%		
<u>Retirement Funds Bond Pool</u>			
<u>Investment Type</u>	<u>Range</u>		
Domestic High Yield	0% - 15%	22% - 32%	1% - 5%
International	0% - 10%		
Total High Yield/International	<u>0% - 20%</u>		
Domestic Core(investment grade)	80% - 100%		
<u>Real Estate Pool</u>			
<u>Investment Type</u>	<u>Range</u>		
Core/Timberland *	35% - 65%		
Value Added	20% - 45%		
Opportunistic	10% - 30%		
* Timberland may not exceed 2% of total pension assets			
<u>Private Equity Pool</u>			
<u>Investment Type</u>	<u>Range</u>		
Leveraged Buyouts	40% - 75%		
Venture Capital	10% - 50%		
Mezzanine Financing	0% - 10%		
Distressed Securities	0% - 40%		
Special Situations	0% - 10%		
<u>Short Term Investment Pool</u>			
Short-term liquid investments			
High-quality Investments			
24 Hour Liquidity for Participants			

RVKuhns

▶▶▶ & ASSOCIATES, INC.

Asset Allocation Discussion

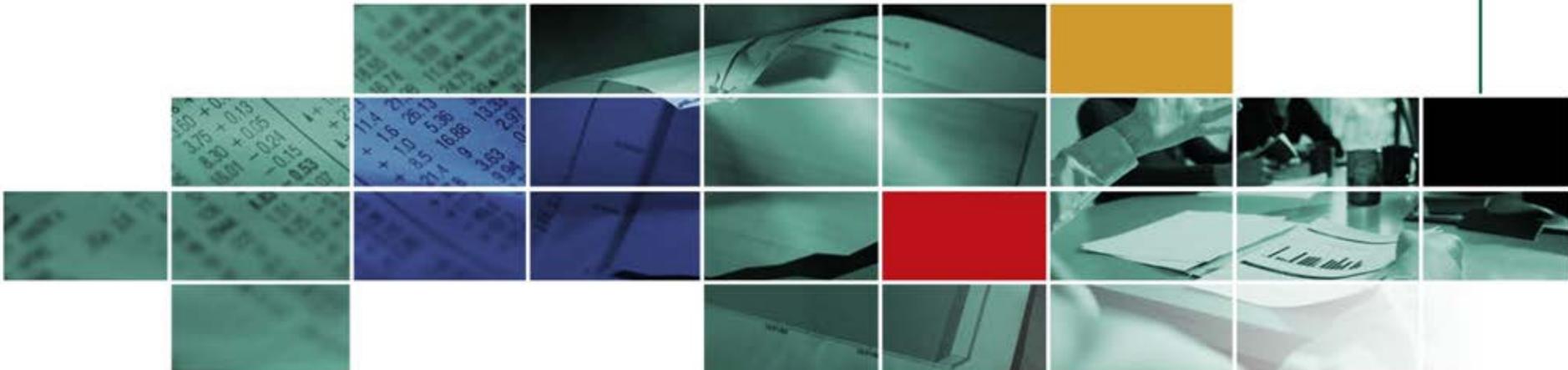
Montana Board of Investments

April 3, 2012

Cliff Sheets, CFA

Becky Gratsinger, CFA

James Voytko





Part 1: Risk and Return



What is Risk?

Risk is the Probability of Incurring a Permanent Impairment of Capital

Key Concepts

- Investors expect to be compensated with higher returns in exchange for taking greater amounts of risk.
- While admittedly imperfect, risk metrics seek to describe investment attributes that may raise or lower the probability of capital impairment. Common descriptions of risk include:

Volatility	Describes the expected variation in asset values over time.
Equity Beta	Measures embedded equity risk (i.e., the extent to which asset values move in sync with overall equity markets).
Liquidity	Measures the extent to which assets can be bought or sold (and the required pricing concessions to execute such transactions) in various market conditions.
Valuation	Measures the relative attractiveness of asset values based on historical parameters and future projections.
Headline Risk	Chance that an unexpected loss event could cause reputational damage.



Risk, Return, and Mean Variance Optimization (MVO)

- ☞ **Introduced by Nobel Laureate, Harry Markowitz in 1952.**
- ☞ **MVO uses return VOLATILITY as the primary proxy for investment risk.**
- ☞ **Using inputs of expected return, volatility, and correlation for various asset classes, MVO enables investors to identify combinations of distinct asset class allocations that maximize portfolio returns for a given level of risk.**
- ☞ **By incorporating multiple assets with less than perfect correlation, investors can increase the expected long-term returns of the portfolio.**



Why Does Volatility Matter?

Key Concepts

- Average returns are not equivalent to compound returns (i.e., geometric return) in the presence of return volatility.
- Difference between arithmetic and compound return stems primarily from the asymmetrical impact of negative returns.

Figure 1: Sample Return Stream and Resulting Returns

Year	Beginning Value	Return	Ending Value
Year 1	\$100.00	15%	\$115.00
Year 2	\$115.00	(10%)	\$103.50
Year 3	\$103.50	(25%)	\$77.63
Year 4	\$77.63	20%	\$93.15

Average Return = 0%

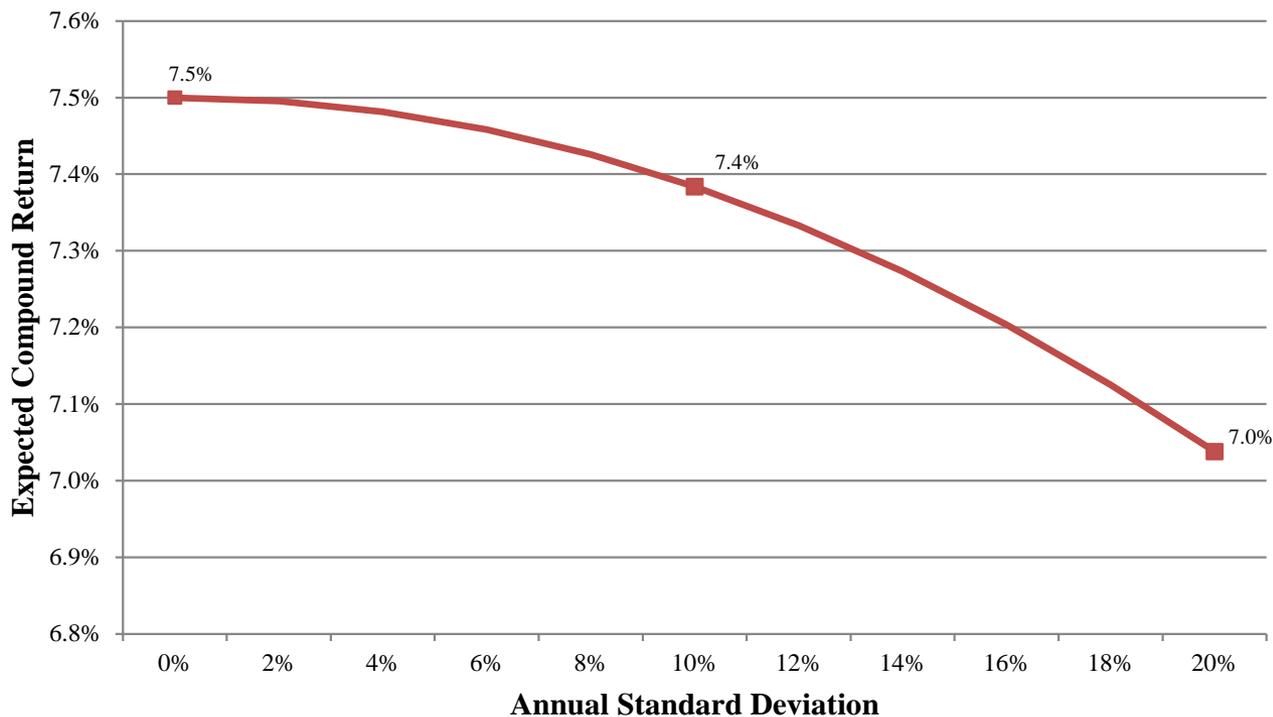
Actual Loss = **(\$6.85)**

Effective Annualized Return = **(1.76%)**



Volatility Reduces Expected Compound Returns

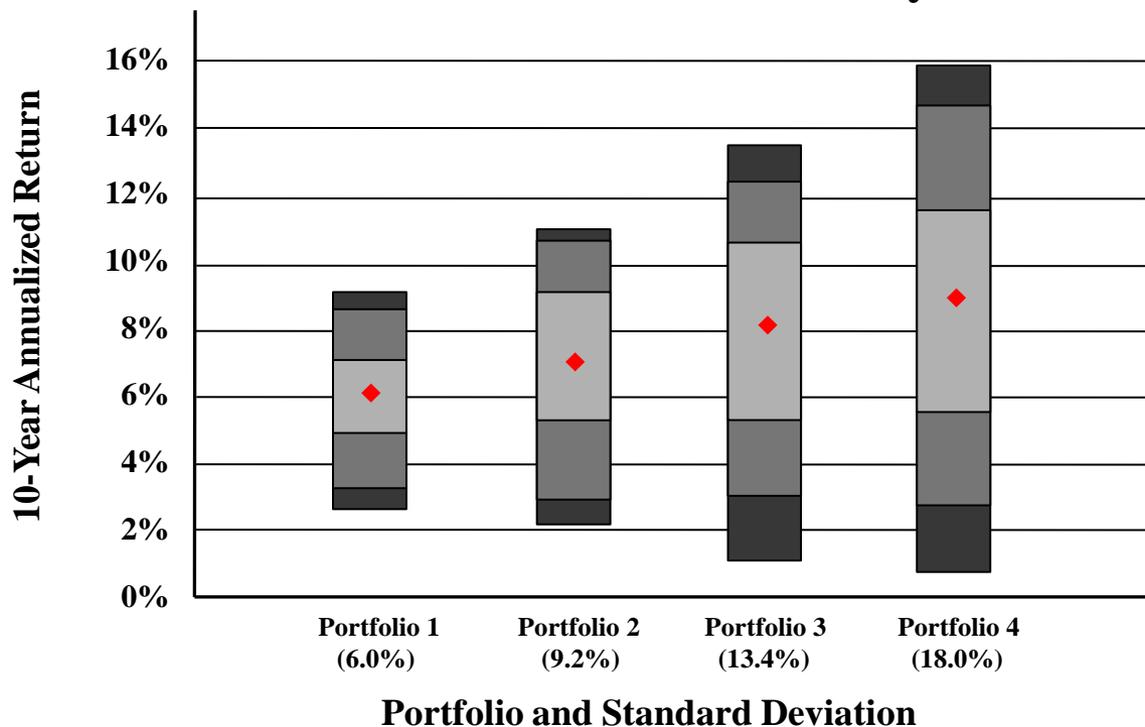
Figure 2: Expected Long-Term Compound Return by Level of Volatility





Volatility Also Widens the Distribution of Outcomes

Figure 3: Simulated 10-Year Returns by Level of Portfolio Volatility



- 50% of Outcomes
- 80% of Outcomes
- 90% of Outcomes
- ◆ Median (50th Percentile)

How do asset class correlations impact returns?

Highlights

- Correlations of less than 1.0 enable investors to reduce portfolio risk without sacrificing return.
- Figure 3 illustrates a risk reduction of nearly 2.60%, which is generated by a two-asset portfolio with a 0.10 correlation.

Figure 3: Risk/Return Plot

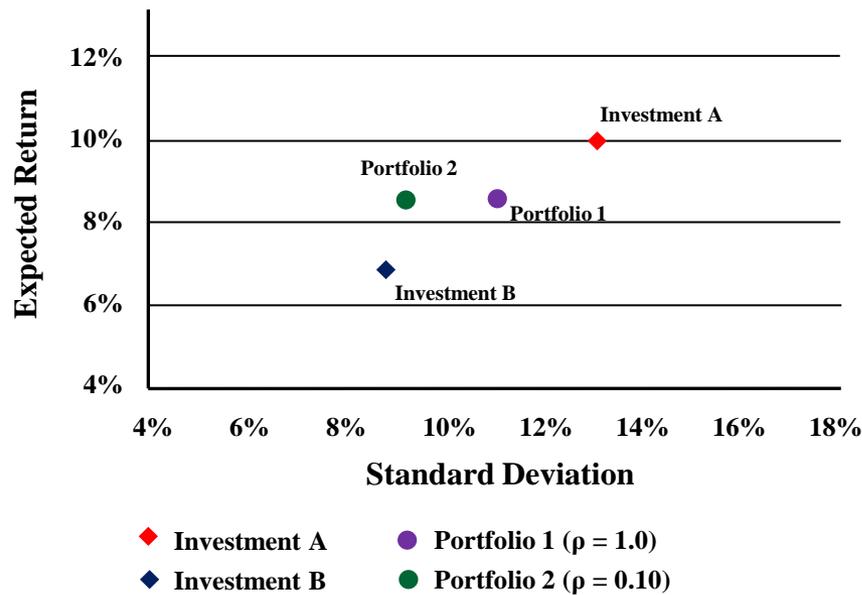


Figure 4: Investment Risk/Return Attributes

Metric	Investment A	Investment B
Return	10.00%	7.00%
Standard Deviation	13.20%	8.80%
Portfolio Weight	56%	44%

Figure 5: Portfolio Risk/Return Attributes

Metric	Portfolio 1	Portfolio 2
Correlation ($\rho_{A,B}$)	1.00	0.10
Return	8.68%	8.68%
Standard Deviation	11.26%	8.70%



MVO Shortcomings

1. Uses volatility as the sole proxy for risk
2. Simplified assumption of risk/return trade-off fails to capture how real world investors evaluate gains versus losses
3. Ignores non-normal attributes of return distributions, and assumes returns are symmetrical
4. Treats correlation as a constant rather than a variable
5. Can show high sensitivity to small changes to input values
6. Unconstrained output yields highly concentrated portfolios rather than intended diversification that most investors seek.
7. Does not directly account for liquidity requirements or rebalancing constraints.



Part 2: Importance of Asset Allocation

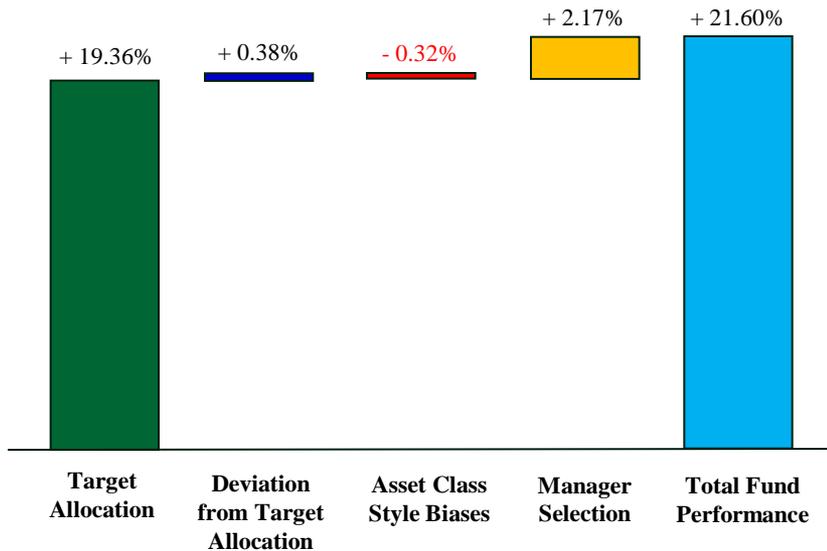


Asset Allocation is the Primary Driver of Portfolio Returns

- ❧ Multiple studies conclude that asset allocation is the most important determinant of total fund performance in the long run.
- ❧ Studies estimate that 90% of the volatility in annual fund returns is attributable to asset allocation (as opposed to manager excess return and other factors).
- ❧ Manager selection, while potentially valuable, cannot be expected to compensate an investor for a poorly diversified or inappropriately allocated portfolio.

Theory is Confirmed in Practice

Figure 6: Total Portfolio Return Attribution
(July 1, 2010 – June 30, 2011)



Highlights

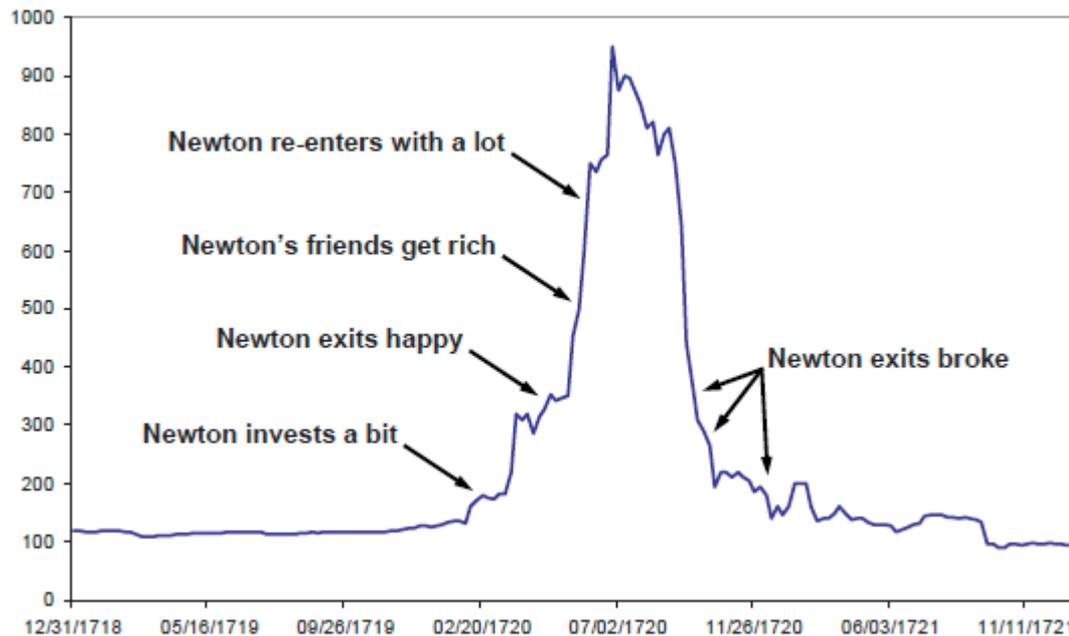
- ∞ Each quarter, RVK completes an analysis of total portfolio attribution for an endowment with ~\$400 million in assets.
- ∞ Analysis decomposes return into:
 - Target Allocation (i.e., return of underlying benchmarks)
 - Deviation from Target Allocation
 - Style biases within each asset class (e.g., small cap U.S. equity overweight)
 - Manager selection (i.e., excess return)
- ∞ For the one-year period of analysis, 90% of portfolio performance is determined by the portfolio allocation.



Part 3: Diversification and Tactical Allocation

Even Geniuses Fail...

Figure 7: South Sea Stock
(December 1718 – December 1721)



“I can calculate the motions of the heavenly bodies, but not the madness of people.”

- Sir Isaac Newton explaining his loss of £20,000 due to a concentrated position in the South Sea Company (representing nearly his entire net worth at the time)

Diversification Protects Against Extreme Outcomes

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	4Q11	10-ys '02 - '11												
REITs	DJ UBS Cmnty	MSCI EME	REITs	MSCI EME	REITs	MSCI EME	Barclays Agg	MSCI EME	REITs	REITs	Russell 2000	MSCI EME	13.9%	23.9%	56.3%	31.6%	34.5%	35.1%	39.8%	5.2%	79.0%	28.0%	8.3%	15.5%	277.2%
Market Neutral	Barclays Agg	Russell 2000	MSCI EAFE	DJ UBS Cmnty	MSCI EME	MSCI EAFE	Market Neutral	MSCI EAFE	Russell 2000	Barclays Agg	REITs	REITs	9.3%	10.3%	47.3%	26.0%	17.6%	32.6%	11.6%	1.1%*	32.5%	26.9%	7.8%	15.3%	164.2%
Barclays Agg	Market Neutral	MSCI EAFE	MSCI EAFE	MSCI EAFE	MSCI EAFE	DJ UBS Cmnty	Asset Alloc.	REITs	MSCI EME	Market Neutral	S&P 500	Barclays Agg	8.4%	7.4%	39.2%	20.7%	14.0%	26.9%	11.1%	23.8%	28.0%	19.2%	5.0%	11.8%	15.4%
Russell 2000	REITs	REITs	Russell 2000	REITs	Russell 2000	Market Neutral	Russell 2000	Russell 2000	DJ UBS Cmnty	S&P 500	Asset Alloc.	Asset Alloc.	2.5%	3.8%	37.1%	18.3%	12.2%	18.4%	9.3%	-33.8%	27.2%	16.7%	2.1%	6.5%	73.5%
MSCI EME	Asset Alloc.	S&P 500	Asset Alloc.	Asset Alloc.	S&P 500	Asset Alloc.	DJ UBS Cmnty	S&P 500	S&P 500	S&P 500	Asset Alloc.	MSCI EME	-2.4%	-5.4%	28.7%	12.5%	8.0%	15.8%	7.3%	-36.6%	26.5%	15.1%	-0.2%	4.5%	72.8%
Asset Alloc.	MSCI EME	Asset Alloc.	S&P 500	Market Neutral	Asset Alloc.	Barclays Agg	S&P 500	Asset Alloc.	Asset Alloc.	Russell 2000	Russell 2000	MSCI EAFE	-3.4%	-6.0%	25.2%	10.9%	6.1%	14.9%	7.0%	-37.0%	22.5%	12.7%	-4.2%	3.4%	72.7%
S&P 500	MSCI EAFE	DJ UBS Cmnty	DJ UBS Cmnty	S&P 500	Market Neutral	S&P 500	REITs	DJ UBS Cmnty	DJ UBS Cmnty	MSCI EAFE	MSCI EAFE	Market Neutral	-11.9%	-15.7%	22.7%	7.6%	4.9%	11.2%	5.5%	-37.7%	18.7%	8.2%	-11.7%	2.9%	64.8%
MSCI EAFE	Russell 2000	Market Neutral	Market Neutral	Russell 2000	Barclays Agg	Russell 2000	Russell 2000	MSCI EAFE	Barclays Agg	Barclays Agg	DJ UBS Cmnty	Barclays Agg	-21.2%	-20.5%	7.1%	6.5%	4.6%	4.3%	-1.6%	-43.1%	5.9%	6.5%	-13.4%	1.1%	58.0%
DJ UBS Cmnty	S&P 500	Barclays Agg	Barclays Agg	Barclays Agg	DJ UBS Cmnty	REITs	MSCI EME	Market Neutral	Market Neutral	MSCI EME	DJ UBS Cmnty	S&P 500	-22.3%	-22.1%	4.1%	4.3%	2.4%	-2.7%	-15.7%	-53.2%	4.1%	-2.5%	-18.2%	0.3%	33.4%

Source: Russell, MSCI, Dow Jones, Standard and Poor's, Credit Suisse, Barclays Capital, NAREIT, FactSet, J.P. Morgan Asset Management.

The "Asset Allocation" portfolio assumes the following weights: 25% in the S&P 500, 10% in the Russell 2000, 15% in the MSCI EAFE, 5% in the MSCI EMI, 30% in the Barclays Capital Aggregate, 5% in the CS/Tremont Equity Market Neutral Index, 5% in the DJ UBS Commodity Index and 5% in the NAREIT Equity REIT Index. Balanced portfolio assumes annual rebalancing. All data except commodities represent total return for stated period. Past performance is not indicative of future returns. Data are as of 12/31/11, except for the CS/Tremont Equity Market Neutral Index, which reflects data through 11/30/11. "10-ys" returns represent cumulative total return and are not annualized. These returns reflect the period from 1/1/02 – 12/31/11.

Please see disclosure page at end for index definitions. *Market Neutral returns include estimates found in disclosures. Data are as of 12/31/11.

J.P.Morgan
Asset Management



What is Tactical Allocation?

Definition

RVK defines tactical allocation as actions taken to manage a portfolio to take advantage of short-term, forward-looking economic and capital market forecasts by making deviations from strategic asset allocation ranges.

Example

Board views public international stocks as being particularly rich given European sovereign debt risks and votes to reduce its allocation to 10% and move the proceeds to fixed income.



Why Not Engage in a More Tactical Approach?

Obstacles to Success

Inherent Uncertainty of Economic Events

Material economic events occur that cannot possibly be predicted (e.g., Japanese Tsunami and nuclear disaster). An otherwise prudent tactical decision can have devastating consequences.

Structural Impediments To Tactical Execution

Quarterly meetings of Boards and Investment Committees prevent the execution of timely tactical decisions.

Behavioral Biases

Human instincts often produce tactical decisions that occur at precisely the wrong time (e.g., buying high and selling low).

Headline Risk

Tactical decisions gone wrong (even if for the right reasons) can lead to serious disruptions due to the impact of headlines and potential impact on public or stakeholder sentiment. This is particularly applicable in the case of public funds.

Implementation Costs

Transaction costs can be significant, especially if overall market liquidity is poor due to temporary market conditions.

Liquidity Constraints

Some assets are illiquid, rendering it prohibitively expensive or impossible to make short-term changes in exposure. Even seemingly liquid assets can become effectively illiquid under certain market conditions.

...However, Tactical Allocation Can Be Prudent in the Presence of Extreme Asset Misvaluations

Figure 8: Valuation (Price/Equity Ratio)
(1926 – 2001)

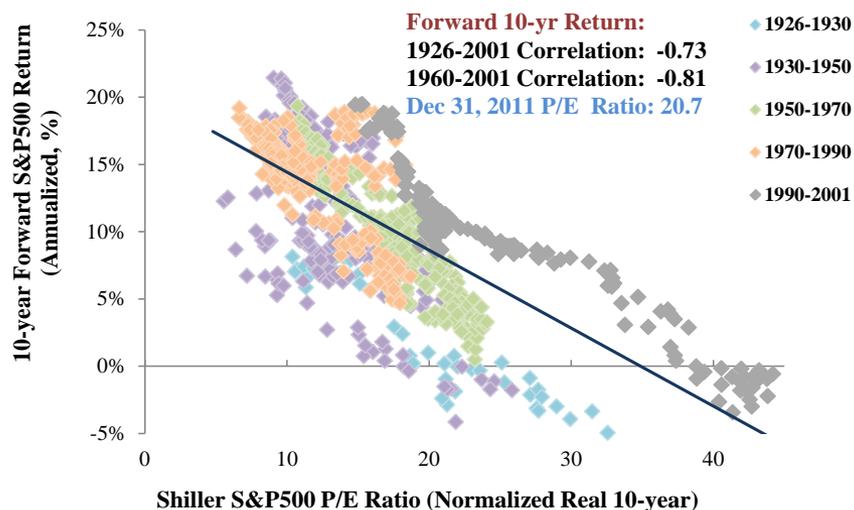
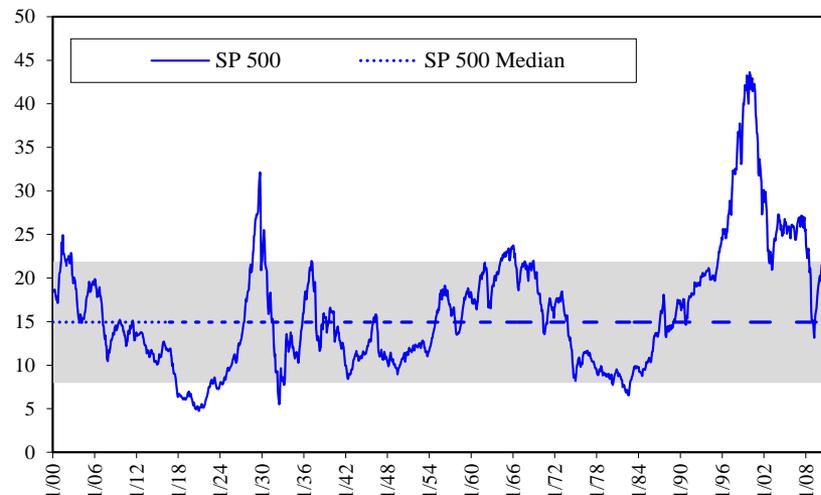


Figure 9: Cyclically Adjusted P/E Ratios
(1900 – 2011)



Key Points

- ☞ When 10-Year P/E Ratios approach 25-30, expected 10-year returns materially decline
- ☞ When 10-Year P/E Ratios approach 10, expected 10-year returns materially increase
- ☞ In the presence of market extremes, tactical allocation can be considered prudent even if the ultimate outcome is uncertain.



Tactical Allocation at Montana

- ❧ Minor tactical allocations are employed routinely, but in a measured manner, by staff at Montana.

- ❧ Objective is to invest or redeem investments in a manner that is sensitive to relative asset class valuations and/or short-term economic events.

- ❧ Examples of common events that force tactical asset allocation decisions, include:
 1. Investment of contributions to pension plans
 2. Redemption of securities to fund monthly benefits
 3. Funding of capital calls or investment of distributions from private equity and real estate investments
 4. Periodic portfolio rebalancing

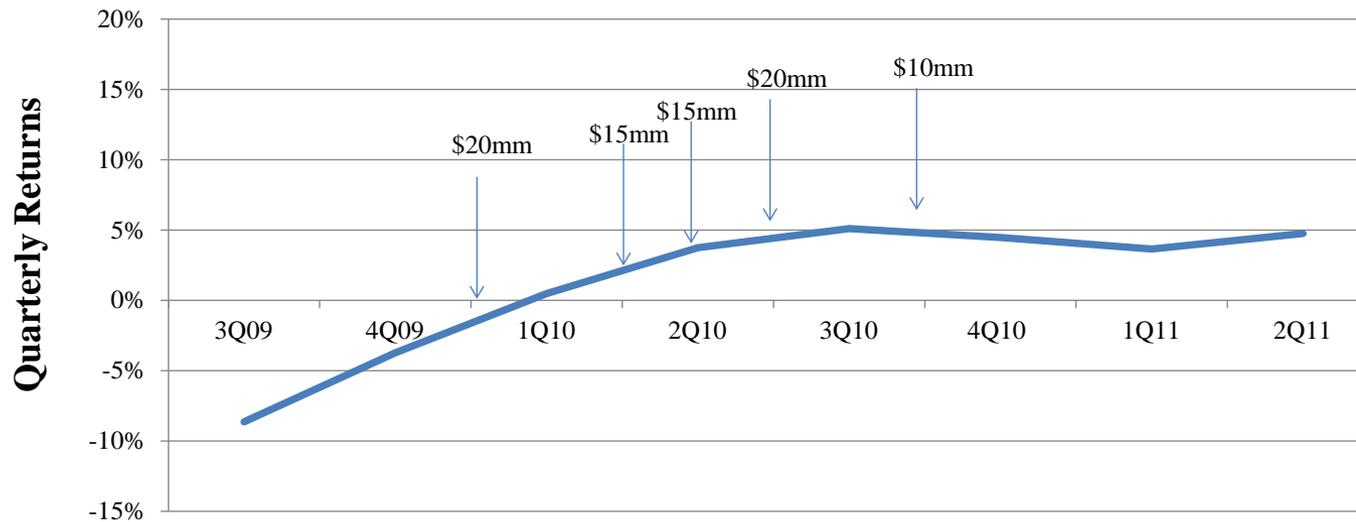


Montana's Approach to Tactical Decisions

- ❧ Tactical decisions are relatively minor in the sense that they are made within the confines of strategic allocation ranges.
- ❧ The objective is to accomplish relatively minor shifts in market exposure across and within asset classes that can add value.
- ❧ Decisions are based on perceived temporary market conditions that are expected to change over a reasonable horizon.

Tactical Allocation Example #1—Core Real Estate

Figure 10: Montana Board of Investments—Core Real Estate
(2009 - 2011)

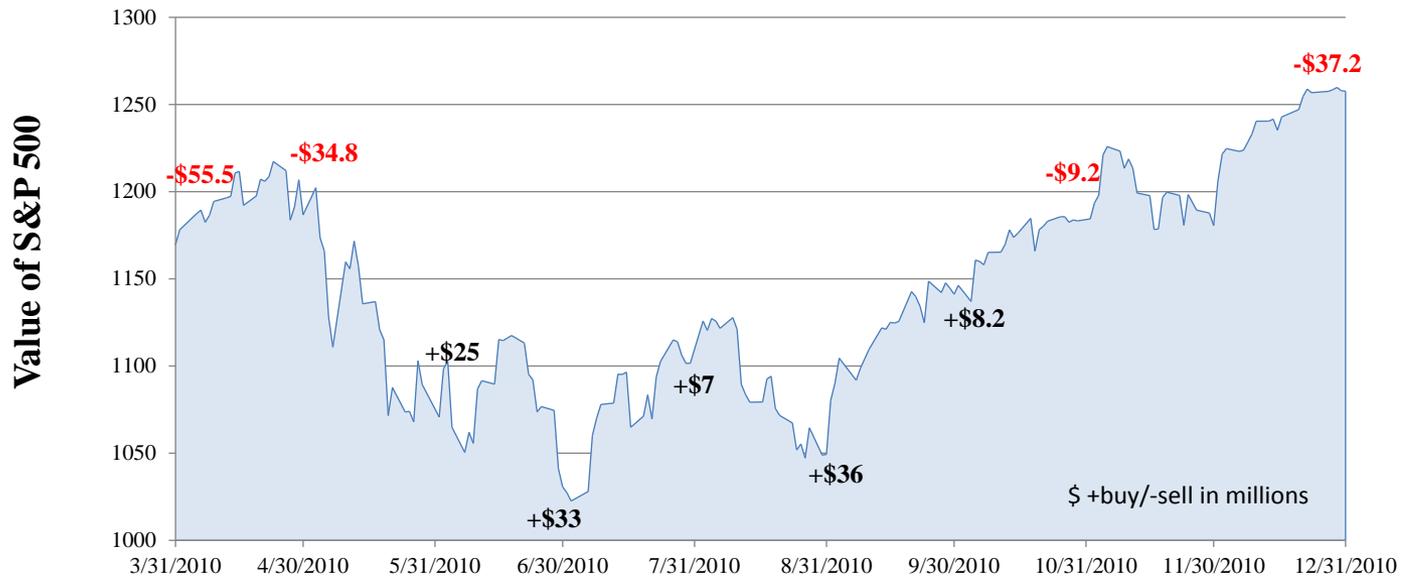


Key Points

- ☞ Real Estate allocation was at 4.4% in December 2009 (near the bottom of the target allocation range).
- ☞ Core Real Estate purchases of \$80 million during 2010
- ☞ Purchases averaged in during cyclical turning point in returns.

Tactical Allocation Example #2—Public Equities

Figure 11: Montana Board of Investments—Public Equities
(Monthly Buy/Sell Decisions for Final Three Quarters of 2010)

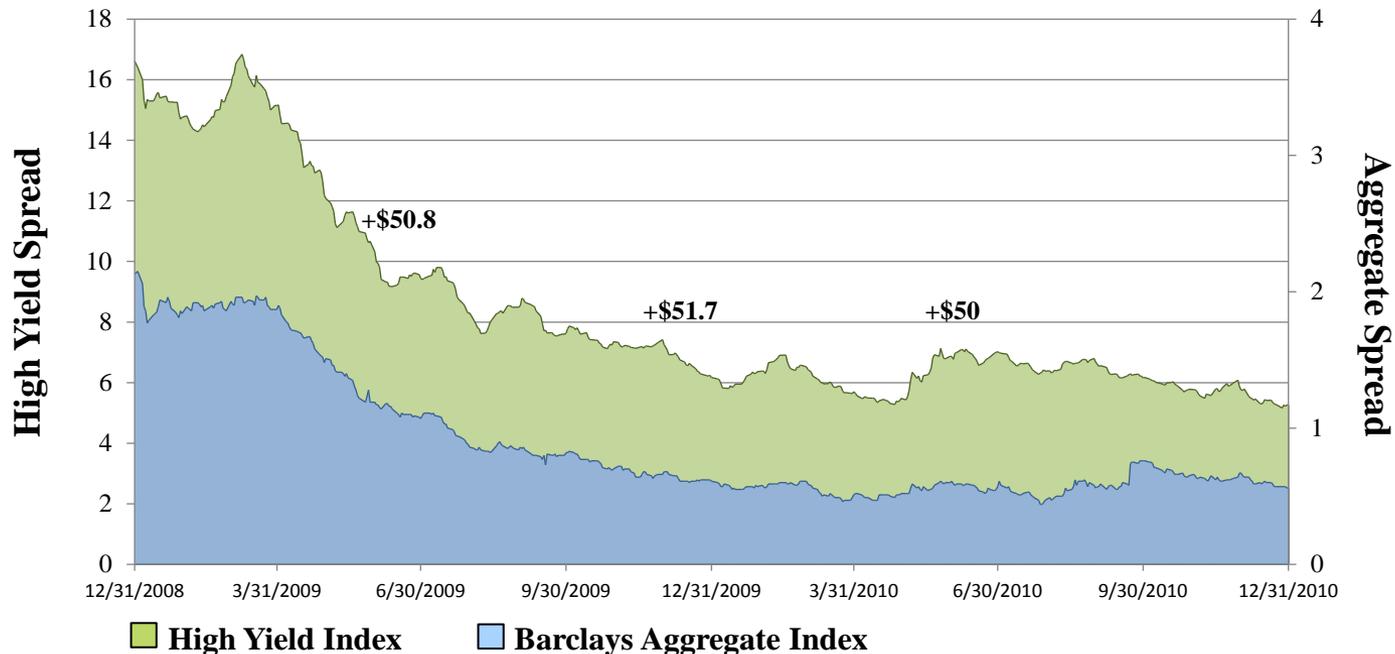


Key Points

- ☞ Decisions made every month-end
- ☞ Part of liquidity management for pension benefit and capital call needs

Tactical Allocation Example #3—High Yield Fixed Income

Figure 12: Montana Board of Investments—High Yield Fixed Income
(2009 -2010)



Key Points

- ☞ Sub asset class decision within broader asset class
- ☞ Averaged in at relatively attractive spreads



Conclusions

- ☞ **Risk is best defined as the probability of suffering permanent capital impairment (i.e., losses that cannot likely be reversed with reference to target returns).**
- ☞ **Asset allocation is the most critical driver of long-term returns and return volatility (a key metric of risk).**
- ☞ **While admittedly imperfect, MVO is a powerful tool that can help the Board create a portfolio that is well-diversified and optimizes the expected risk/return trade-off.**
- ☞ **Tactical opportunities exist, but should be deployed in a measured manner and reserved for cases of misvaluation, or temporary, but significant, market dislocations.**
- ☞ **The Montana Board of Investments has several additional tools available to manage other forms of risk**
 1. **Valuation Risk**—Measured tactical allocation provides flexibility to alter allocations to asset classes during periods of misvaluation.
 2. **Liquidity Risk**—Private equity and real estate pacing tools help maintain desired exposure to illiquid asset classes.
 3. **Manager Risk**—Monitoring by staff and third-party consultant reduces risk of and ensures timely response to manager underperformance.



Part 4: MVO Analysis



RVK Capital Market Assumptions

Figure 13: Historical Asset Allocation Assumptions
(2010-2012)

Asset Class	2010			2011			2012		
	Return (Arithmetic)	Standard Deviation	Return (Compound)	Return (Arithmetic)	Standard Deviation	Return (Compound)	Return (Arithmetic)	Standard Deviation	Return (Compound)
Broad US Equity	8.15%	17.75%	6.72%	8.15%	18.10%	6.67%	7.90%	17.95%	6.44%
Broad International Equity	8.60%	19.15%	6.95%	8.65%	20.10%	6.84%	8.65%	20.80%	6.71%
Intermediate Duration Fixed Income	5.00%	5.00%	4.88%	4.50%	5.50%	4.36%	4.25%	5.75%	4.09%
High Yield Fixed Income	7.00%	14.00%	6.10%	6.75%	14.50%	5.78%	7.25%	15.00%	6.22%
Diversified Inflation Strategies	6.75%	10.50%	6.24%	6.25%	11.25%	5.66%	6.20%	11.40%	5.59%
Timber	N/A	N/A	N/A	8.25%	14.50%	7.29%	8.00%	14.50%	7.04%
Core Real Estate	7.00%	10.50%	6.49%	7.00%	12.50%	6.28%	7.00%	12.50%	6.28%
Non-Core Real Estate	N/A	N/A	N/A	10.00%	21.50%	7.96%	10.00%	22.50%	7.77%
Absolute Return FoF - Multi Strategy	7.75%	8.50%	7.42%	7.50%	9.00%	7.13%	7.00%	9.50%	6.58%
Private Equity	12.25%	29.75%	8.50%	12.25%	30.25%	8.38%	11.75%	30.25%	7.87%
Cash Equivalents	3.00%	2.50%	2.97%	2.25%	3.00%	2.21%	2.25%	3.00%	2.21%
US Inflation	2.50%	2.50%	2.47%	2.50%	3.00%	2.46%	2.50%	3.00%	2.46%

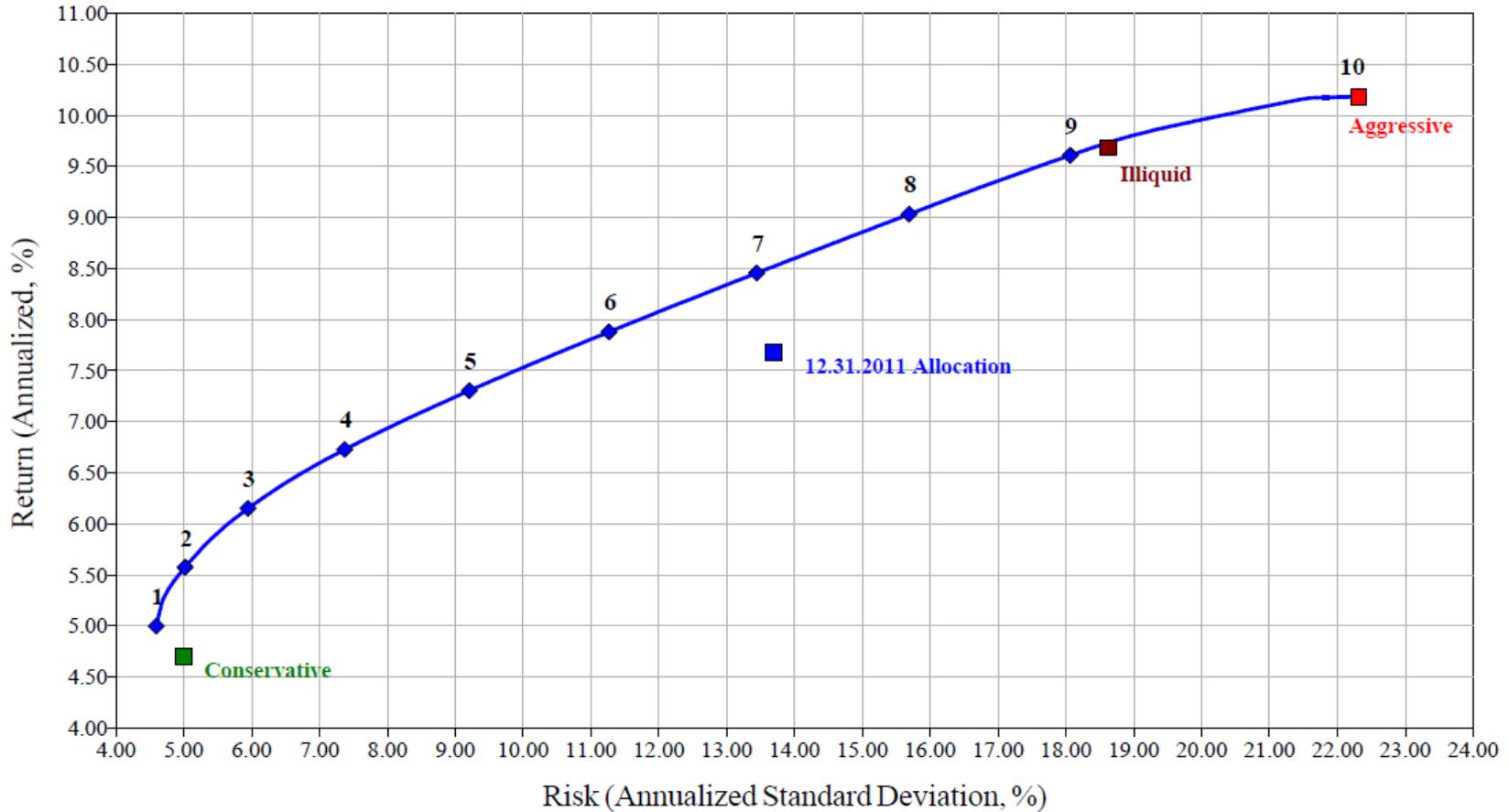
MVO Analysis – Unconstrained Portfolios

Figure 14: Unconstrained Asset Allocation Analysis
(Current Allocation as of December 31, 2011)

Asset Classes			Current Allocation			
	Min	Max	12/31/2011	Conservative	Aggressive	Illiquid
Broad U.S. Equity	0	50	36.45	0	20	0
Broad Int'l Equity	0	50	16.20	0	20	0
Int. Duration Fixed Income	0	75	23.25	75	0	0
High Yield Fixed Income	0	5	3.00	0	0	0
Div. Inflation Strategies	0	10	0.00	0	0	5
Core Real Estate	0	10	3.25	0	0	10
Non Core Real Estate	0	10	3.85	0	10	10
ARS Multi-Strategy FoF	0	20	0.00	20	0	20
Private Equity	0	50	13.00	0	50	50
Timber	0	5	0.50	0	0	5
Cash Equivalents	0	5	0.50	5	0	0
Total			100	100	100	100
Expected Return			7.68	4.70	10.18	9.69
Risk (Standard Deviation)			13.70	5.00	22.31	18.62
Capital Appreciation			73	0	100	60
Capital Preservation			24	80	0	0
Alpha			0	20	0	20
Inflation			4	0	0	20
Return (Compound)			6.82	4.58	7.99	8.14
Return/Risk Ratio			0.56	0.94	0.46	0.52
RVK Expected Equity Beta (LC US = 1)			0.73	0.1	1.04	0.74
RVK Liquidity Metric (Cash=100)			73	76	40	15

Efficient Frontier – Unconstrained Portfolios

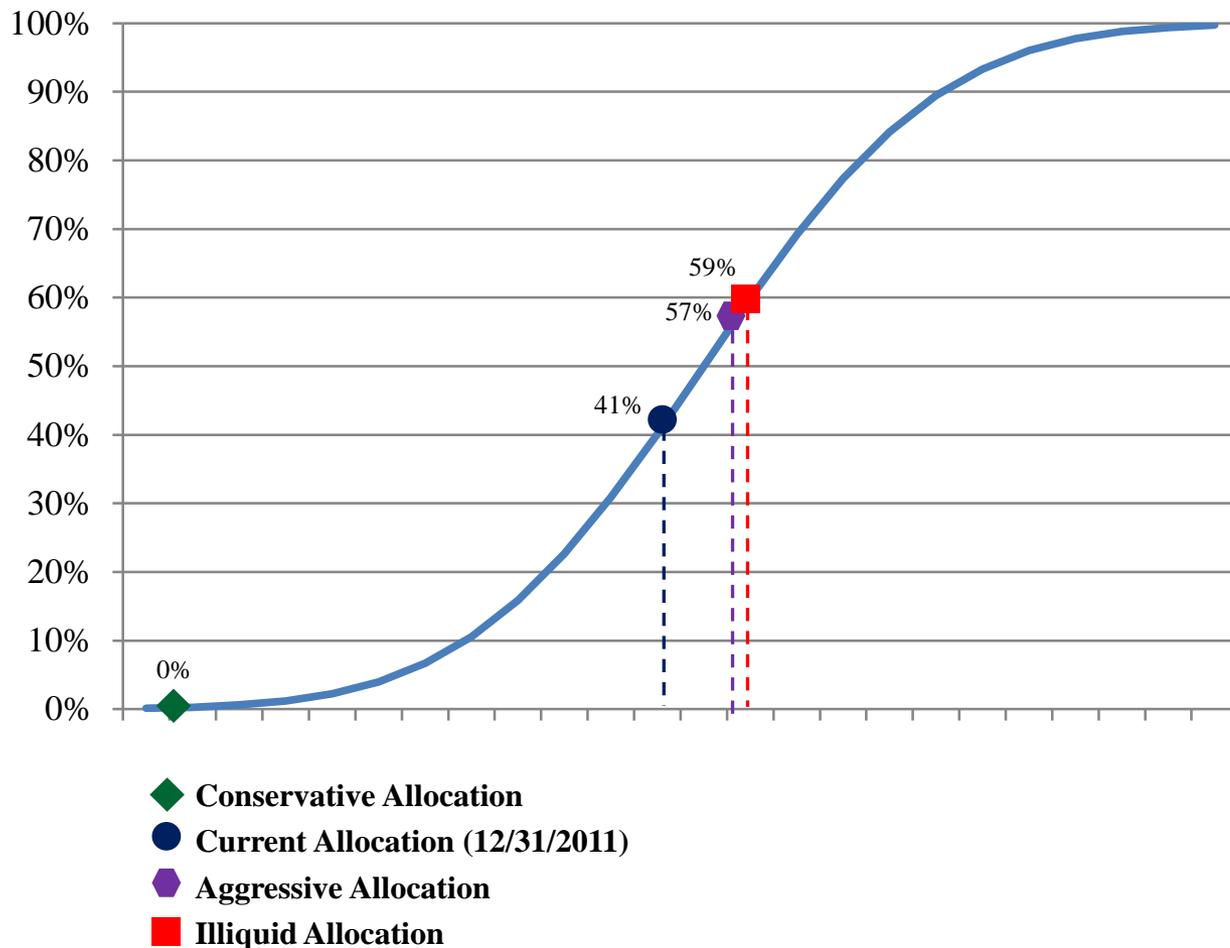
Figure 15: Unconstrained Portfolio Efficient Frontier
(Current Allocation as of December 31, 2011)





MVO Analysis – Monte Carlo Simulation

Figure 16: Cumulative Probability Distribution for Achieving 8% Return over 10 Years



One Year Downside Risk (5% Chance of Loss)

Conservative Allocation	-2.04%
Current Allocation	-13.39%
Aggressive Allocation	-17.62%
Illiquid Allocation	-11.56%

RVK Assessment of Liquidity (100=Highest; 0=Lowest)

Conservative Allocation	76
Current Allocation	73
Aggressive Allocation	40
Illiquid Allocation	15



Key Considerations When Setting a Target Allocation

∞ **Required Return**

∞ **Tolerance Levels for Risks and Constraints**

- **Portfolio Volatility**
- **Transparency**
- **Headline Risk**
- **Equity Beta**

∞ **Liquidity**

∞ **Implementation**

MVO Analysis – Constrained Portfolios

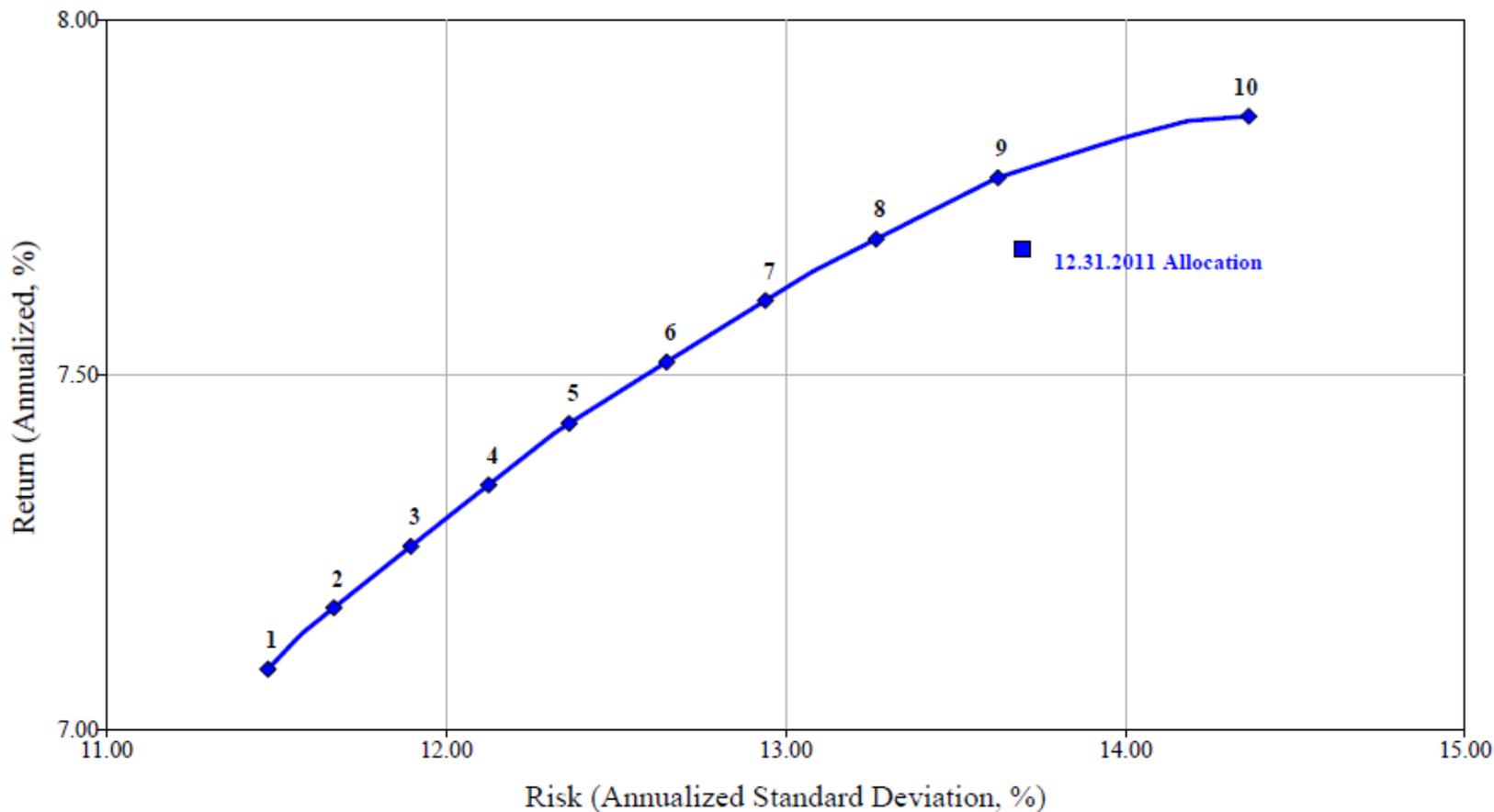
Figure 18: Constrained Asset Allocation Analysis
(Current Allocation as of December 31, 2011)

Asset Classes			1	2	3	4	5	6	7	8	9	10	Current Allocation (Dec 31, 2011)
	Min	Max											
Broad U.S. Equity	30	50	30	30	30	30	30	30	30	30	30	30	36.45
Broad Int'l Equity	15	30	15	15	15	15	15	15	15	16	18	25	16.20
Int. Duration Fixed Income	22	28	28	28	28	28	28	27	26	24	22	22	23.25
High Yield Fixed Income	0	4	3	4	4	4	4	4	4	4	4	0	3.00
Core Real Estate	2.5	4	4	4	4	4	4	4	4	4	4	3	3.25
Non Core Real Estate	2	4	4	4	4	4	4	4	4	4	4	4	3.85
Private Equity	9	15	9	9	10	11	12	13	14	15	15	15	13.00
Timber	1	2	2	2	2	2	2	2	2	2	2	1	0.50
Cash Equivalents	1	5	5	4	3	2	1	1	1	1	1	1	0.50
Total			100										
Expected Return			7.09	7.17	7.26	7.34	7.43	7.52	7.60	7.69	7.78	7.86	7.68
Risk (Standard Deviation)			11.48	11.67	11.90	12.13	12.36	12.65	12.94	13.27	13.63	14.36	13.70
Capital Appreciation			61	62	63	64	65	66	67	69	71	74	73.00
Capital Preservation			33	32	31	30	29	28	27	25	23	23	24.00
Alpha			0	0	0	0	0	0	0	0	0	0	0.00
Inflation			6	6	6	6	6	6	6	6	6	4	4.00
Return (Compound)			6.48	6.54	6.61	6.66	6.73	6.78	6.83	6.88	6.93	6.92	6.82
Return/Risk Ratio			0.62	0.61	0.61	0.61	0.60	0.59	0.59	0.58	0.57	0.55	0.56
RVK Expected Equity Beta (LC US = 1)			0.61	0.62	0.63	0.65	0.66	0.67	0.68	0.70	0.72	0.76	0.73
RVK Liquidity Metric (Cash=100)			74	73	72	71	71	70	69	68	68	72	73.00



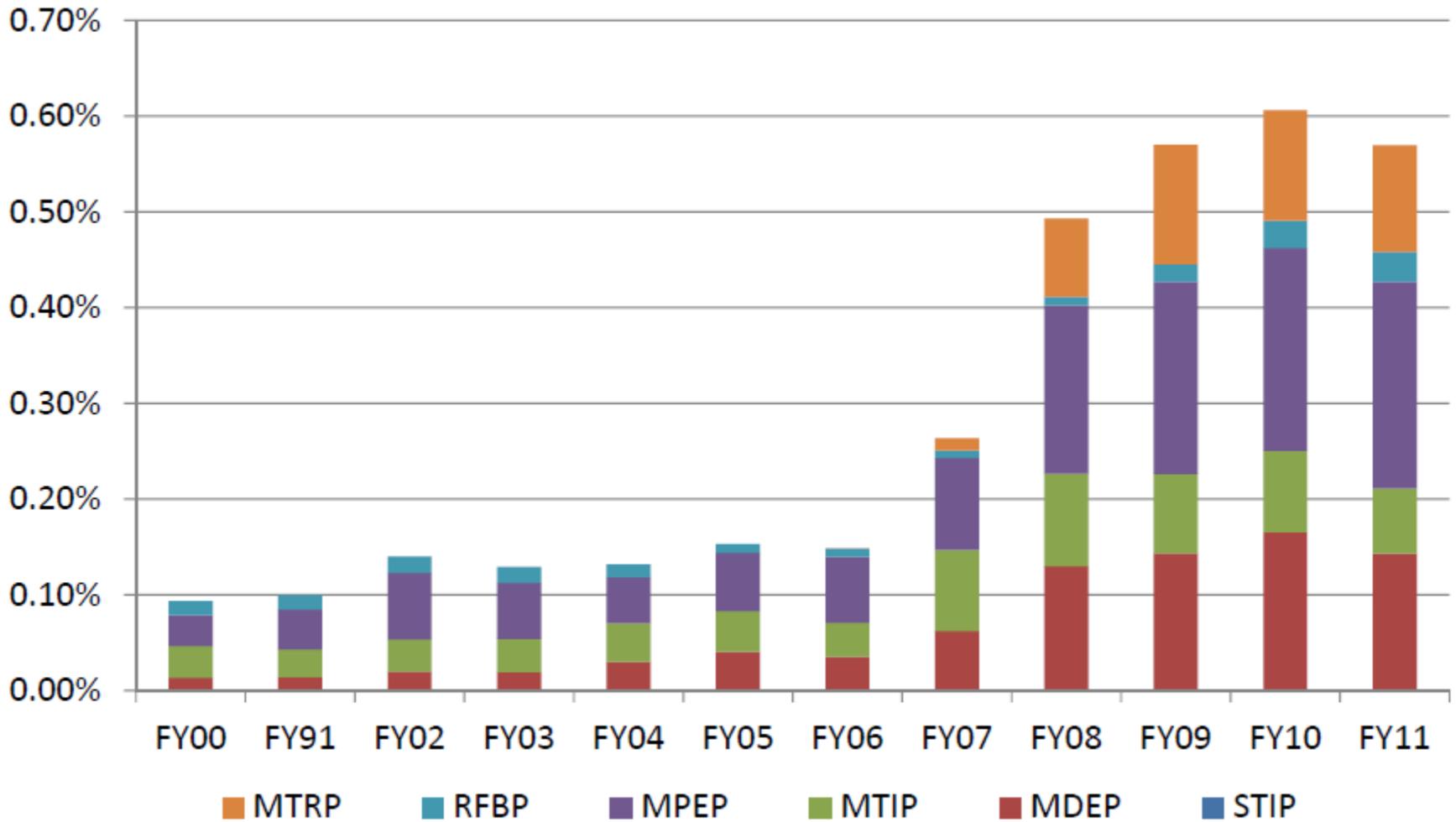
Efficient Frontier – Constrained Portfolios

Figure 19: Constrained Portfolio Efficient Frontier
(Current Allocation as of December 31, 2011)





Historical Fees by Percentage & Type





Net of Fee Returns, Risk and Execution Costs....

... Are inextricably linked. How they are addressed matters.

∞ Paradigm #1

- ∞ Determine the net of fees returns and risk levels the Board believes best meets the objectives of the fund(s)
- ∞ Determine the asset class exposures (asset allocation) most likely to deliver those net of fee returns and risk levels
- ∞ Ensure those exposures are obtained at competitive costs

∞ Paradigm #2

- ∞ Set an execution cost budget for the fund(s)
- ∞ Determine the range of asset class exposures that can be implemented within that cost budget
- ∞ Select the asset class investment exposures (asset allocation) that produce the best return and risk levels available within the allowed alternatives

Asset Allocation Drives Costs – and More

Asset Class	The Low Cost Asset Allocation	12.31.2011 MTBOI Allocation	A High Cost Asset Allocation
Broad US Equity	50.00	36.45	25.40
Emerging Markets Equity	-	-	10.00
Broad International Equity	-	16.20	11.30
Intermediate Duration Fixed Income	45.00	23.25	16.20
High Yield Fixed Income	-	3.00	2.10
Timber	-	0.50	-
Core Real Estate	-	3.25	-
Non-Core Real Estate	-	3.85	10.00
Absolute Return FoF - Multi Strategy	-	-	10.00
Private Equity	-	13.00	15.00
Cash Equivalents	5.00	0.50	-
Total	100.00	100.00	100.00
Capital Appreciation	50.00	72.50	73.80
Capital Preservation	50.00	23.75	16.20
Alpha	-	-	10.00
Inflation	-	3.75	-
Expected Return (Arithmetic)	5.98	7.68	8.34
Expected Risk (Standard Deviation)	9.84	13.70	14.75
Expected Return/Risk Ratio	0.61	0.56	0.57
Expected Return (Compound)	5.52	6.82	7.35



Takeaways from MVO Analysis

- ✧ **MVO analysis illustrates importance of diversification and the challenge of reaching the funding needs of the portfolio.**
- ✧ **Current Allocation as of 12/31/2011 fits comfortably in a broad range of diversified portfolios using Board-approved asset classes.**
- ✧ **Allocations are not static but will be managed within strategic ranges.**
- ✧ **If contributions continue to lag actuarially required rates, the funds will face greater liquidity challenges. In turn, the Board will confront increasing limitations on its investment strategies. The next 5-10 years do not necessarily present a liquidity problem.**
- ✧ **Costs are largely determined by the asset mix necessary to meet Board return and risk objectives, but are important and should be managed.**
- ✧ **Capital market expectations, market prices, and implementation opportunities change, so asset allocation should be reviewed periodically.**

Work Plan

Montana Board of Investments Meetings

All meetings

- Are public and duly noticed in advance
- Public comments invited at every meeting
- Minutes taken and previous ones approved

Quarterly meetings- February, May, August, and November

- Standard business
 - Performance
 - Activity
 - Investment consultant
- Committees
 - Loans: commercial, INTERCAP, MSTA
 - Audit
 - Human Resource
 - Other committees, as appointed by the Chairman
- Systematic review of Topics, as scheduled for 24-month rotation

Semi-Annual meetings- April and October

- In depth coverage on certain (to be determined) Topics
- April - Asset Allocation at a strategic level
- October - updated Actuarial Status & Asset Allocation implications
- Additional systematic review of Topics to complete 24-month rotation
- Subcommittees meet only as needed

Additional Board Topics for 24-month Systematic Review, either (A) annually or at least (B) biennially

- Investment Policy Statements (A)
- Accounting and internal data systems (A)
- Annual report and financial statements (A)
- Staffing levels and compensation (A)
- Accounting, GAAP, audits and internal control standards, compliance and execution (A)
- PERS and TRS relationship (A)
- Ethics policy – affirmations (typically May) (A)
- Resolution 217 update (typically Nov.) (A)
- General operations (e.g. day to day, landlord, disaster recovery, vendor review) (A/B)
- BOI website (B)
- Custodial bank relationship, performance, continuity (B)
- Board member training and staying current efforts (B)
- Customer relationships, especially large customers such as State Fund (B)
- Legislative session and interim matters (B)
- Outreach, especially commercial and municipal missions (B)
- The Board as a rated investment credit, and as a bond issuer and a credit enhancer (B)

Proposed Work Plan 2012

(Meetings shown below do NOT reflect all likely agenda items. Quarterly meetings will always include standard quarterly business. All meetings will include a combination of topics that will be reviewed within a 24-month systematic basis)

April	Semi-annual meeting BOI's Hierarchy of Responsibilities Asset Allocation - Strategic Work plan for remaining calendar 2012 Staff report on new public and private equity managers Proposed checklist for public manager due diligence Announcements, next meeting, logistics
May	Quarterly meeting Public equity - MDEP Proposed restructuring of domestic public equities Training, staff/ board ideas and recommendations, discussion, and logistics TRS and PERS board-to-board relationship
August	Quarterly meeting Costs (including reviewing CEM Benchmarking Inc. results) MBOI Budget/Operations (broadly)/Unified investment mission (focus on cash mgmt & daily process issues) Fiscal Year performance through June 30 th
October	Semi-annual meeting Private Real Estate Private Equity Joint meeting with pension boards or their representatives, tentative Investment Consultant selection
November	Quarterly meeting Public equity - MTIP Fixed Income Actuarial Status & Asset Allocation implications Legislative Session Investment Consultant selection (depending if done in Oct.) Coal Severance/Enhancement/Commercial Loan/INTERCAP et al Exempt staff annual performance

Pension Costs

History of Pension Asset Management Costs

Year	MBOI	Custody	Mgmt Fees	\$ Cost Total	Average Plan Assets	Average Cost
FY 2000	1,491,209	404,496	3,369,684	5,265,389	5,723,342,226	0.09%
FY 2001	1,597,784	433,404	3,610,511	5,641,699	5,686,840,944	0.10%
FY 2002	2,095,131	568,311	4,734,366	7,397,808	5,323,403,038	0.14%
FY 2003	1,898,867	515,074	4,290,868	6,704,809	4,938,350,693	0.14%
FY 2004	1,490,196	516,569	4,930,255	6,937,020	5,691,682,045	0.12%
FY 2005	2,014,783	568,115	6,825,935	9,408,832	6,125,591,632	0.15%
FY 2006	2,168,972	660,622	7,034,554	9,864,148	6,730,054,974	0.15%
FY 2007	2,134,663	684,711	17,033,394	19,852,768	7,542,270,850	0.26%
FY 2008	3,033,312	895,572	35,401,573	39,330,457	8,026,575,488	0.49%
FY 2009	3,043,856	1,000,923	31,088,846	35,133,625	6,275,617,504	0.56%
FY 2010	3,174,114	1,049,443	35,870,549	40,094,106	6,562,581,566	0.61%
FY 2011	2,762,401	1,091,054	38,321,013	42,174,468	7,336,284,591	0.57%
Calendar 2011	2,881,494	994,682	37,395,561	41,271,737	7,587,323,029	0.54%
FY12 projected	3,400,000	1,000,000	37,500,000	41,900,000	7,827,092,445	0.54%

Manager Additions

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

Date: April 3, 2012

Subject: Domestic Small Cap Growth Manager Search and Selection of Alliance Bernstein

The objective of this manager search was to identify and invest with a domestic small cap growth equity manager. This manager would offer an experienced and stable portfolio management team with an excellent long term performance record and would offer a portfolio with significant upside market capture. The portfolio would be managed based upon a fundamental rather than quantitative philosophy.

Investment analysts at MBOI researched the universe of domestic small cap growth managers using an in house database to identify top performing managers in the style category. Managers were vetted based upon having a domestic small cap growth strategy with a strong performance record over one, three, and five year periods and being currently under an existing investment services contract with MBOI. Based upon this initial screen, four managers were vetted from the database.

Further analysis on the four managers included holdings-based analysis and returns-based analysis in order to compare the individual portfolios' performance and styles to each other, to the peer group, and to the relevant benchmark (i.e. Russell 2000 Growth Index). This analysis included attribution analysis, upside/downside capture, fee structures, capacity issues, philosophy and process.

Staff then conducted interviews via conference calls with each firm and its portfolio managers.

Next, the most attractive candidate firm and the portfolio manager of the strategy were invited to an on-site visit at MBOI for a more detailed personal interview.

Following the on-site visit, staff consulted with RVK as to their opinion on the manager that staff was most interested in.

Having completed this due diligence process, staff selected Alliance Bernstein Small Cap Growth. This strategy had the upside/downside capture ratio that staff was seeking and had been in the top quartile of peer group performance for the one, three, and five years ended December 31, 2011. In addition, the portfolio management team had been together

for over ten years while implementing an investment philosophy based upon company fundamentals.

During the contracting phase, staff was able to negotiate a 10% reduction in the standard fee schedule of the manager. MBOI invested an initial \$25 million into the strategy on April 2. The funds were sourced out of the JP Morgan 130/30 Core Large Cap account, and timed to coincide with the inception date for the new Small Cap Growth account so as to minimize market exposure risk.

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: Clifford A. Sheets, CFA, Chief Investment Officer

Date: April 3, 2012

Subject: Due Diligence Process for External Public Asset Manager Selection

At its February meeting the Board decided to change the way it hires external managers. Going forward the use of an RFP will be replaced by a due diligence process involving investment analysis by staff along with the assistance of MBOI's general investment consultant.

The purpose of this memo is to outline the due diligence process for public asset managers, both equity and fixed income. Some of the types of analysis conducted will differ between asset classes by virtue of the different underlying security characteristics, and the potential number and variety of future searches is expected to be greater for public equity than for fixed income given the larger variety of available strategies for the management of public equity.

Public asset managers will generally be identified by first accessing a relevant manager database, though we may also become aware of a manager through other asset owners or contacts such as our general investment consultant. However identified, investment analysts at MBOI will research a database to identify top performing managers in their respective style categories as part of an initial search, or to place a manager previously identified as one of interest. Historical performance is obviously one of the best indicators of success, so managers that have produced a strong track record over one, three, and five year periods will be selected from the database for further review.

Further analysis will include holdings-based or attribution analysis which can help identify the types of decisions, such as stock selection vs. sector selection, that have had the most impact on historical performance. This type of analysis is more relevant with equity managers, though a form of attribution analysis examining performance contribution by common factors such as duration, sector, or selection may be possible with fixed income managers if the data is available.

A returns-based analysis will be conducted in order to better understand completely the performance and alpha generating talents of the managers of interest. In the case of equity managers this will entail statistical measures such as alpha, beta, tracking error, information ratio and Sharpe ratio. Also, upside and downside capture will be examined to better understand how the manager has fared during historical periods of positive and

negative market returns. Manager fees will be netted in assessing performance relative to benchmarks. In addition to examining performance versus the relevant benchmark index, peer comparisons will be made to understand the manager's competitive ranking.

Another area for examination includes the manager's use of out-of-benchmark securities which can be measured quantitatively in terms of active share, or simply in a definitional sense. While a practice of employing out-of-benchmark securities is not necessarily bad, it depends on the degree of deviation from the benchmark and the success of doing so. Investment guidelines for the manager will generally address this issue and place some boundaries on the manager. In the case of fixed income managers this aspect of consideration should include an understanding of the manager's use of derivative instruments and any impact on portfolio leverage, as well as the range of credit quality that will be considered, and to what extent credit quality measures are based on internal ratings.

Final analysis will include personal interviews with the firm and its key portfolio management staff to better understand the philosophy and process of selecting securities for the portfolio and the daily management of the portfolio. The manager's SEC filing (Form ADV) will also be obtained and reviewed to better understand the firm and its staff.

Before any manager is hired, staff will inquire with its general investment consultant for their input based on their independent analysis and knowledge of the manager, or experience they have seen with any other client portfolios that utilize the manager in the same type of mandate. A written comment on the manager will be requested from the general investment consultant, which may or may not reflect a full analysis depending on their degree of familiarity with the manager.

As managers are identified as "qualified" based on the steps outlined above, MBOI staff may choose to create and maintain an "approved manager list" that will represent potential managers that could be used with minimal additional time and effort before a contract is executed and an account funded. This process may expedite a transition with an existing manager that is being terminated where an alternative manager is deemed appropriate and desired for portfolio structure reasons.

Managers on the list will be monitored by staff periodically, albeit to a lesser degree than those managers already managing funds. Managers on the list will know they have been selected for the list and will understand that they may or may not be funded in the future.