ALASKA RETIREMENT MANAGEMENT BOARD

BOARD OF TRUSTEES MEETING

December 4-5, 2014

Anchorage Marriott Hotel
820 W. 7th Avenue
Anchorage, Alaska
907 279-8000
907 279-8005

Thursday, December 4, 2014

I.	9:00 am	Call to Order
II.		Roll Call
III.		Public Meeting Notice
IV.		Approval of Agenda
V.		Public/Member Participation, Communications, and Appearances (Three Minute Limit)
VI.		Approval of Minutes – September 18-19, 2014
VII.		Election of Officers
VIII.	9:15	Reports

1. Chair Report, *Gail Schubert*

2. Committee Reports
   - A. Audit Committee, *Martin Pihl, Chair*
   - B. Legislative Committee, *Gail Schubert, Chair*

3. Retirement & Benefits Division Report
   - A. Membership Statistics (informational)
   - B. Buck Consulting Invoices (informational)

   Director Jim Puckett

4. Treasury Division Report
   Pamela Leary, Treasury Division Director

5. CIO Report, *Gary Bader, Chief Investment Officer*

10:00-10:20 6. Fund Financial Presentation and Cash Flow Update
Scott Jones, Comptroller, Department of Revenue
Kevin Worley, CFO, Division of Retirement & Benefits

10:20 – Break
10 Minutes

10:30-11:10 7. Private Equity Review
Gary Robertson, Callan Associates Inc.

11:15-12:15 8. Performance Measurement – 3rd Quarter
Paul Erlendson and Dana Brown, Callan Associates, Inc.

Lunch – 12:15 – 1:30 pm

Thursday Afternoon

1:30-2:00 9. KPMG - Audit Report
Michael Hayhurst and Melissa Beedle, KPMG

2:05-2:45 10. Middle Market Lending
Dan McLaughlin and Chris Sheldon
KKR

2:50-3:30 11. Market Participation Strategy (MPS)
Kevin O'Rourke, Devang Gambhirwala and Stephen Brundage
Quantitative Management Associates

3:30– Break
10 Minutes

3:40-4:30 12. Performance Consultant Review
Steve Harding, Josh Yager, and Ryan Wolfshorndl
Anodos Advisors LLC

4:35-5:00 13. Investment Actions
- A. Municipal Taxable Bond Guidelines
  Resolution 2014-26
- B. MPS Strategy
- C. KKR Lending Partners
- D. Information: SSgA Managed Volatility Strategy
- E. Apollo Aviation

End of Meeting Day

Friday, December 5, 2014

9:00 Call to Order

9:00 14. Actuarial Discussion

A. Actuary Response to Questions from September Meeting
B. Final Experience Analysis

10:30 - Break
10 Minutes

10:40-10:50 Actuarial Discussion Continued

IX. Unfinished Business
1. Calendar, *Judy Hall, Liaison Officer*
2. Disclosure Report, *Judy Hall, Liaison Officer*
3. Legal Report, *Rob Johnson, Legal Counsel*

X. Action Items - New Business
XI. Other Matters to Properly Come Before the Board
XII. Public/Member Comments
XIII. Investment Advisory Council Comments
XIV. Trustee Comments
XV. Future Agenda Items
XVI. Adjournment

(Times are approximate. Every attempt will be made to stay on schedule; however, adjustments may be made.)

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
MEETING

Location:
Fairbanks Westmark Hotel
813 Noble Street
Fairbanks, Alaska

MINUTES OF
September 18-19, 2014

Thursday, September 18, 2014

CALL TO ORDER

ACTING CHAIR GAYLE HARBO called the meeting of the Alaska Retirement Management Board (ARMB) to order at 9:00 a.m.

ROLL CALL

Six ARMB trustees were present at roll call to form a quorum.

Board Members Present
Sam Trivette, *Vice Chair* (Arrived after lunch)
Gayle Harbo, *Secretary*
Kristin Erchinger
Commissioner Angela Rodell
Commissioner Curtis Thayer
Tom Brice
Sandi Ryan (Arrived late)
Martin Pihl

Board Members Absent
Gail Schubert, *Chair*

Investment Advisory Council Members Present
Dr. William Jennings (telephonic)
Dr. Jerrold Mitchell
Robert Shaw

Department of Revenue Staff Present
Gary M. Bader, Chief Investment Officer
Scott Jones, State Comptroller
Pamela Leary, Director, Treasury Division
Steve Sikes, State Investment Officer

Shane Carson, State Investment Officer
Bob Mitchell, State Investment Officer
Judy Hall, Board Liaison

Department of Administration Staff Present
Jim Puckett, Chief Operating Officer, Division of Retirement & Benefits
Kevin Worley, Chief Financial Officer, Division of Retirement & Benefits
Mike Barnhill, Deputy Commissioner

Consultants, Invited Participants, and Others Present
Robert Johnson, ARMB Legal Counsel
Chris Hulla, Buck Consultants
David Slishinsky, Buck Consultants
Dana Brown, Callan Associates, Inc.
Paul Erlendson, Callan Associates, Inc.
Stuart Goehring, Department of Law, Assistant Attorney General
Leslie Thompson, Gabriel Roeder Smith
Charlie Gallagher, Northern Region RPEA
Melody McDonald, RCM/Allianz
Jeff Sheran, RCM/Allianz
Greg Tournant, RCM/Allianz
David Stenger, Sentinel Real Estate Corporation
David Weiner, Sentinel Real Estate Corporation
Micolyn Magee, Townsend Group
Tom Anathan, UBS Real Estate
Jeff Maguire, UBS Real Estate

PUBLIC MEETING NOTICE

JUDY HALL confirmed that public meeting notice requirements had been met.

APPROVAL OF AGENDA

MR. BRICE moved to approve the agenda. MS. ERCHINGER seconded the motion.

ACTING CHAIR HARBO added item VII. 2.E. Defined Contribution Committee Report to the agenda.

The agenda was approved as amended.

PUBLIC/MEMBER PARTICIPATION, COMMUNICATIONS, AND APPEARANCES

CHARLIE GALLAGHER, Chair of the Northern Region RPEA, welcomed the Board to Fairbanks, and expressed his appreciation for the legislative appropriation of $3 billion into the pension funds. He commented most of his board's time is spent on sorting out issues

regarding the new Aetna health plan. MR. GALLAGHER noted he looks forward to hearing MR. BADER's information.

APPROVAL OF MINUTES: June 26-27, 2014

MR. BRICE moved to approve the minutes of the June 26-27, 2014 meeting. MS. ERCHINGER seconded the motion.

The minutes were approved.

COMMISSIONER THAYER requested the minutes reflect he was in attendance both days at the June 26-27, 2014 meeting, but was tardy during roll call.

REPORTS

1. CHAIR REPORT

None

2. COMMITTEE REPORTS

A. Audit Committee

MR. PIHL reported the Audit Committee met September 17, and all members were present, Trustee PIHL, Trustee ERCHINGER and Trustee HARBO. There was full presence by Treasury staff and Department of Administration staff. The main agenda item was the report from KPMG on the completion of the Treasury audit. There are no matters to be brought before the Board and everything is clean and going very well.

MR. PIHL informed the Department of Administration gave a good report regarding employer audits. He noted the concerns and problems are quite serious, and some rise to the question of fraud. MR. PIHL believes it is incumbent on employers for completeness and accuracy in reporting and remitting contributions. MR. PIHL stated the Department of Administration, under MR. BARNHILL's leadership, is responding to the problems and there has been great improvement in the employer audit program.

MS. ERCHINGER clarified the use of the word fraud, noting the context is in relation to the employer audits and identification of specific employers who have questionable practices, and is in no way related to the work of the Board or the State of Alaska.

B. Budget Committee

None

C. Legislative Committee

None

D. Real Assets Committee

MS. ERCHINGER commented the Real Assets Committee had an excellent meeting on September 17. She expressed her appreciation to STEVE SIKES, State Investment Officer, and MICOLYN MAGEE, Townsend Group, for their informative presentations at the meeting. The role of real assets in the portfolio is primarily diversification and inflation hedging. It is comprised of 17% of the overall assets, representing $3.6 billion in value at June 30th, 2014. The long-term performance expectation is 5% net real return over rolling five-year periods. The performance has been excellent, with the three-year mark at 11.23% and five-year mark at 9.59%. The 2013 performance provided a 13.15% return, exceeding the target of 10.98%.

MS. ERCHINGER informed the Real Assets Committee is recommending the approval of two resolutions today; the adoption of the real assets annual investment plan and the annual adoption of the real estate investment policies, procedures, and guideline modifications.

E. Defined Contribution Committee

MR. BRICE informed the Defined Contribution Committee met September 17. Reports were given and the Committee will recommend an action item to the Board later in this meeting.

3. RETIREMENT & BENEFITS DIVISION REPORT

A. Membership Statistics (informational)

JIM PUCKETT, Chief Operating Officer, noted the membership statistics are included in the Board packets and there is nothing of consequence to report. The trends remain the same; the DB populations for PERS and TRS are steadily decreasing and the DC populations for PERS and TRS are steadily increasing. The number of retirees is steadily increasing.

B. Buck Consulting Invoices (informational)

MR. PUCKETT reported the expense for the actuarial evaluation this year was $83,000 less than in 2013. The overall expense to Buck was $71,000 more this year because of the increased list of services provided.

ACTING CHAIR HARBO asked why the ARBM was paying for the Aleutian Region School District line item. MIKE BARNHILL, Deputy Commissioner, informed the litigation was brought by that particular employer for a refund of their account balance and is a direct litigation against the corpus of the trust fund.

MR. BRICE inquired why the Aleutian Region School District line item is being billed under PERS and not TRS. MR. BARNHILL explained all school district employers are PERS

employers, because only the teachers are in TRS and all other employers are in PERS. This litigation is a request for a refund of the PERS account.

4. TREASURY DIVISION REPORT

A. FY 16 Budget - Action

PAM LEARY, Director, Treasury Division, informed there are many statistics to report with the close of the fiscal year 2014. She congratulated Chief Investment Officer GARY BADER and his team for achieving returns of 18.56% on the major DB plans and noted they are in the top 10% of the public funds in Callan's database. The Treasury staff now manages over $52.2 billion, which is an all-time high.

MS. LEARY announced SCOTT JONES received his Certified Investments and Derivatives Auditor designation and JOY WILKINSON achieved the CFA designation. Governor pins for service and longevity have also been awarded to investment staff.

MS. LEARY stated the Board has been provided an action memo and worksheet. The Budget Committee reviewed the results of the fiscal year 2014 in relation to the amount authorized, as well as the fiscal year 2015 projected, and fiscal year 2016 proposed budget items. The action memo has a typographical error and the Budget Committee did not meet in 2012 as stated.

MS. LEARY advised that the recommendation of the Budget Committee and staff is that the Board adopt the fiscal year 2016 proposed budget as attached, with the understanding that salary increases will be included during a review by OMB and the Legislature.

COMMISSIONER RODELL moved to adopt the fiscal year 2016 budget. MR. BRICE seconded the motion.

The motion passed unanimously.

5. CIO REPORT

MR. BADER introduced STUART GOEHRING, Assistant Attorney General, Department of Law, who will be taking ROB JOHNSON's position as attorney to the Board. There is also an RFP from the Department of Law to obtain services of additional legal counsel. MR. GOEHRING informed the Board he has been with the Department of Law for about six-and-a-half years and was previously in private practice in Anchorage. He currently represents the ARM Board and the Regulatory Commission of Alaska.

MR. BADER reviewed the CIO Report included in the Board's packet. The dates of the rebalances are listed on the summary sheet and the most recent rebalance paperwork is provided. MR. BADER can provide all rebalance paperwork at the request of the Board. MR. BADER explained the changing balances with the absolute return managers. Two years ago, the Board decided to work with the absolute return managers and relax their constraints.

Initial returns indicate that decision was useful and as of the June 30 year-end, the absolute return category returned 6.51% versus their target return of 5.1%.

MR. BADER informed the buy-write account was rebalanced between the two managers State Street and Analytic. The next item related to the receipt and investment of one billion dollars of the three billion dollars, which is being made from the constitutional budget into the retirement funds. A deposit of $333 million was made into the PERS Defined Benefit pension account, $554 million was deposited into the TRS Defined Benefit pension account, and $112 million was deposited into the TRS health account.

The funds of the PERS and TRS pension and health accounts are pooled. The investments were as follow; $50 million into Russell 1000 Value Fund, $150 million into Russell 1000 Growth, $200 million into Allianz International investment account, $200 million into Baillie Gifford investment account, $100 million into internally managed Treasury account, and $300 million into cash. MR. BADER advised a similar transaction will occur around November 13.

The next item reflects the transfer of funds from BlackRock ACWI Ex-US to Eaton Vance and Lazard emerging market funds. The next item relates to a press release from Relational Investors, who are no longer making new investments to the account, due to health issues surrounding one of the founding partners. MR. BADER believes Relational Investors are good stewards of their current assets and will keep the Board informed on their status.

Not included in the Board's packet relates to a $40 million investment with New Mountain Capital. This private equity fund was reviewed by staff and by Callan and was considered a good investment. The Chair was informed of the process.

6. FUND FINANCIAL REPORT with Cash Flow Update

State Comptroller SCOTT JONES and CFO of the Division of Retirement and Benefits KEVIN WORLEY presented the Fund Financial Report. MR. JONES reviewed the financial statements for the month ending July 2014. The PERS system ended with $15.5 billion, the TRS system with $6.9 billion, the JRS with $168.8 million, the National Guard and Naval Militia with $37.6 million, SBS with $3.3 billion, and Deferred Comp with $774 million, for a total of $26.6 billion. MR. JONES stated the change in invested assets was 2.43% for the time, which was largely due to the one billion dollars that was transferred in. All asset allocations were within the bands.

MR. WORLEY informed page one and two of the three-page supplemental to the Treasury Division report are the same since only one month of information is being reported. July is typically the cash inflow month. MR. WORLEY noted page three is a new item, requested by a Trustee, listing out the refunds by defined contribution plan and the primary purpose of the refunds.

MS. ERCHINGER expressed her appreciation for the helpful schedule created on page three. She asked if the magnitude of these changes reflect a typical month for separation. MR.

WORLEY noted he does not have that information, but will get back with her on that. He stated the issue of age disbursement brought up by MS. HARBO is also still being reviewed. It has been revealed that some members are checking separation of service on the forms, when they are actually retiring, and vice versa. This information is being consolidated.

MS. ERCHINGER inquired regarding the logic behind the allocation of the one billion dollars among the pension and health funds. MR. BARNHILL explained the allocation is intended to bring the pension and health funds funding ratio back into parity.

MR. PIHL asked why the billion dollars was allocated 1/3 to PERS and 2/3 to TRS. MR. BARNHILL advised the allocation is based on the total legislative appropriation of one billion dollars to PERS and two billion dollars to TRS.

7A. REAL ASSETS FY15 ANNUAL PLAN
REAL ESTATE GUIDELINES POLICIES AND PROCEDURES

MR. SIKES gave a summary version of the fiscal year 2015 investment plan of the Real Assets Program. As of June 30th, the real assets allocation was at its target at 17%. The components include real estate, farmland, timberland, energy, infrastructure, and TIPS. The overall strategy at the portfolio level is a lower risk, lower return approach, using conservative leveraged amounts and focusing on higher quality assets, producing stable returns, with an expectation of a 5% net real return over the long-term. The structure is primarily private illiquid assets, with some liquid components used for rebalancing. Implementation is spread across the ARMB staff. Important aspects of the portfolio include diversification, inflation hedging, and consistent income returns produced by the assets.

MR. SIKES noted the real assets asset class outperformed its target benchmark last year returning just over 13%. Real Estate outperformed its target returning 12.35%. Farmland underperformed its target returning 8.5%. Timberland outperformed its target returning 10.49%. The MLP sector had a terrific year returning 34.5% and the first quarter of the infrastructure portfolio had very good results with an 8.57% return.

MR. SIKES stated that staff currently has no strategic recommendations for the real assets. The plan for real estate is to continue at the core level to focus on markets with high barriers to entry. Staff intends to consider the medical office sector and UBS will provide a presentation at the October education conference regarding medical office investments. Staff also plans on reviewing additional value-added opportunistic real estate funds similar to the KKR investment for possible follow-on investments. Another strategy staff intends to research is participating mortgage investments, in which the investor receives a traditional interest payment return, but also participates in appreciation and the cash flow of the property.

MR. SIKES provided two recommendations relating to the constraints of the portfolio. The current target allocation is 90% private and 10% public, with a band of plus or minus 10%. The recommendation is to move the bands to a 20% level on the high end, with an allocation of 70% private and 30% public. This would allow staff flexibility to use REITs to achieve the real estate target and the real assets target.

MR. SIKES stated the other recommendation is within the real estate portfolio. There is currently a single manager limit of 35%. The recommendation is to increase the single manager limit to 45%. The main catalysts for the recommendation are the possible upcoming strategies of medical office and participating mortgage investments after the evaluation of the presentation by UBS Realty. Currently, UBS is at the 35% level, leaving no capacity for additional funds. Staff believes additional investment across multiple products will somewhat mitigate the risk and concerns relating to a single manager limit. No other changes to the strategies are recommended.

DR. MITCHELL expressed his appreciation to MR. SIKES for a good presentation and commended staff for selecting and sizing the real assets in an innovative and very prudent manner. DR. MITCHELL asked if there are other real asset categories in the portfolio that the Board is missing and should be participating in. He also asked if the categories are viewed as permanent or if there is ever a time to get completely out of a category. MR. BADER informed there will be a presentation at the education conference on aircraft leasing, which could be appropriate for the portfolio. MR. BADER explained staff is looking for investments that have management with a proven track record and good investment returns.

MS. ERCHINGER advised that the Committee discussed the recommendation to increase the single manager limit from 35% to 45%, and questions were answered in support of the recommendation by MS. MAGEE. The real estate portfolio stands at $1.7 billion in value. Increasing the single manager limit to 45% permits around $500 million with a single manager. The Committee recommends increasing the single manager limit to 45%.

B. CONSULTANT EVALUATION OF REAL ESTATE PLAN: Diversification, Compliance, & Performance Measurement

MS. MAGEE expressed her appreciation to the Board for extending the Townsend Group contract and their continued relationship with the Board and staff. She gave a detailed presentation regarding the real estate portfolio. The intention is to reduce real estate exposure by allocating to additional sectors within the real asset portfolio. The target return for real estate is a five-year real rate of return of 5%. This is the first time since the global financial crisis the portfolio is exceeding its target with a 9.1% real rate of return. This is a reflection of the improved market, the stability and improvement of the real estate valuation, and the absence of inflation.

MS. MAGEE advised that Townsend reviewed the staff's proposed objectives to the staff's realized objectives and all was in line as usual. No new commitments were made to the core portfolio. An important lease and strategic decision was made to eliminate one of the separate account managers who had been underperforming and had been experiencing transitional issue with portfolio management. The positions were consolidated into the existing managers. An annual review for each separate account was conducted with staff and managers.

MS. MAGEE stated that the KKR activity was the single investment for the year in the non-core portfolio. The Townsend Investment Committee concurred this was an appropriate investment with the ARMB portfolio. MS. MAGEE believes the market is at a plateau and a pricing adjustment should be expected. She commented the staff's patience in placing capital and the flexibility the Board gives staff, provides a good position to take advantage when the pricing adjustment occurs.

The five-year net return of 9.3% for the core portfolio continues its strong improvement. The non-core portion of the portfolio is challenged because these investments are strongly driven by vintage year performance and if the vintage year is not a good one, there is not much to be done in the recovery of these assets and strategies on a go-forward basis. However, the portfolio is improving on a relative basis. The five-year net return of 5.3% is significantly greater than last year's five-year net return of negative 14.3%.

MS. MAGEE commented staff continues to remain risk-adjusted and risk-appropriate in their allocations, as well as the management of the portfolio, and the stability of returns continue support staff's decision-making.

MS. ERCHINGER asked if it was fair to say the portfolio did not benefit from dollar cost averaging from 2009 through 2013. MS. MAGEE agreed. MS. ERCHINGER asked if it was fair to say the portfolio may have been overweight in real estate and investments could not be made because of the target allocation. MS. MAGEE believes being overfunded in real estate was a problem for most pension funds and there was not capital to allocate. She believes there were opportunities and some of the best vintage years will be '09, '10, '11, and '12, simply because nobody was buying.

ACTING CHAIR HARBO recessed the meeting from 10:21 a.m. to 10:36 a.m.

C. ADOPTION: REAL ASSETS FY 15 PLAN & POLICIES
Board Discussion
Action: Real Assets FY15 Annual Plan
Res: 2014-14

MR. SIKES advised the first action relates to the fiscal year 2015 real assets annual investment plan. The recommendation is for no new allocations for core separate accounts or commitments to open-end funds. The core separate account advisors should continue to manage existing portfolios and allocations toward the core assets located in markets with high barriers to entry. Separate account managers should continue to take advantage of opportunities to sell non-strategic assets at attractive prices and improve the quality and income stability of the portfolio.

Under CIO discretion, staff plans to explore medical office investments, value-added and opportunistic real estate funds, and participating mortgage investments. Staff is recommending increasing the bands around the public real estate investment target from 10%, plus or minus 10%, to a target of 10%, plus 20% or minus 10%, to allow more capacity to use REITs in the management of the real estate allocation and the overall real assets allocation.

A corresponding adjustment would also be made to the private real estate target from 90%, plus or minus 10%, to a target of 90%, plus 10% or minus 20% on a band. No recommendations are proposed for farmland, timberland, infrastructure, TIPS, and energy strategies.

MS. ERCHINGER moved to approve Resolution 2014-14, adopting the real assets annual investment plan for fiscal year 2015. MR. BRICE seconded the motion.

COMMISSIONER THAYER moved to approve Resolution 2014-14 by unanimous consent.

There was no objection and the motion passed unanimously.

Action: Real Estate Policies and Procedures
Res: 2014-15

MR. SIKES advised the next action item relates to the real estate policies and procedures. There are three proposed changes. The first proposed change is to remove the constraint, which requires that controlled investments not exceed 85% of the real estate portfolio. The second proposed change is to remove the constraint, which requires core investments not exceed 85% of the real estate portfolio. Controlled investments and core investments are the most advantageous and least risky strategies and there should not be a restriction if portfolio objectives can be met by utilizing these strategies.

The third proposed change relates to the single manager investment limit increase from 35% to 45%, to create more individual capacity where multiple product lines help mitigate the single firm exposure to risk.

MS. ERCHINGER moved to adopt Resolution 2014-15, adopting the revised real estate investment policies, procedures, and guidelines. MR. PIHL seconded the motion.

MR. BRICE expressed his concern to increasing the allocation of an individual manager from 35% to 45%, and noted the Board will be tracking these concerns. MR. BADER explained the constraint is addressed at increasing the limit for a single managing firm and the approach staff is reviewing diversifies the portfolio construction into different sectors, utilizing different manager teams at UBS, for example.

MS. ERCHINGER reported the question was asked by the Committee if it was possible to increase the allocation to the sector, rather than increase the allowable manager percentage. She noted the answer was expressed this is not a viable option because real estate is over its target allocation.

COMMISSIONER RODELL believes diversification is an issue that needs to continue to be discussed, especially as the funds get bigger. She commented the passage of this resolution in no way obviates Trustees' responsibility to watch the diversification of the investments into the funds and the individual firms.

A vote was taken, and the motion passed unanimously.

8. UBS REAL ESTATE

MR. BADER introduced TOM ANATHAN, Managing Director UBS Realty Investors, and JEFF MAGUIRE, Senior Portfolio Manager UBS Realty Investors. MR. ANATHAN noted he was present in September of 1980 when the relationship began with the State of Alaska, utilizing the Trumbull Property Fund. UBS currently has $24 billion in total assets, with almost 190 employees. UBS is headquartered in Hartford, Connecticut, with very substantial offices in both San Francisco and Dallas. The mission is to provide superior risk-adjusted returns. MR. ANATHAN commented UBS worries about return and risk. He reviewed UBS' total asset allocation and geographic allocation.

MR. MAGUIRE explained the ARMB separate account began in 1998, providing 16 years of a total annualized gross return of 9.22%. As of June, the portfolio consisted of 11 investments, with a total value of about $317 million. The average property value is $29 million. There is $33 million of remaining allocation to be invested. The strategy for the portfolio has remained largely consistent over time, providing a true core real estate portfolio that provides current income, cash flow, inflation protection, and some diversification benefits. The current income and cash flow is distributed monthly.

MR. MAGUIRE continued his detailed presentation noting the acquisitions are mostly fully leased offices, industrial properties, and apartments, which were new at the time of acquisition. In 2003, some of the assets that formerly were managed by PM Realty were added to the portfolio, increasing the industrial weighting. Consistent with the objectives and guidelines for the account, no leverage has ever been used.

The objective for the account in terms of protecting against inflation and providing a real return is a 5% net real return over any rolling five-year period. Over the 16-year period, the account has exceeded its objective by 20%, with a 6.09% net real total return. MR. MAGUIRE reviewed the individual properties in the separate account.

COMMISSIONER THAYER requested additional information on the goals and status of the Memphis Industrial Park property and it being zero-percent leased. MR. MAGUIRE noted the account has had very good performance in the last three years, despite little contribution from the Memphis property. MR. MAGUIRE stated this is a difficult market and noted a prospect is interested in leasing the entire building, but does not want to jinx the possibility by discussing it further.

MR. MAGUIRE reported the separate account is a high quality core portfolio, with no debt and a history of strong income returns and income growth. He is encouraged by the potential of additional leasing and the projected growth in income this coming fiscal year is about 7% more than in the prior fiscal year.

MR. ANATHAN continued the presentation detailing the Trumbull Property Fund, which is a broadly diversified core portfolio providing a total return of well over 8.5% for yield since inception in 1980. The Trumbull Property Fund consists of gross assets totaling $17 billion. It is well diversified by property type and geographic region. Currently, 74% of the fund's assets are invested in properties worth $75 million and larger. One of the advantages this portfolio provides is investments that are generally too large for the ARMB's individual account. Leverage in the Trumbull Property Fund is at about 12.8%. This is a low risk strategy, very high quality and very large properties, with about half the leverage of the ODCE.

MR. BADER requested explanation of the ODCE. MR. ANATHAN explained the Open-end Diversified Core Equity Fund has a universe of 22 funds, a market value of more than $100 billion in total assets that report to NCREIF. Each quarter, NCREIF produces the performance of those 22 open-end funds. MR. ANATHAN explained another acronym, GRESB, Global Real Estate Sustainability Benchmark, has a universe of approximately 600 funds that report in on their environment and sustainability efforts, including measurements of energy efficiency, recycling, and property construction. The Trumbull Property Fund is the second highest ranked fund in the ODCE for its GRESB weighting. Other competitive advantages include its consistent core strategy, performance record, diversification into larger properties, and the team continuity and experience.

MS. ERCHINGER expressed her appreciation for the great presentation, excellent returns, and transparency of the fee structure.

9. SENTINEL REAL ESTATE CORPORATION

MR. BADER introduced DAVID WEINER, Vice Chairman/Co-Portfolio Manager, and DAVID STENGER, Vice President/Co-Portfolio Manager, both from Sentinel Realty Advisors Corporation. MR. WEINER noted Sentinel's long-term involvement with ARMB and its predecessors since 1984, and expressed appreciation for the wonderful relationship. MR. WEINER gave an overview of the corporation with current assets at $4.9 billion and a clear reputation for very stable management.

The ARMB's separate account has assets of $158 million and began in 2000. The since inception return is 9.2%. Sentinel primarily focuses on the multi-family area, managing about 30,000 apartment units across the U.S. The office and industrial portion of the portfolio consists of over eight million square feet of commercial real estate. MR. WEINER thanked the Board for awarding Sentinel the opportunity to manage a property that has been transitioned from another manager. He noted this property is 20 minutes from his home and will be closely watched.

MR. WEINER explained Sentinel, somewhat uniquely, manages all the assets of the portfolio internally. There is an executive staff of a couple hundred people and over 800 people onsite managing the properties. The portfolio is modest sized individual properties ranging between $40 million and $60 million. The investments are primarily in secondary and tertiary markets around the country. MR. WEINER believes opportunities exist in the 40 or so MSAs around

the country with markets of over a million in population and provide better buying prices and strong performance. MR. WEINER commented on an overall basis, the level of supply and demand is very healthy going forward for the secondary, tertiary markets of modestly sized Class A, fully amenitized properties.

MR. STENGER continued the detailed presentation and specifically addressing the three properties in the account totalling 966 units, valued at $158 million. All three properties are located in the supply constrained smaller markets of Folsom, California, Chadds Ford, Pennsylvania, and Brandon, Florida.

MR. WEINER added the mandate from the staff is to look for properties in high barrier to entry markets, which essentially means limited new supply coming in the future. The portfolio reflects how critical it is to meet this requirement and the wisdom of looking at properties that have limited new construction. The property in Folsom, California was bought in July 2008, the peak before the financial crisis, and still has increased in value from $40 million to nearly $47 million today. MR. PIHL asked if this property is in the fire area of California. MR. WEINER noted it is not in the fire area of California.

PAUL ERLENDSON, Senior Vice President Callan Associates, expressed his appreciation for the presentation. He requested additional information on the competitive nature of acquiring multi-family properties in the current environment, and further information regarding exit strategies. MR. WEINER explained the market is competitive and it is necessary to maintain the investment discipline. There are three teams of acquisition specialists who have been with the company for an average of 20 years. These two-person teams scour the country in terms of looking for new opportunities in the market. The tight range, conservative overall corporate philosophy takes no development risk or joint venture risk.

MR. WEINER expects the Tampa market in this portfolio will be exited first, but will not be for a long time and until the new units are absorbed. Tampa has a good projection because it is a good coastal market with a growth port market. Exit strategies are being employed on a constant basis and consider what the market has to offer and what it costs to maintain the property. Every asset is acquired with some focus on how long it will be held and what exit strategy will be used.

MR. JOHNSON asked who the residents perceive as the landlord of these properties and is there the concept of pension ownership. MR. WEINER advised in most cases, even the onsite managers do not know who the owner is. Every property is supposed to operate in accordance with the Sentinel management procedures, maintaining high levels of occupancy, and adding to the cash flow. Sentinel does not reveal who the ultimate investor is in any of their accounts.

MR. PIHL requested comment on how comfortable Sentinel with the valuation of the Florida property. MR. STENGER noted the appraisals for this account are completed every March 31 by a third-party appraiser, who looks at sales comparisons in the market and similar properties that have recently traded. MR. STENGER noted Sentinel is very confident in the

valuation. MR. WEINER commented that traditionally, value is achieved by generating cash flow and higher values are a reflection of better operations going forward. He noted what has been happening in the marketplace because of strong demand is what is called cap rate compression, which is lowering of the yield expectation and raising the prices.

MR. SHAW if Sentinel believes the home ownership chart downward slope will continue or trend back up. MR. WEINER noted the trend went up because the government started driving home ownership through its cheaper debt, but it has recovered back down to the historical level and there is no expectation it will trend back up.

ACTING CHAIR HARBO recessed the meeting from 11:47 a.m. to 1:17 p.m.

10. EXPERIENCE STUDY 2009-2013

A. Second Actuary Review

VICE-CHAIR TRIVETTE introduced LESLIE THOMPSON, Senior Consultant Gabriel Roeder & Smith, who provided a detailed presentation on the review of Buck Consultant's 2013 Demographics Analysis and the review of Buck Consultant's 2013 Economic Assumptions Analysis. Both study results are included in the Board packet.

MS. THOMPSON discussed the items that raised questions and would warrant additional discussion. She looked at the history of all the valuations to determine what change in assumption recommendations should be made. MS. THOMPSON expected to see in PERS, a cost due to termination because there have been losses every year. She expected to see a cost to rehires and salary scale. She expected to see a reduction due to COLA NPRPA because those are gains every year. She expected to see an increase in retirement. Those expected increased and decreases were not included in Buck's analysis.

MS. THOMSPON noted that most of the demographic assumptions were in sync with Buck's. She believes more discussion could occur regarding setting the mortality for the PERS peace officers closer to 110%. She understands this population is very small, which is the reason Buck is utilizing their method. MS. THOMPSON finds the assumptions to be generally reasonable. She was surprised the judges had a pay decrease, even though there is data supporting this. The two recurring issues, which have not yet been addressed by Buck, is the review of the eligibility for termination versus retirement, and the magnitude of the TRS rehire loss seems big in proportion to the number of rehires in the TRS report. Buck had no comments regarding this issue in their report. MS. THOMPSON noted she did not see any of the retiree medical claim cost recommendations made earlier in the year incorporated into the experience study.

MS. THOMPSON continued her presentation detailing the review of the economic assumptions. She informed the method Buck has presented for the investment return assumption analysis is a brand new style to her, called GEMS, and is different from what is being used in the public sector market. MS. THOMPSON expressed her appreciation to DAVE SLISHINSKY, Buck Consultants, for graciously spending time with her on the phone

explaining the new software. However, she cannot comment either way on the validity or invalidity of the new method, because she does not fully understand it.

MS. THOMPSON believes the 8% return under the new model is high and merits deeper consideration. The chance of achieving that return is only 40%. Her calculations would bring the return closer to 7.5%. If the Board believes positive events will occur, then the return could be raised to 8%. She also believes it is also important to ask what the possible impacts to the model could be if longer-term liquidity requirements cause returns to be lower.

MR. BADER asked if MS. THOMPSON agrees if the Board can beat their indexes and maintain a very positive alpha, the 8% return is achievable. MS. THOMPSON agreed, and noted alpha cannot be accounted for in the actuarial standard. MR. BADER informed there has been very positive alpha over the last three years and has been more than enough to provide the 8% return assumption.

VICE-CHAIR TRIVETTE requested explanation of the impacts if an inflation rate of 3.0% was used rather than 3.12%. MS. THOMPSON noted the table on page six of her presentation shows that change, and her arithmetic expected return on 8.04% would drop to closer to 7.5%. MS. THOMPSON believes 3.12% inflation is high because the 20-year CPI and 40-year CPI have an arithmetic mean of 2.91% and 3.1% respectively.

COMMISSIONER RODELL asked how the chart on page four correlates to the chart on page six. MS. THOMPSON explained the charts are not direct comparisons because the investment consultants surveyed for page six have different time horizons, varying between 10 and 20 years.

MS. ERCHINGER expressed her appreciation to MS. THOMPSON for her analysis and presentation. MS. ERCHINGER requested spending more time on reviewing the assumptions and the endorsement of assumptions, not at this meeting, but before setting subsequent rates going forward.

MR. PIHL asked GRS found data in the review to support the 4.3 recommendation for salary increases. MS. THOMPSON informed MR. SLISHINSKY will have to answer, because she does not have the data. MR. PIHL noted his concern is the higher assumption increases normal costs, and therefore, contribution rates. At the same time, the higher increased assumption makes the payrolls grow to much higher levels and accentuates the backloading of contributions coming into the system, as the magnitude of the unfunded liability problems are being addressed. He recommended the unfunded liability issues and the conservative contribution recommendations could be separated somehow.

VICE-CHAIR TRIVETTE stated that he takes both of those comments to heart and will pass them onto the Chair. He agreed there needs to be more time in understanding this complicated experience analysis, especially since it is only compiled once every four years.

COMMISSIONER RODELL agreed with the comments and believes it would be helpful in the future to schedule a workshop before the ARMB meeting to delve into these issues in preparation for taking Board action the following days.

MS. ERCHINGER noted the Board did not receive the actual experience analysis and asked if MS. THOMPSON based her presentation on the full analysis. MS. THOMPSON agreed, and noted the experience analysis was 116 pages.

MS. THOMPSON believes Buck uses a mean optimizer model, not the GEMS model, for asset allocation, and if they used the GEMS model for asset allocation, the results would be different. She questioned the reasoning for using two different models.

MR. BADER informed DR. JENNINGS was having trouble on the phone and emailed his comments that actuaries will disagree, but he contends the best estimate is the most prudent. So-called conservative choices are statistically less likely than a midpoint estimate. He believes states have less reason to be conservative and have less of a need of a margin for adverse deviation. Instead, they should strive to be accurate. Dr. Jennings remains concerned about the high inflation estimate and believes the false precision of 3.5% will look unreasonable in hindsight.

VICE-CHAIR TRIVETTE took an at-ease from 1:45 to 1:48.

B. Experience Study Analysis

VICE-CHAIR TRIVETTE introduced MR. SLISHINSKY and CHRIS HULLA of Buck Consultants to provide their presentation on the experience study analysis and economic assumptions analysis. MR. SLISHINSKY expressed his appreciation to the Board and to MS. THOMPSON for her thoughtful audit and review or Buck's actuarial experience analysis.

MR. BARNHILL asked if there is a separate document, a final report, the Board has not received in addition to the documents that have been distributed. MR. SLISHINSKY explained all of the charts that are in the appendix to the current presentation are included in the final and formal experience analysis report, which is in process. MR. BARNHILL asked if the current presentation was all that GRS had reviewed. MR. SLISHINSKY agreed.

MR. SLISHINSKY stated his presentation today covers the purpose of the experience analysis, the methodology used, the actuarial assumptions, decremental assumptions, demographic assumptions, post-employment healthcare assumptions, recommendations for the Board, and the impacts of those proposed changes on the calculation of the liabilities, the unfunded liability, and the contributions.

The experience analysis is conducted every four years, and this particular analysis covers the four-year period beginning July 1, 2009, through June 30, 2013. The Judicial Retirement System and National Guard System complete valuations every other year in even years and so they have a one-year lag in their review period. MR. SLISHINSKY believes actuarial mathematics is a science, but its application in the real world is an art. The combination of

looking at the analysis and then using judgment, given the experience and the credibility of the data, helps determine to what extent the belief that the future experience will be different.

VICE-CHAIR TRIVETTE stated he agrees with the approach of using a mortality table which is not static, and asked if adopting the use of Scale BB is appropriate, given that it is not in common use. MR. SLISHINSKY believes Scale BB is a more accurate table when compared with the data from the RP 2014 Table. Scale BB came out in 2012, and the data is pretty clear the table provide a better match to improvement that has been seen in the general public. He noted many systems do not make changes in mortality until they complete an experience analysis and there are still systems that have not completed an experience analysis since BB was published.

MR. SLISHINSKY explained the data for peace officers and firefighters indicated so few people were exposed to mortality and dying, that Buck did not feel the data was credible to set mortality rates. This is why the assumption rates were set equal to PERS Others. When the table is applied the assumption for males comes in at 82%.

COMMISSIONER RODELL requested further clarification regarding the 82% assumption rate for peace officers and firefighters as it relates to the GRS recommendation of 110%. MR. SLISHINSKY explained when the assumption is increased to 110%, that increases the life expectancy for males who are peace officers and firefighters to greater than PERS Others. The question arises, why should those peace officers and firefighters live longer than the general PERS Others group? The group is so small and the amount of data is not large enough to make a determination over the lifetime of the plan.

COMMISSIONER RODELL questioned if the reason the peace officers and firefighters are in a small sample group by themselves is because there is a risk attached to this category of work. MR. SLISHINSKY noted breaking them out in the analysis has always been done. Before retirement, during active duty, there are additional deal expectations due to the hazardous nature of the job, but once they retire, their life expectancy is typically the same as anybody else.

MR. BARNHILL commented this discussion supports the notion of having an educational workshop to review the analysis. He believes this particular set of assumption has a fair amount of conservatism built into it, which provides more confidence is what Buck is presenting.

MR. SLISHINSKY continued his presentation noting the withdrawal rates were generally decreased, which includes some conservatism in that withdrawal assumption. The termination rates are also conservative and will help offset any of the rehire losses being seen. The rates for both reduced retirement and unreduced retirement have increased. MR. SLISHINSKY commented this is the area where MS. THOMPSON expected to see the change in the rates would increase the cost, but experience is showing a slight decrease in the cost. MR. SLISHINSKY believes this is due to the different demographics used in each of the valuation periods. Slight changes are being made to withdrawal of contributions at

termination to match the data. No changes are being proposed for price inflation and wage inflation. The merit portion of the salary scale is being increased.

MS. ERCHINGER noted the experience recently has been a high increase in salaries. She believes this is due to having a hard time getting qualified people to apply for jobs because there is not a guarantee defined benefit retirement plan. MS. ERCHINGER asked if this is being considered at all in setting the salary expectations. MR. SLISHINSKY noted the TRS salary assumptions are slightly higher for long-term, and the PERS has been showing salary losses.

MR. SLISHINSKY discussed the growth assumption for both PERS and TRS being reduced to .5% from 1%. VICE-CHAIR TRIVETE noted there are multiple reasons to argue back and forth on this issue, but believes it is ultimately a reasonable assumption.

MR. HULLA continued the detailed presentation reviewing the post-retirement healthcare valuations and stated no changes to the assumptions are being recommended.

VICE-CHAIR TRIVETTE asked if it is safe to say, even though three billion dollars is being added this year, the rates are going down partly because changing the methodology from the level dollar to level percent of pay produces a smaller annual contribution. MR. SLISHINSKY agreed and noted the rates also decrease because of the new methodology under HB 385 of amortizing over a new 25-year period. The rates also decrease when the funds earn more than the 8%, as well as when the three billion dollars come in. VICE-CHAIR TRIVETTE requested the calculations and impacts of each of those scenarios separately. MR. SLISHINSKY agreed to provide the calculations.

MS. ERCHINGER asked if the $3 billion additional funds were accounted for in any of the changes to assumptions. MR. SLISHINSKY noted the $3 billion was not considered in the calculations for changes to the assumptions. This analysis covers through June 30, 2013, and those contributions will come in FY15.

C. Economic Assumption Analysis

MR. SLISHINSKY informed the economic assumption analysis presentation will include a summary of the economic assumptions, a historical view of wage and price inflations, past investment performance, and a description of the new model being implemented. The PERS, TRS, and JRS assumption is 8% per year, and National Guard is 7% per year, because of the different asset allocation on National Guard. Price inflation is 3.12%. Wage inflation is price inflation plus productivity.

VICE-CHAIR TRIVETTE recessed the meeting from 3:21 p.m. to 3:30 p.m.

MR. SLISHINSKY continued his detailed presentation, noting the new GEMS model being implemented has been in existence for about 15 years. It has received more attention since the financial crisis because of its capabilities, specifically measuring fat-tail events and the way in which equities have been behaving.

MS. ERCHINGER asked if the analysis was run using the old methodology before subjecting it to a new methodology to see the difference in results. MR. SLISHINSKY noted an analysis using the old methodology was not run. MS. ERCHINGER believes it is important for the Board to know the difference of impact between the two methodologies.

MR. JOHNSON asked how the decision was made to utilize this new GEMS model and does MR. SLISHINSKY personally agree with its use. MR. SLISHINSKY explained he was not involved in the decision. In 2009, a group of Buck's investment consultants did not feel their current model was robust enough to factor in the kinds of changes in the markets they had been seeing. They went out into the marketplace in search of an alternative model to be used for asset liability modeling, which was realistic and made long-term sense.

This model is an econometric model. It considers the current economic environment, including GDP, unemployment, and macro economic measurements. Since Buck's use of this model, it has won two awards from "Insurance Risk" magazine as being the best ESG, Economic Scenario Generator. MR. SLISHINSKY agrees with its use and was the first at Buck to use it for experience analysis reviews and it is used in all of the asset liability modeling studies.

MS. ERCHINGER requested the Investment Advisory Committee continue to review the GEMS model and come back to the Board with their recommendation and if it is appropriate to use this model.

MR. PIHL requested further explanation of the proposed salary scale, including merit increases and CPI increases. MR. SLISHINSKY advised the chart is showing the total payroll growth, as well as the impact of new hires and retirements. A total stationary population picture is created of average annual earnings. There are people in that population who terminate, and the people who replace them receive merit increases. Additionally, new hires are hired at lower wages. The increases from year-to year is wage inflation and payroll growth.

MR. PIHL expressed his concern in addressing the unfunded liability and the impact of percent of pay, backloading contributions, on the growing payroll. MR. SLISHINSKY does not agree backloading is part of the valuation.

MS. ERCHINGER noted this is a closed plan and requested clarification of what new entrants are being discussed. MR. SLISHINSKY clarified the discussion is for total payroll, DB and DCR. The unfunded liability is being funded using total payroll. After all of the calculations, there is not a significant enough difference to warrant a change in the assumption.

MR. SLISHINSKY further reviewed in detail the economic assumptions analysis, noting the current asset allocation policy was used. There will be unique situations regarding the closed plans that will have to be addressed in the future. MR. SLISHINSKY recommended the Board begin thinking about those issues now. The systems do not have liquidity needs in the short-term, but it is important to have some kind of knowledge of addressing those issues for

this analysis to be complete, especially for a mature plan. MR. SLISHINSKY showed the forecasted expected rates of return for the plans and merged them with the projected benefit payments to determine the present value of those future benefit payments. When the projected future benefit payments are taken to calculate the total liability, the future present value of benefits for PERS measures out to be $21.5 billion. This includes the accrued liability, as well as the value of future normal cost payments.

The GEMS liability is then calculated by taking those future cash flow payments and discounting them back at the geometric return projections, and in all cases, those liabilities are less than the liabilities being used with the current discount rates. There is no recommendation to change the current discount rate.

MR. BADER asked what is the lookback period used for the GEMS economic cycles. MR. SLISHINSKY noted it is a long period of time. He did not have a specific number of years. MR. BADER requested that information.

MR. PIHL requested the presentation state who the benefit payments are for, DB, DCR, or both. MR. SLISHINSKY advised the benefit payments are for DB employees only, but it includes pension and healthcare. The DCR valuations are run for occupational death and disability, and the retiree medical benefit.

MS. ERCHINGER asked to be shown where in the presentation are the impacts of eliminating smoothing, as of June 30, 2013, and fully realizing all of the previous unrealized gains in setting the rates. COMMISSIONER RODELL asked if page 39 of the presentation shows the difference between 69.24% current and 43.62% is removing the smoothing and the unrealized gains. MR. SLISHINSKY agreed and noted that also includes the change in the amortization. The change in the assumptions further increases it to 46.01%.

MS. ERCHINGER asked why the analysis uses market value and eliminating smoothing in the 2013 rates, but then recommends continuing smoothing in the future. She sees this as a disconnect. MR. SLISHINSKY explained the calculations are shown as of 6/30/2013. HB 385 goes into effect for the June 30th, 2014 valuation, at which time the required amortization of 25 years and the level percentage of pay will be adopted. The $3 billion contribution is in SB 119. The intent of the Legislature was to, 1) eliminate smoothing of the assets, and 2) eliminate the two-year lag. Buck's recommendation for implementing those changes is to go to market value as of June 30th, 2014, whereby immediately recognizing all of the deferred gains, but going forward, grade back into smoothing gains and losses over a five-year period, until a five-year smoothing basis is attained. The reason for not using market value each year is the impact volatility would have on the contribution rates.

MR. JOHNSON commented the Board needs to consider and make a determination on whether to implement the legislative intent as MR. SLISHINSKY is suggesting, to fully implement the intent, or not to recognize the intent. He advised the intent does not have the force of law.

MS. ERCHINGER requested information on the magnitude of the impact of eliminating smoothing and going to market value on June 30th. MR. SLISHINSKY agreed to provide that information. MS. ERCHINGER believes the contribution rates are being artificially set lower based on complying with the legislation, which pushes the contributions into the future. She thinks it is the Board's desire to push the least amount of contributions into the future as possible. MS. ERCHINGER noted these issues are worth talking about.

MR. SLISHINSKY summarized the recommendations, with no change to the current interest rate assumptions, no change to the payroll growth assumption, no change to the assumed rate of return of 8% for PERS, TRS, and JRS, or to the 7% in National Guard. With regard to the long-term liquidity needs, it is important for the Board to begin thinking in terms of the lifetime of the benefit payments and get a sense of the level of risk for long-term policy.

VICE-CHAIR TRIVETTE commented the Board has begun those serious discussions and it is in the forefront of their minds. He expressed his appreciation for the presentation given.

D. Action: Acceptance of GRS Review Report

MS. HARBO moved to accept GRS Review Report. MS. RYAN seconded the motion.

The motion passed unanimously.

Resolution 2014-16 - Acceptance of Experience Study and Actuarial Assumptions

MR. PIHL moved to approve Resolution 2014-16, Acceptance of Experience Study and Actuarial Assumptions. MS. HARBO seconded the motion.

MS. ERCHINGER asked when is the Board required to set the contribution rate to meet the needs of the formulation of the state budget. MR. BADER understands the OMB needs to have the contribution rates set at this meeting, because they are going into budget deliberations now.

MR. BARNHILL commented it is normally the Board's practice to set the rates on or before this meeting for the next fiscal year. The Board may consider at a later session or sessions, the various issues discussed at this meeting regarding the experience analysis and make adjustments to the experience analysis. Any adjustments the Board were to make, in terms of assumptions recommended by Buck would not roll to the FY16 rate, but instead, to the FY17 rate. These fairly complex set of actuarial assumptions may warrant more discussion.

MS. ERCHINGER expressed she has no problem approving this resolution. Her concern is the 2016 rates are potentially much lower than they should be and if those lower rates are used to build the budget, then the following year, if changes are made, the Legislature is in a challenging position of having to add perhaps a significantly higher dollar amount to the budget. MS. ERCHINGER stated she does not necessarily intend to support the resolution for the 2016 contribution rates exactly as written because of her concerns of artificially setting the rates lower.

MR. BARNHILL urged the Board to consider the impact of the appropriation of $3 billion on the fiscal status of the trusts in comparison to the ARMB's baseline scenario calling for the appropriation of approximately one billion for FY16. He believes the Legislature has done an extraordinary appropriation to forward fund.

COMMISSIONER RODELL expressed caution about talking about artificial rates. She believes all rates the Board adopts are done so with a base of knowledge and understanding of the reasons and assumptions being made. MS. RODELL thinks the actions that Buck has taken are perfectly defensible and believes there is clearly an understanding, from her conversations with the Governor, various legislators, and legislative committees, that this is something that is going to continue to move around. It is important to recognize contributions may be lower than expected, because of better experience, and other times, contributions may be higher because of worse experience. She will advocate adopting the contribution rates as proposed by Buck in the resolutions today.

A roll call vote was taken, and the motion passed unanimously.

11. FY16 CONTRIBUTION RATE SETTING

Action: Relating to FY16 PERS Contribution Rate
Resolution 2014-17

MR. BARNHILL reviewed the methodology the Legislature developed in adopting rates. The first step is to implement the statutory changes by resetting the amortization period to a closed 25-year period and to reinitialize that starting in FY15. The second step is the intent language to eliminate the two-year rate setting lag. Buck recommended taking the valuation data and actuarial assumptions and roll those forward through to the end of FY15 in order to eliminate the rate setting lag.

The next step is to eliminate the actuarial smoothing. The actuarial methodology has two pieces. One piece is that gains and losses are smoothed in over a five-year period of time. The second piece is the 80/120 corridor method, recognizing gains and losses outside of that corridor on a deferred basis. Buck recommended resetting the actuarial asset values to market value, as of June 30, 2014, and then reinstitute the five-year smoothing. Buck recommended eliminating the corridor method. The last step, by statute, is to conduct an experience analysis every four years. Buck conducted the experience analysis reviewed today and has recommended the adoption of some additional conservatism, particularly in the areas of mortality, salary, and termination.

The proposed FY16 rate for PERS Defined Benefit is 27.19%, which includes the defined contribution rate. The proposed FY16 rate for TRS is 29.27%, which includes the defined contribution rate.

MR. PIHL commented this resolution would place the state assistance for PERS and TRS at 256 million, which is roughly half of what the Governor's objective was at 500 million. He

believes this is largely a result of extending the amortization period and the percent of payroll adoption. MR. PIHL noted he would support a resolution that specifies the rates are set in following legislative direction, and not that this is a recommendation of the ARM Board. Alternatively, the ARM Board could adopt these rates and also provide an additional recommendation to the Legislature.

MS. ERCHINGER believes the Board is put in a difficult position. She believes the Governor's Office and the Legislature has done a great job in getting the $3 billion injection into the retirement systems and cannot say enough to applaud those efforts. MS. ERCHINGER thinks the Board ought to endorse the rates proposed in accordance with the legislation, and also make a recommendation for an addition appropriation which would bring the total contribution for 2016 up to the $500 million. This is not intended to be disrespectful.

VICE-CHAIR TRIVETTE suggested focusing on the current resolution and then consider a process that would address MS. ERCHINGER's suggestions. He supports both processes separately. MS. ERCHINGER stated her intent was to propose an amendment to the resolution to be voted up or down by the Trustees. MR. PIHL agreed the issues need to be handled together.

COMMISSIONER RODELL stated she will not support an additional request up to 500 million. She understands and appreciates the positions of MR. PIHL and MS. ERCHINGER, but does not foundationally agree the additional 250 million is warranted at this time, considering all the changes and accounting for the $3 billion contribution. COMMISSIONER RODELL would rather see some of the effects and the experience of the changes first, and continue to work on this at a later date.

An at-ease was taken from 4:51 p.m. to 5:00 p.m.

VICE-CHAIR TRIVETTE informed, at the permission of the Board, Resolution 2014-17, relating to FY16 PERS contribution rate, and Resolution 2014-20, relating to FY16 TRS contribution rate, will be taken up at the meeting tomorrow.

Action: Relating to FY16 PERS RMMI Contribution Rate and FY16 PERS ODD Contribution Rate
Resolutions 2014-18 and 2014-19

MR. BARNHILL noted Resolution 2014-18 pertains to the defined contribution rate for retiree major medical insurance, which will be set at 1.68%. Resolution 2014-19 sets the rates for the PERS Defined Contribution Plan for occupational death and disability, 1.05% for peace officers and firefighters, and .22% for all other PERS employees.

MR. BRICE moved to accept Resolution 2014-18 and Resolution 2014-19. MS. HARBO seconded the motion.

COMMISSIONER RODELL requested MR. BARNHILL provide more detail on the two resolutions on the floor. MR. BARNHILL complied and explained the ARM Board sets these

rates every year according to a process called for in statute. The rate setting evaluation Buck completed is provided in the Board packet.

A vote was taken, and the motion passed unanimously.

Action: Relating to FY16 TRS Contribution Rate
Resolution 2014-20

Resolution 2014-20 will be taken up at the meeting tomorrow.

Action: Relating to FY16 TRS RMMI Contribution Rate and FY16 TRS ODD Contribution Rate
Resolutions 2014-21 and 2014-22

MR. BARNHILL explained Resolution 2014-21 and Resolution 2014-22 relate to the TRS Retiree Major Medical Insurance rate be set at 2.04%, and the TRS Occupational Death and Disability rate be set at zero percent.

MR. PIHL moved to accept Resolution 2014-21 and Resolution 2014-22. MS. ERCHINGER seconded the motion.

A vote was taken, and the motion passed unanimously.

Action: Relating to FY16 NGNMRS Contribution Amount
Resolution 2014-23

MR. BARNHILL stated Resolution 2014-23 is the recommended contribution amount of $734,560 for the National Guard and Naval Militia Retirement System, following the valuation by Buck.

MR. PIHL moved to accept Resolution 2014-23. MS. ERCHINGER seconded the motion.

A vote was taken, and the motion passed unanimously.

Information: JRS Contribution

MR. BARNHILL advised the final item on the agenda today relates to the Judicial Retirement System contribution rates. This is strictly informational and no action will be taken. This item rests within the jurisdiction of the Commissioner of Administration to set the rates and the information is then provided to the Board. The recommendation coming from the Judicial Retirement System roll-forward valuation is that rates be set at 39.66% for normal costs, with a past service cost rate of 42.82%, resulting in a total rate of 82.48%.

RECESS FOR THE DAY

VICE-CHAIR TRIVETTE recessed the meeting at 5:11 p.m.

Friday, September 19, 2014

CALL BACK TO ORDER

VICE-CHAIR TRIVETTE reconvened the meeting at 8:58 a.m.

Trustees Harbo, Erchinger, Rodell, Thayer, Brice, Ryan, and Pihl were also present.

12. STRUCTURED ALPHA

MR. BADER introduced GREG TOURNANT, Portfolio Manager, JEFF SHERAN, Product Specialist, and MELODY MCDONALD, Relationship Manager, all of RCM/Allianz, who provided a detailed presentation on Structured Alpha 1000 Plus. MR. SHERAN explained this is an absolute return strategy utilizing the options market. This strategy is designed to deliver a return of 10% net of fees in excess of the return of the 90-day T-bills, regardless of market conditions. The intent is to generate this return profile in as risk-controlled and responsible fashion as possible, while navigating a wide range of market scenarios. The annualized standard deviation is 8% to 10%.

There is full transparency of the portfolio holdings, using simple listed daily priced instruments that are all exchange traded and unleveraged. The fee schedule is performance-based and is only collected if positive alpha is delivered in the portfolio. The strategy was launched in 2005, and now has a stable nine-person team. MR. TOURNANT is the lead portfolio manager and the creator of the strategy. Currently, there is about $2.6 billion in the strategy. This is a niche strategy inside of Allianz Global Investors and is the only options platform in the U.S.

MR. TOURNANT explained options are interesting and a source of potential alpha and this strategy captures many inefficiencies from the behavior of the market. Because the investment world is long equity, there is a natural demand for put options, protection to the downside, which tend to make the put options overpriced. The investment world has a tendency to be a seller of call options to generate additional premiums, and the call options tend to be under-priced.

Structured Alpha 1000 Plus is based on the principle the managers have no idea where the market or volatility is going and do not depend on that to generate returns from this strategy. MR. TOURNANT stated 80% to 90% of the time, the market behaves somewhat normally. From 10% to 15% of the time, the market can misbehave with an anomaly, some kind of market correction, a 10% move in just a few weeks, or the market crashes, which is an abrupt dislocation that occurs in one of two days. Structured Alpha is designed to protect capital when there are these anomalies, and at the same time, have positions that can make money if the market is normal. The focus is on capital preservation first, and return second.

The three building blocks of the diversified profit ranges are discount range-bound positions, directional positions, and hedging positions. These positions coexist in the portfolio at all times and rotate. The entire portfolio gets turned over approximately every seven to eight

weeks. The Plus part of the portfolio is an additional protection module for severe dislocation and significant corrections in the market, as occurred in the fall of 2008 or in August 2011.

MR. ERLENDSON commented he finds this a fascinating strategy and particularly attractive is the low correlation. He asked if the low correlation is due to the contractual nature of the payoffs. His second question was why is it the confidence level in this strategy is so much higher than the competing strategies with high excess return targets. MR. TOURNANT explained the positions are structured to cover all kinds of scenarios, but the mathematically preferable profit zone is when the market goes down, because the new positions layered are much more attractive. MR. TOURNANT answered the second question by noting he has been comforted by the additional market participants using options. He has a high degree of confidence because of the extraordinary wide range of environments experienced within the last nine years.

MS. HARBO asked if the instant media and emotional reaction to the market has had any effect on how MR. TOURNANT conducts business. MR. TOURNANT informed options are only used on indices and not individual stocks. The behavior is more muted because the indices are a collection of stocks. Approximately 90% of the profit zones are kept to expiration, rather than emotionally react to news flows. They are monitored closely and it is a lot of work upstream to build a diversified set of positions.

MR. PIHL requested a projection of what kind of return would occur if there were a 20% market correction. MR. TOURNANT noted the answer in two parts. If the 20% correction is over six or eight weeks, the expectation would be flat to potentially positive returns. If the dislocation happens overnight or over a couple of days, the expectation is to be flat or down a few percentage points, depending on volatility spikes.

MR. SHAW requested a description of an environment that would not favor this strategy. MR. TOURNANT noted this strategy may fall short of the objective in an extraordinarily low volatility environment, and the return may only be 7% to 8%, as opposed to the 10% objective. Another unfavorable environment is one where a correction in the market took place, and volatility did not increase. This strategy is dependent on volatility to increase when the market goes down.

13. PERFORMANCE MEASUREMENT - 2ND QUARTER

MR. ERLENDSON introduced DANA BROWN, Senior Vice President, also of Callan Associates. MR. ERLENDSON and MR. BROWN gave a detailed presentation regarding the 2nd quarter performance measurement. MR. ERLENDSON expressed his appreciation to the Board for renewing this longstanding mutually successful relationship. The ARM Board has implemented a lot of creative investment solutions during a very challenging time and all the news is good. Inflation has been particularly low and the feds tapering program is coming to an end. The majority of the members of the Open Market Committee expect interest rates to start rising in 2015. Even though the growth in the economy is not significant, the view is it is sustainable.

MR. ERLENDSON stated that there has been a huge decrease in the unemployment rate, and at the same time, the labor force participation rate has also decreased. The idea is there are a lot of working age people potentially leaving the labor force and may be compelled to go back to school to learn new skills. The Chair of the Federal Reserve, Janet Yellen, is watching this as a key indicator.

The year-to-date numbers for the S&P, as of the end of August, were 9.9%, but as of September 12th, it is up on 9%. During the same time period, the Russell 2000 was up 1.8%, and has fallen to .06%. EAFE Index was up 2.6%, and has fallen to 1.4%. Emerging markets was up 11%, and has fallen to 8.4%. Bonds have also come off their year-to-date return as of August, to 3.6% for the Aggregate Bond Index and 4.2% for the TIPS Index. MR. ERLENDSON commented that although this retreating is not something anybody likes to see happen, it is normal in the capital markets. The trends in performance are the focus and the trends for this fund have been particularly good.

MR. ERLENDSON noted the GDP growth for Russia is projected to be slightly higher than the growth rate for Europe. However, most of the growth rates are at or below inflation rates for the different countries. As far as economic distribution in the U.S., the top three sectors account for almost half of the U.S. economy. These are information technology, financial services, and healthcare. He noted one of the smaller sectors of the economy, energy, was one of the best performers during the second quarter, and financial services, one of the large sectors, was one of the laggards during the second quarter. MR. ERLENDSON believes manager orientation, in terms of sector selection, will be a significant influence in terms of performance during this period of time. One of the drivers of the ARMB's non-U.S. positions will be the performance of currencies.

MR. ERLENDSON believes the sentiment is that short-term interest rates are going to see the bigger lift in interest rates going forward. The bond market going out 30 years is providing a return of 3%, which from a funding perspective, for this plan, is actually a cost factor from an actuarial perspective. The Board's reaction to this is through diversifying the fixed income by looking at absolute return strategies to try to minimize the interest rate sensitivity, while still generating cash flow.

MR. BRICE requested a comparison of the economic environment and the cost of Japan's bonds in relation to the cost of Greece's bonds. MR. ERLENDSON noted Japan has a functioning economy and are trying to make changes through economic stimulus, much like what saved the U.S. economy five to six years ago. Regarding bonds, one needs to look at not just who is issuing the most bonds, but what is their ability to repay those bonds with their balance sheet. Japan has the highest debt to GDP of any other country, at 180% of outstanding debt versus their GDP. Greece is second highest at roughly 150% outstanding debt versus their GDP. Italy is third on the list, roughly 109%. Many of the Western European countries have relatively high debt, but they have also had some strong performing equity markets, which is the great challenge managers and staff face.

The real estate returns, both private investments and publically traded real estate securities, have achieved rates of returns competitive to the mix of stocks and bonds, with the added

advantage of dampening the volatility of the overall fund because they are not marked to market every day. This is particularly advantageous from a funding perspective. MR. ERLENDSON reviewed the calendar year chart for the commodity market. The challenge in working with commodities is that people tend to want to buy the things that are going up. However, the single biggest hazard the firm has seen with commodities strategies, is the manager needs to do the opposite of what their heart tells them to do, because the differences can be catastrophic and very difficult to recover. This is one of the reasons commodity allocations are unusual.

MR. ERLENDSON explained a chart showing the average rolling five-year returns for large public funds, which are larger than a billion dollars in size. The average five-year return since 1980 is almost 10% a year. It is important to continue to be effective in looking at the risks and opportunities in the future, rather than doing what worked yesterday. Since 2000, that same average five-year return has been less than 7% a year. MR. ERLENDSON believes it is useful to take a longer-term perspective in allocating capital that matches the timeframe of the liabilities. Pension funds have continued to add more and more different types of strategies to diversify.

MR. BROWN advised the trend of the overall performance is quite positive. The primary driver for that trend in the last year is positive manager effect, the active managers adding 1.36% of outperformance value. Staff has done a good job of rebalancing the allocation to keep very close to the targets.

COMMISSIONER. RODELL asked if the manager effect MR. BROWN is referring to includes Department of Revenue managers and externally hired managers. MR. BROWN agreed, and noted it would include the passive strategies, as well. The current positive trend continues over the most recent trailing periods relative to the benchmark, in the top quartile for the quarter, top decile over the last year, top quartile over the last two years, and top third over the last three years. MR. BROWN noted the portfolio is above or inline with the target allocation over longer time periods, but is not quite as positive as far as in the peer group.

The total bond performance has very good performance. It is an intermediate term portfolio and is designed to perform well in a rising interest rate environment. MR. BROWN explained there is no concern or worry regarding the recent underperformance of Mondrian. When they were hired back in 1997, they went through the same kind of period in 1998 through 2000, where they underperformed based on their philosophy and process. During 2000 through 2012, they dramatically outperformed. This is a defensive strategy and not expected to outperform in this kind of period.

MR. BROWN reported the two balanced funds' peer groups have been revised to better match their stock/bond mix. VICE-CHAIR TRIVETTE requested MR. BROWN and MR. ERLENDSON explain this is more detail to the DC Committee at a later point in time.

MR. BARNHILL asked for explanation of the five-year risk for the target date funds on page 45 in the presentation. MR. BROWN informed T. RowePrice manages the Glidepath and tends to be more aggressive and more volatile than their average peer, which is also one of the

biggest drivers of their outperformance over time. There is no concern because it is consistent with their philosophy and process.

MR. BROWN continued the presentation explaining the analysis of money market funds has become almost meaningless because the Fed Funds rates have been basically zero for a very extended period of time and with zero returns net of fees, plus or minus one or two basis points could be the difference between third and fourth quartile. MR. BROWN noted there is discussion about alternate ways to reflect the money market analysis until they return to normal conditions with a positive real yield. VICE-CHAIR TRIVETTE requested the alternative way to conceptualize money markets be brought back to the Board, and asked if there was any concern. MR. ERLENDSON noted there is no concern and the short end of the yield curve is zero to 25 basis points. One of the options would be to only compare the money market funds to their stated benchmark and not to its peers.

MR. BADER believes it is important to educate participants that the money market funds are losing money to inflation. Participants may have placed their money in the money markets as a safe harbor and never left, but need to understand their savings is being eaten up by inflation. VICE-CHAIR TRIVETTE agreed.

MS. HALL noted a question from DR. JENNINGS, who is online, requesting comments on whether there is increased client interest in hedging international stock exposure. MR. ERLENDSON noted he has been hearing some interest in it, but the vast majority of the clients are still unhedged. The hedging question is left up to the discretion of the manager.

MR. PIHL asked if the increase in interest rates occur on the short end of the curve, does this mean bad news for short duration bond holdings. MR. ERLENDSON explained if interest rates increase, it is going to hurt bond holdings, but it is going to hurt less on the short end because reinvestment occurs much more quickly. It is a very common strategy to hold shorter maturity securities if there is fear of rising interest rates, so the capital can be reinvested into that higher market.

VICE-CHAIR TRIVETTE recessed the meeting from 10:24 a.m. to 10:42 a.m.

15. BOARD GOVERNANCE DYNAMICS AND CLOSING COMMENTS

VICE-CHAIR TRIVETTE introduced the next agenda item and noted it is out of order. MR. JOHNSON provided a detailed presentation of the history of the investment responsibilities of the retirement funds, beginning solely with the Commissioner of Revenue, to the creation of the ASPIB in 1992, including the Prudent Investor Rule, to the conversion from primarily a defined benefit to a defined contribution plan, to the creation of the ARM Board in 2005. MR. JOHNSON noted one can debate whether or not the Legislature has done the right thing in a lot of retirement-related issues, but he would propose the Legislature has done right in the composition of the Board, which has been a great benefit to the beneficiaries of the funds. Not withstanding the amalgamation of different talents and different perspectives of the Trustees, there remains the obligation to act as a fiduciary.

MR. JOHNSON believes the different perspectives of the various members brought to the table and the disputes that occurred, yielded a very productive line of discussion and thought process in determining the right solutions to benefit the system. MR. JOHNSON compared the ARM Board and ASPIB with the experience from some other public pension boards throughout the United States, and noted horror stories, acrimony, and pay for play genuine fraud, which Alaska is fortunate not to have experienced. He believes there has been significant tension in the differences in philosophy and approach, and it is important to provide a forum for these issues to be discusses because they affect so many people. At the end of the day, these differences have led to positive results and not to corruption. The role of respect has maintained throughout the conflicts.

MR. JOHNSON suggested the wisdom of collective discussion and deliberation is enhanced by the different perspectives and encouraged the Trustees to bring forth their particular perspective and views. As fiduciaries, the Trustees may collectively make an error in an ultimate determination, but if the decision was thought through, deliberated on, with a justifiable record of that decision-making set forth, nobody can be faulted for the ultimate error. This sound governance is enhanced by statutes with the Department of Revenue, by law, as the Board's staff. He noted the IAC was a brilliant idea by the Legislature and the Board has been well served by the IAC members.

MR. JOHNSON believes the Board will be well served by MR. GOERING, and as long as the Board continues to engage in thoughtful deliberations, rely on the consultants, seek assistance from all the folks who provide statutory input, the Board is in excellent hands.

MR. BRICE expressed his appreciation to MR. JOHNSON for his years of service, and asked what he views as the Board's biggest pitfall to be aware of in the upcoming years. MR. JOHNSON noted there is difficulty in presenting the Board's perspective on appropriations and contributions to the fund that are needed to meet the obligations of the fund. The challenge is in making recommendations that may or may not be accepted or acceptable to state government. It is important to make the recommendations and statements as collectively as possible.

MR. PIHL thanked MR. JOHNSON for his work for the Board and for the Department of Revenue. COMMISSIONER RODELL expressed her appreciation to MR. JOHNSON for all the help he has given over many, many years. VICE-CHAIR TRIVETTE thanked MR. JOHNSON for his service, and noted he watched MR. JOHNSON from the sidelines for years during the ASPIB timeframe, and found the remarks extremely beneficial, helpful, and thoughtful. On behalf of the general public, VICE-CHAIR TRIVETTE believes Alaska is a much better place because of MR. JOHNSON. MS. ERCHINGER expressed her appreciation to MR. JOHNSON for his service to the Board and for his public service in Alaska. She noted it has been a pleasure working with him for more than 20 years. MR. BARNHILL thanked MR. JOHNSON for serving as a colleague, a mentor, and maintaining a sense of humor, which made for very enjoyable meetings.

ACTION: Relating to FY16 PERS Contribution Rate
Resolution 2014-17

MR. PIHL confirmed, for the record, that the contribution rates MR. BARNHILL presented yesterday were prepared by Buck Consulting. In the past, Buck has presented the information to the Board, and yesterday, the information was recapped by MR. BARNHILL. MR. BARNHILL agreed and noted MR. SLISHINSKY, from Buck, is available to confirm the preparation.

COMMISSIONER RODELL moved to approve Resolution 2014-17. MS. RYAN seconded the motion.

MS. ERCHINGER submitted a proposed amendment to Resolution 2014-17, and noted it contains a mathematical error. The dollar amount $130,108,327 should be replaced with $124,119,164.

MS. ERCHINGER moved to amend Resolution 2014-17, and insert at the top of the page; "Consistent with the legislation enacted in 2014," then also prior to the dated line, as follows in one paragraph; "In addition, the Board recommends an additional appropriation to the Public Employees Retirement Trust Fund in the amount of $61,934,236, at the discretion of the Governor and the Legislature, with the intent of bringing the total amount of state assistance for PERS and TRS to the contribution amount projected by House Bill 385," and an additional paragraph stating; "In addition, the Board recommends an additional appropriation to the Public Employees Retirement Trust Fund in the amount of $62,184,928, at the discretion of the Governor and the Legislature, with the intent of bringing the total amount of state assistance for PERS and TRS to $500 million.

MS. ERCHINGER believes this amendment is consistent with the passage of the resolution requesting the $3 billion injection from the Legislature, as well as a steady $500 million contribution. MS. ERCHINGER stated the State of Alaska, the Legislature, the Governor, and the Governor's office, deserves huge respect and thanks for the work to unanimously pass the $3 billion contribution. MS. ERCHINGER noted COMMISSIONER RODELL rightfully corrected her yesterday for using the description of artificial rates. MS. ERCHINGER clarified her comments, informing she believes that rolling in all of the investment gains into one year, lowers the employer contribution rate in 2016.

MS. HARBO seconded the amendment.

MR. BARNHILL advised the Board has used the resolution process annually to adopt rates. Periodically, the Board has adopted resolutions requesting the Legislature to appropriate an additional sum of money. The Board has never combined the two. He brings this to the attention of the Board to consider whether it is appropriate and wise in this instance.

MR. JOHNSON recommended the part of the amendment which starts, "In addition, the Board recommends," would be a separate paragraph for clarification.

MR. BRICE commented he comes from the old school of one question to one motion. He likes the idea of asking for up to 500 million and believes more discussion is warranted regarding how the fiscal note relates to the Buck calculations.

COMMISSIONER RODELL requested MR. SLISHINSKY provide for the record, the funded ratio for PERS after considering the experience analysis, the $3 billion infusion, and the proposed rate of 27.19%. She believes it will be considerably healthier than a year ago. The Board has continued to meet the challenges of the trust funds. Secondly, the Legislature clearly indicated disagreement with the ARM Board's level dollar method. COMMISIONER RODELL stated she supported level dollar, but the percent of pay method is now in statute. COMMISSIONER RODELL informed she will be voting against the amendment. She will be voting for the 27.19% rate, and if this is combined into one resolution, she will have difficulty voting for the entire resolution.

MR. SLISHINSKY advised he prepared all the numbers included in the resolution. As of June 30, 2015, the funded ratio was projected to be 69%. After additional calculations in August, including the asset return for FY14, cash flows, and the proposed change in assumption discussed yesterday that increases the accrued liability, the funded ratio is projected to be in 2015 at 71.8%.

COMMISSIONER THAYER encouraged serious consideration for creating a separate resolution for the amendment and not combining the amendment with the current resolution. COMMISSIONER THAYER advised he will be voting no on the amendment because of his concern the numbers, which are in the hundred of millions of dollars, is not written down for review, and does not believe this reflects fiduciary responsibility.

MR. BRICE requested further thought to memorializing $500 million, because there may be a point in time the Board needs to request more than $500 million. MR. PIHL believes the $500 million is not memorialized and only applies to 2016.

MR. PIHL commented the legislative fiscal note is based on results from the impact of percent of pay. He believes the Legislature was misled regarding percent of pay versus level dollar, and the costs over the time to 2040. MR. PIHL requested the Board be provided the analysis of level dollar versus level pay, on the basis of the 2040 extension, the $3 billion infusion, and additional factors.

MR. BARNHILL informed MS. HALL distributed to the Board the scenarios presented to the Legislature at the close of the legislative session, dated April 18th. It came down to three different methodologies and Buck prepared three different scenarios for the Legislature to review and ultimately pursue one of those. The notion the Legislature was misled in any way is false. Every step was completed with the assistance of Buck Consultants with total transparency.

MR. BRICE asked if the intent of the resolution is to set rates or to ask for state assistance. MS. ERCHINGER responded the intent of the resolution is clearly to set rates, but does not

believe the Board was given sufficient time to discuss the impacts of the assumptions being made and the Board is doing as best it can on a very short period of time.

A roll call vote was taken, and the motion to amend failed with Mr. Brice, Ms. Erchinger, Ms. Harbo, and Mr. Pihl voting yes, and Commissioner Rodell, Ms. Ryan, Commissioner Thayer, and Vice-Chair Trivette voting no.

MR. PIHL moved to amend Resolution 2014-17 to read as follows; Now therefore, be it resolved by the Alaska Retirement Management Board, consistent with the legislation enacted in 2014, that the fiscal year 2016 actuarially determined contribution rate, attributable to employers participating in the Public Employees Retirement System, is set at 27.19%, composed of the contribution rate for defined benefit pension of 14.43%, the contribution rate for post-employment, healthcare, of 8.15%, and the contribution rate for defined contribution pension of 4.61%.

COMMISSIONER RODELL seconded the motion.

A roll call vote was taken, and the motion to amend passed unanimously.

A roll call vote was taken to approve Resolution 2014-17 as amended, and the motion passed unanimously.

ACTION: Relating to FY16 TRS Contribution Rate
Resolution 2014-20

MR. BRICE moved to adopt Resolution 2014-20. MS. HARBO seconded the motion.

MS. ERCHINGER informed she would not belabor the point by proposing the amendment before the Board today, given the wishes of the Board in the last resolution.

MR. PIHL moved to amend Resolution 2014-20 with the same wording amendment approved in Resolution 2014-17. MS. HARBO seconded the motion.

A roll call vote was taken, and the motion to amend passed unanimously.

A roll call vote was taken to approve Resolution 2014-20 as amended, and the motion passed unanimously.

14. INVESTMENT ACTIONS

A. Allianz Structured Alpha 1000-Plus Mandate

MR. BADER read the email from DR. JENNINGS yesterday regarding the Allianz material and requesting an explanation why this is categorized as an absolute return strategy. MR. BADER stated this question was debated greatly within his office. The three main reasons

were, 1) the manager calls this investment an absolute return strategy, 2) Callan calls it an absolute return strategy, and 3) it is consistent with the benchmarks used for absolute return.

MR. BADER paraphrased the next question from DR. JENNINGS, asking for an explanation of how the $200 million allocation to this strategy was determined. MR. BADER reminded the Board several of the most recent allocation have been $200 million. The portfolio is now over $20 billion and this allocation represents one percent, which staff believes is an appropriate number. There are currently approximately $958 million committed or invested in this asset class.

MR. BADER paraphrased the next question from DR. JENNINGS, requesting comment on the prior Allianz strategy related to calls previously held. MR. BADER explained the difference between the two investments. The program proposed today is a hedge program buying and selling options on index funds, including the SPDR and the Russell 1000 Index. The previously held Allianz strategy was an entirely different buy-write program, which bought calls on individual stocks. The previous strategy was terminated several months ago because staff had left Allianz and it was not reaching its benchmark.

MS. HARBO moved hire Allianz to manage $200 million in the Structured Alpha 1000-Plus portfolio, targeting 90-day T-Bills, plus 10% net, subject to successful contract negotiation fees. MS. RYAN seconded the motion.

COMMISSIONER RODELL requested further information regarding the determination of the benchmark of the 90-day T-Bill plus 10%. She requested explanation of the fee, which seems extremely high for the strategy, and what impact it will have to the performance. MR. BADER noted the fee is only assessed if it is earned. Staff believes it is consistent with the investment, which will somewhat insulate the portfolio when a downturn comes. MR. BADER explained the benchmark is the target of this fund. Allianz offers five different approaches using structured alpha each with a different target. Staff and Callan reviewed these and agreed to this approach.

COMMISSIONER RODELL requested additional clarification on both of her questions. MR. BADER explained the fund has to exceed the benchmark return of the 90-day T-bill plus 10% in order to receive their fee. He advised, at the end of the Callan report, there are eight to 10 pages reviewing these strategies and the primary comment is on the Structured Alpha 1000-Plus.

A vote was taken, and the motion passed unanimously.

B. Defined Contribution Branded Funds

MR. BADER advised the next item relates to the creation of an international equity fund and Brandes International benchmark fund. This presentation was made to the Defined Contribution Committee earlier in the week. Great West provided a presentation to the Board on the concept of Branded funds at the April meeting. Branded funds combine managers to create one investment option in the defined contribution program. This recommendation is to

combine two managers, Brandes, the current international equity manager, and Allianz. The two managers tend to be somewhat uncorrelated and are a good match together.

MS. ERCHINGER moved to authorize the staff to implement an international equity fund and change the Brandes International Fund's performance benchmark to the MSCI ACWI Ex-U.S. Index. MS. RYAN seconded the motion.

MS. HARBO inquired if the expense ratio for the branded funds, the same or lower than the combination for Brandes International. MR. BADER stated negotiations with Allianz will be conducted. It is staff's intention to drive the rates as low as negotiations allow.

A vote was taken, and the motion passed unanimously.

C. Equity Guidelines: Resolution 2014-24

MR. BADER discussed the next item relates to investment guidelines for domestic, international, and alternative equity programs. Many of the items are being changed to provide consistency in terms of the presentation, capitalizing, and making it more readable. Items six, seven, and eight are the main changes that relate to the strategies already in place. This is acknowledging some of the investment already allowed for in contract. Staff does not believe there are any particularly controversial changes and this is to make the guidelines consistent with the practices staff is following and believe the Board has already approved.

MS. RYAN moved to approve Resolution 2014-24. MS. ERCHINGER seconded the motion.

COMMISSIONER RODELL expressed her concern over item eight in this resolution describing forward contracts, options, swaps, without limitation. She asked whether it is appropriate to have a combined investment guideline for domestic, international, and alternative equity programs, or would it be better to separate alternative equities with its own investment guidelines, given the nature of some of the instruments considered. MS. RODELL expressed concern there are no limitations in this resolution and wants the Board to understand exactly what will be allowed with this action. MS. RODELL communicated the importance of this resolution being consistent with the regulatory work, including the Dodd-Frank legislation, and the new federal level rules.

MR. BADER believes there are limitations within the resolution, particularly in number eight, where it states, "And swaps, if specified in the investment management agreement or determined to be fundamental to the manager's investment mandate or strategy." These will not be in conflict with the Dodd-Frank issues or regulatory items. Lengthy discussions have occurred with MS. LEARY and there is no intent to expand horizons on internally managed strategies.

COMMISSIONER RODELL noted her concern regarding some of the wording, including the phrase, "determined to be fundamental." There is no specification as to who is making the determination and how it is being constrained. She requested comments regarding this issue from the IAC and MR. JOHNSON. DR. MITCHELL stated he appreciates

COMMISSIONER RODELL's concern, but does not see a problem. MR. JOHNSON believes the language provided here is in the broadest frame. The investment management agreements will contain the specifics of what is allowed. This will be determined by the Department of Revenue.
A vote was taken, and the motion passed unanimously.

D. Private Equity Guidelines: Resolution 2014-25

MR. BADER informed the next item is a revision to the private equity policy with two changes. The first one is changing the current threshold rate of return from 13% to a floating percentage rate equaling the Russell 3000 Index plus 350 basis points. As market conditions change, the threshold would move higher or lower. The second change is replacing the fixed $125 million CIO investment delegation limit to read, "With respect to direct investment allocation targets set by the ARM annually, the CIO has the authority to commit up to an additional one percent of the total defined benefit plan assets." This is consistent with an approval the Board gave the CIO at the April meeting increasing the authority to $200 million, which is about the same as the one percent limitation on the $20 billion total portfolio.

MS. HARBO moved to approve Resolution 2014-25. MS. RYAN seconded the motion.

MR. BRICE expressed the same concerns he expressed in April regarding giving this much authority to the CIO. He prefers the Board be engaged in the investment discussions and reviews. MR. BRICE understands the need for expediency in certain situations, and believes the role of the Board is to oversee these $200 million large investments.

COMMISSIONER RODELL believes the Permanent Fund Corporation adopted a similar one percent total asset level delegation of authority a few years ago. As fiduciaries, it is incumbent on the Trustees to regularly revisit this issue, especially as the fund continues to grow.

MR. BADER emphasized to the Board the authority is intended to be used if there is a time constraint that makes it in the best interest of the fund to make that decision. He understands the concerns of the Board and intends to bring investments in front of the Board after Callan has gone through their review process.

A vote was taken, and the motion passed unanimously.

D. Audit of Performance Consultant

MR. BADER provided the revised action item and described the RFP process conducted.

MS. ERCHINGER moved to direct staff to engage in negotiations with Anodos Advisors to provide services to conduct the required audit of the state's performance consultants, and pending successful terms and approval of legal counsel, enter into a contract for their services. MS. RYAN seconded the motion.

VICE-CHAIR TRIVETTE reminded Trustees the principal in this firm is the same that was used in the previous audit and some of those same people were involved in two previous audits. Trustees were appreciative of their work. He supports this motion.
MR. JOHNSON recommended for the record, the Trustees state their agreement with the recommendation and make the findings in the determination.

VICE-CHAIR TRIVETTE agreed it is appropriate that Mr. Bader laid out what staff would propose as findings and suggested they be included as part of the record. There were no objections from Trustees.

A vote was taken, and the motion passed unanimously.

E. Adoption of ARMB Policy Manual

MR. BADER explained the updating process of the policies and procedure manual was undertaken by COMMISSIONER RODELL, MS. LEARY, MR. BADER, MR. JOHNSON, MR. POAG, and MS. HALL. The editing process concentrated on revisions and edits to the statutory and regulatory references, as well as additions to descriptions and responsibilities that did not exist for the ASPIB. Also included is updated language referencing the passage of HB 385 and SB 119 during the 2014 legislative session.

MS. ERCHINGER moved to adopt the updated and edited September 2014 Board of Trustees Investment Policy and Procedures manual. MS. HARBO seconded the motion.

A vote was taken, and the motion passed unanimously.

F. Information: Historical ARMB Returns

MR. BADER noted the requested historical rates of return have been provided in the Board packet. This is not a dollar weighted average. This is an average between the PERS and TRS without dollar weighting, showing the experience of the retirement funds for 30 years.

UNFINISHED BUSINESS

1. Disclosure Report

MS. HALL advised the Disclosure Report was included in the packet and there is nothing unusual.

2. Calendar

MS. HALL noted there is no change to the calendar for the rest of this year. A teleconference for the Audit Committee meeting in October will be set soon. The date of the September 2015 Fairbanks meeting was corrected to September 24-25, 2015.

3. Legal Report

MR. JOHNSON had nothing further to report.

NEW BUSINESS

None

OTHER MATTERS TO PROPERLY COME BEFORE THE BOARD

None

PUBLIC/MEMBER COMMENTS

None

INVESTMENT ADVISORY COUNCIL COMMENTS

DR. MITCHELL commented the Board has had two days of very serious presentations and discussions. He informed his remarks will be light and perhaps flippant, regarding important issues, hedge funds, economic forecasting, and risk. The comment was made yesterday the CalPERS was exiting out of its hedge fund investments and the ARM Board was maintaining its commitments to this category. DR. MITCHELL believes CalPERS is close to being a perfect contrary indicator, meaning as long as decisions are opposite CalPERS decisions, all will be just fine. It may be appropriate to increase the absolute return investments, since the time to hedge is when everything is going well and asset prices are high. There have been six consecutive years of gratifying stock market returns.

DR. MITCHELL believes neither governments nor private economists can forecast the economy at turning points with accuracy or consistency. That does not mean we should give up trying, but when economic forecasts are expressed from managers, actuaries, consultants, or members of the IAC, we should realized just how fallible those forecasts have been. DR. MITCHELL noted the investment world has been consumed by discussion of risk ever since 2009. He believes the simplest and best approach to risk is to be long-term. Steady investing leads to steady results and is also beneficial from a physiological point of view of lower levels of cortisol.

MR. SHAW provided a different perspective regarding CalPERS and noted its size of $300 billion in relation to the ARM's size of $20 billion. He noted CalPERS was thinking about a 10% allocation to hedge funds, which is $30 billion dollars, and even at $500 million commitments, that is 60 individual managers. He believes this was a large reason CalPERS decided to exit the asset class, along with the headline story of $135 million in fees. In a fund the size of the ARMB, it becomes more reasonable to participate, and MR. SHAW applauds MR. BADER for being in these asset classes.

MR. BADER commented back to a question from COMMISSIONER RODELL regarding the Allianz product fee of 30%. He clarified the 30% is over the Treasury rate and not over the Treasury plus 10. MR. BADER still feels this is a good investment and wanted the Board to know he misspoke on that earlier. No comments were made by the Board regarding his comments.

TRUSTEE COMMENTS

COMMISSIONER RODELL appreciated DR. MITCHELL's comments on forecasting. She thanked the Trustees and staff for their work during this tough meeting. MS. HARBO expressed her appreciation to MR. JOHNSON for being a really good friend and noted she will miss him.

VICE-CHAIR TRIVETTE commented when he voted not to support the amendment earlier in the meeting, it was frankly because there was so much information on the table, and he was not able to multi-task, run the meeting, read the amendment, add the new information from the three letters received this morning, all at the same time. VICE-CHAIR TRIVETTE informed he is going to ask the Chair to consider holding a special meeting to retake up the issue that had a tie vote today, because he would have voted in favor of the amendment, had he had a chance to read the materials ahead of time. He believes this will give the maker of the amendment time to provide it to the members. VICE-CHAIR TRIVETTE will also request the Chair attempt to receive additional information from Buck that was asked for at the June meeting, and distribute that to the Board.

VICE-CHAIR TRIVETTE discussed he spent a fair amount of time dealing with legislators and legislative staff on the $3 billion contribution, and he heard some very well-placed legislators talking about contributing $4 billion. He believes there is enough support to listen to the ARMB's request. VICE-CHAIR TRIVETTE noted it is the Board's obligation to educate the Legislature and ensure they understand the motion by MS. ERCHINGER.

MS. HARBO suggested requesting a meeting of the Legislative Committee before the December meeting. VICE-CHAIR TRIVETTE stated the intent is to do something very soon. MR. BRICE recommended dealing with one issue per resolution. VICE-CHAIR TRIVETTE agreed.

FUTURE AGENDA ITEMS

MR. PIHL requested discussing level dollar versus level percent of pay, with the updated schedule until 2040, at the December meeting. He believes it is the role of the Board to identify and advance recommendations to the Legislature that seek the lowest system cost.

ADJOURNMENT

There being no objection and no further business to come before the Board, the meeting was adjourned at 1:00 p.m. on September 19, 2014, on a motion made by MR. and seconded by MS. HARBO.

Chair of the Board of Trustees
Alaska Retirement Management Board
ATTEST:

_____
Corporate Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Retirement System Membership Activity as of September 30, 2014

ACTION: _____

DATE: December 4, 2014

INFORMATION: **X**

BACKGROUND:

Information related to PERS, TRS, JRS, NGNMRS, SBS and DCP membership activity as requested by the Board.

STATUS:

Membership information as of September 30, 2014.

MEMBERSHIP STATISTICS AS OF SEPTEMBER 30, 2014

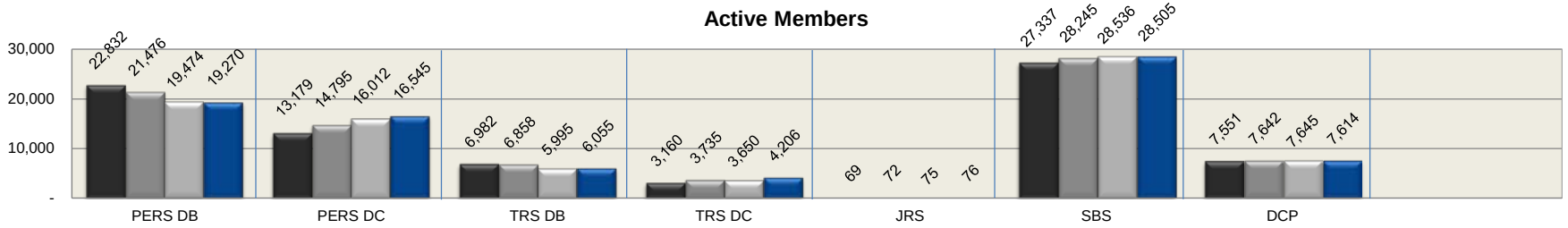
	PERS						TRS					JRS	NG	SBS	DCP
	DB				DC	SYSTEM	DB			DC	SYSTEM				
	Tier I	Tier II	Tier III	Total	Tier IV	TOTAL	Tier I	Tier II	Total	Tier III	TOTAL				
Active Members	2,608	5,296	11,366	19,270	16,545	35,815	876	5,179	6,055	4,206	10,261	76	n/a	28,505	7,614
Terminated Members	2,122	5,025	11,300	18,447	7,876	26,323	437	2,607	3,044	1,777	4,821	3	n/a	14,626	2,957
Retirees & Beneficiaries	23,446	5,772	2,049	31,267	9	31,276	10,569	1,508	12,077	-	12,077	108	650	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	6,285	6,285	n/a	n/a	n/a	1,700	1,700	n/a	n/a	1,040	1,046
Retirements - 1st QTR FY15	198	158	102	458	n/a	458	192	191	383	n/a	383	-	26	n/a	n/a
Full Disbursements - 1st QTR FY15	31	35	128	194	461	655	15	30	45	117	162	-	n/a	641	154
Partial Disbursements - 1st QTR FY15	n/a	n/a	n/a	n/a	38	38	n/a	n/a	n/a	13	13	n/a	n/a	546	447

Alaska Division of Retirement and Benefits

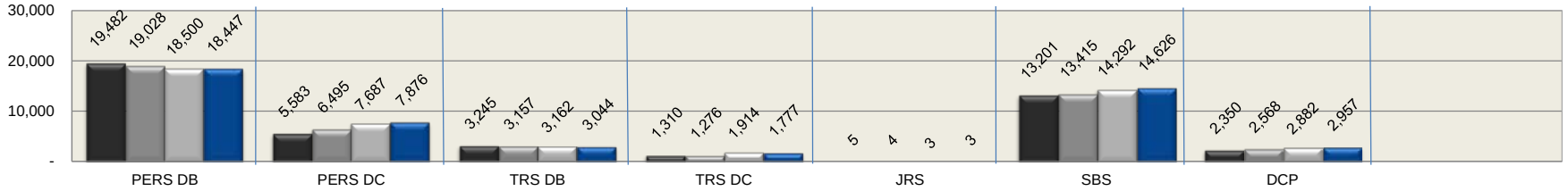
FY 2015 QUARTERLY REPORT OF MEMBERSHIP STATISTICS

Annual & Quarterly Trends as of September 30, 2014

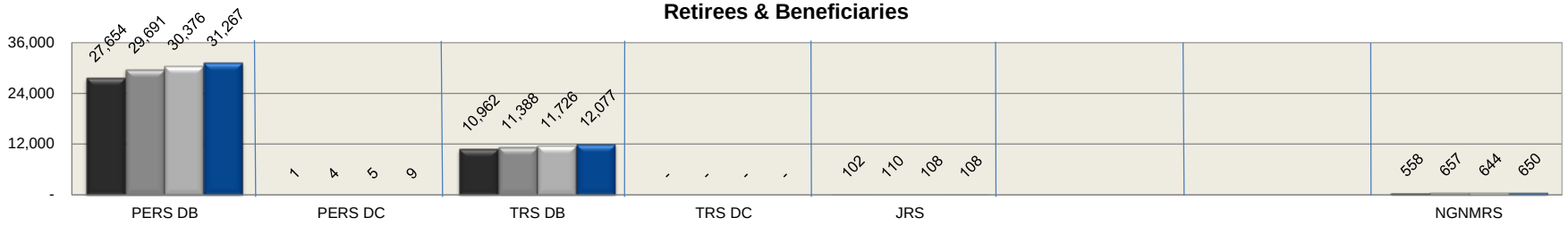
Active Members



Terminated Members

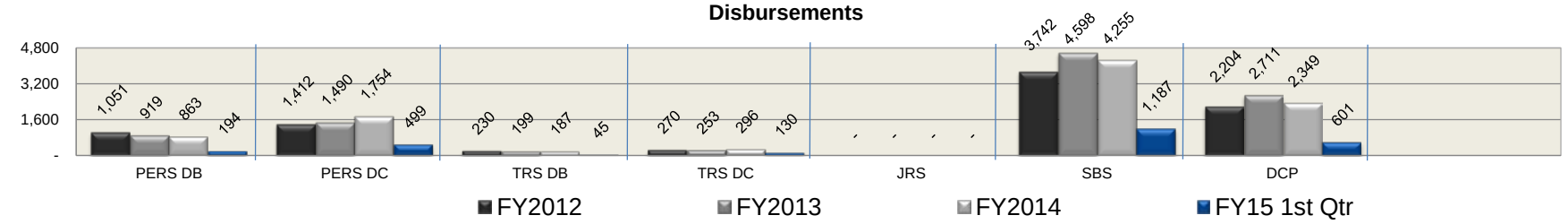


Retirees & Beneficiaries



Retirements

Disbursements



LEGEND

Active Members - All active members at the time of the data pull.
Terminated Members - All members who have terminated without refunding their account.
Retirees & Beneficiaries - All members who have retired from the plans, including beneficiaries eligible for benefits.
Managed Accounts - Individuals who have elected to participate in the managed accounts option with Great West.
Retirements - The number of retirement applications processed.
Full Disbursements - All types of disbursements that leave the member balance at zero.
Partial Disbursements - All types of disbursements that leave the member balance above zero. If more than one partial disbursement is completed during the quarter for a member, they are counted only once for statistical purposes.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Invoices & Summary of Billings - Buck Consultants, a Xerox Company	ACTION:	
DATE:	December 4, 2014	INFORMATION:	**X**

BACKGROUND:

AS 37.10.220(a)(8) prescribes that the Alaska Retirement Management Board (Board) "coordinate with the retirement system administrator to have an annual actuarial valuation of each retirement system prepared to determine system assets, accrued liabilities, and funding ratios and to certify to the appropriate budgetary authority of each employer in the system".

As part of the oversight process, the Board has requested that the Division of Retirement & Benefits (Division) provide monthly invoices to review billings and services provided.

STATUS:

Attached are the summary totals for the fiscal year ended September 30, 2014.

Buck Consultants
Billing Summary
Through the Three Months Ended September 30, 2014

	PERS	TRS	JRS	NGNMRS	EPORS	AHF	RHF	SBS	DCP	TOTAL
Actuarial Valuations	$ 32,079	24,928	7,369	2,737	139	-	-	-	-	$ 67,252
ARMB Presentations	8,893	8,093	-	-	-	-	-	-	-	16,986
Audit Request	501	171	2	-	-	34	297	-	-	1,006
CAFR Information	1,419	1,419	-	-	-	-	-	-	-	2,838
Preparation of FY 15 and FY 16 rate allocations for PERS and TRS under new actuarial methodology required under HB 385	5,279	4,140	-	-	-	-	-	-	-	9,419
Actuarial study to determine the actuarial impact of the change in assumptions by decrement proposed by the experience analysis	9,584	7,622	4,336	2,892	-	-	-	-	-	24,434
Preparation of projections over 30 years of the state assistance contributions to PERS and TRS under funding method changes required under HB 385 and SB 119 and new assumptions based on experience analysis	17,604	13,144	-	-	-	-	-	-	-	30,748
30-year projections of actuarial funding updated for new assumptions	2,520	2,234	-	-	-	-	-	-	-	4,754
Research, review, and discussions regarding the FY15 state "on-behalf-of" contribution rates considering excess contributions under SB 119 and level percent of payroll amortization methodology	5,426	4,518	-	-	-	-	-	-	-	9,944
Prepare of summary of the actuarial impact of actuarial assumption and methodology changes on the FY 16 actuarial measures	2,383	2,383	-	-	-	-	-	-	-	4,766
Letter documenting the impact on FY15 contribution rates for the change in the amortization methodology to leave percent of pay under HB 385 and that these rates were met with $3 billion appropriated under SB 119	3,952	3,377	-	-	-	-	-	-	-	7,329
Calculation of FY 16 contribution rates using the roll-forward valuation method, the change in the amortization methodology to level percent of pay under HB 385, $3 billion appropriated under SB 119 in FY 15 and 17.7% FY 14 rate of return, and adoption of new assumptions	6,137	5,302	-	-	-	-	-	-	-	11,439
Development of calculator to determine the cost to PERS P/F members to recognize military service for use in eligibility service for healthcare benefits	4,169	-	-	-	-	-	-	-	-	4,169
Work in process for the Healthcare Design Study for DCR, including 30-year projections of annual contribution rates and funding status	4,036	4,036	-	-	-	-	-	-	-	8,072
Prepare of summary of investment rate of return assumptions under the building block approach	1,639	1,639	1,639	-	-	-	-	-	-	4,917
Prepare of summary on GEMS, the model Buck uses for forecasting investment rates of returns	168	168	168	-	-	-	-	-	-	503
Information on Cash Balance Plans	252	252	-	-	-	-	-	-	-	503
Projection of actuarial cost under the full DCR Tier	2,476	1,867	-	-	-	-	-	-	-	4,343
Misc emails and phone calls	4,283	3,328	525	237	5	1	10	-	-	8,389
TOTAL	$ 112,799	88,620	14,039	5,866	144	36	307	-	-	$ 221,811

CHIEF INVESTMENT OFFICER REPORT

- Rebalanced Defined Benefit funds five times: September 19, October 1, October 20, October 27, and November 7.
- Several transfers into and out of Cash Account and Absolute Return Managers.
- Reset Notional Value to $11 million for Small Cap Overlay Account.
- Reset Notional Value to $11 million for Large Cap Overlay Account.
- Funded Pyramis Tactical Bond Commingled Fund investment by Selling Jennison Small Cap ($40 million), Luther King Small Cap ($30 million), and Lord Abbett Small Cap ($30 million).
- Sold $50 million from Fixed Income pool and funded MacKay Shields High Yield.
- Transferred $200 million from Cash to fund Arrowstreet Capital.
- Transferred $200 million from Cash to McKinley Capital ($100 million), SSgA Russell 1000 Value ($60 million), Analytic/SSgA Index ($36 million), and Analytic Buy-Write Account ($4 million).
- Transferred $200 million from Cash to SSgA Russell 200 fund.
- Transfer $20 million from Cash to Lazard Emerging Income Fund.
- _____
- _____

11/7/2014	Pension				Health Care		
Rebalancing Trades (Final)	PERS	TRS	JRS	Mil	PERS	TRS	JRS
	AY21	AY22	AY23	AY24	AYW2	AYW3	AYW4
Broad Domestic Equity							
Large Cap Pool (AYQK)	1,528,959	101,965	35,922	(246,317)	(1,178,882)	(744,865)	(1,660)
Small Cap Pool (AYQC)	278,357	18,567	6,537	(44,844)	(214,624)	(135,608)	(303)
Alternative Equity Strategies							
Advent Capital Convertible Bond (AY52)	54,298	2,061	1,292		(47,405)	(29,097)	(74)
Alternative Equity Strategies Pool (AYYK)	155,211	5,885	3,697		(135,505)	(83,173)	(211)
Global Equity Ex-US							
International Equity Pool (AYRC)	1,167,130	48,009	27,774	(21,148)	(1,005,565)	(619,038)	(1,552)
International Equity - Small Cap Pool (AYRK)	84,771	3,485	2,018	(1,536)	(73,036)	(44,962)	(113)
Emerging Markets Pool (AYSC)	192,238	7,907	4,575	(3,483)	(165,627)	(101,962)	(255)
Frontier Market Pool (AYMC)	28,392	1,168	676	(515)	(24,462)	(15,059)	(38)
Private Equity							
Private Equity Pool (AYSK)	503,041	19,060	11,991		(439,176)	(269,565)	(684)
Real Assets							
Real Estate Pool (AYVK)	(198,982)	(235,249)	(2,052)		275,578	5,414	1,789
JP Morgan Real Estate (AY7A)	33,561	(34,787)	1,226				
REIT Holdings (AYPC)	95,140	3,604	2,268		(83,060)	(50,982)	(129)
Farmland Pool (AYTK)	203,595	7,718	4,854		(177,750)	(109,102)	(277)
Timber Pool (AYUK)	102,009	3,870	2,426		(89,058)	(54,663)	(139)
Energy Pool (AYVC)	28,986	1,102	686		(25,305)	(15,532)	(39)
TIPS Internally Managed (AY6N)	23,824	902	568		(20,800)	(12,766)	(33)
MLP Pool (AYWK)	131,798	4,997	3,142		(115,067)	(70,628)	(179)
Private Infrastructure (AYZK)	28,361	1,073	676		(24,760)	(15,197)	(38)
Public Infrastructure (AYMK)	44,777	1,695	1,068		(39,092)	(23,994)	(61)
Absolute Return							
Absolute Return Pool (AYTC)	271,492	10,289	6,471		(237,025)	(145,484)	(370)
Fixed Income							
Taxable Municipal Bond Pool (AYZC)	64,860	2,824	1,541	(2,038)	(55,335)	(34,141)	(85)
US Treasury Fixed Income Pool (AY1A)	294,999	(23,684)	7,444	195,083	(381,074)	(217,055)	(734)
Mondrian Inv. Partners Inc (AY63)	78,191	(7,772)	1,991	60,061	(106,294)	(60,056)	(209)
High Yield Pool (AYPK)	166,027	3,012	3,997	18,339	(156,560)	(94,513)	(257)
Lazard Emerging Income (AY5M)	42,823	1,864	1,018	(1,345)	(36,535)	(22,541)	(56)
Tactical Fixed Income Pool (AYIC)	28,615	1,245	681	(899)	(24,413)	(15,062)	(38)
Short-term Fixed Income							
State of AK Short Term Pool (AY70)	(5,432,473)	49,190	(132,487)	48,642	4,580,832	2,979,631	5,745

11/7/2014

Rebalancing Trades (Final)

	DC Medical		DC Health Reimburesement		DC OD&D		
	PERS	TRS	PERS	TRS	PERS	TRS	P&F
	AYX2	AYX3	AYY2	AYY3	AY6G	AY6H	AY6I
Broad Domestic Equity							
Large Cap Pool (AYQK)	123,737	45,367	254,936	67,114	8,537	(341)	5,528
Small Cap Pool (AYQC)	22,527	8,260	46,413	12,219	1,554	(62)	1,007
Alternative Equity Strategies							
Advent Capital Convertible Bond (AY52)	4,653	1,706	9,546	2,510	317	(14)	207
Alternative Equity Strategies Pool (AYYK)	13,302	4,876	27,289	7,175	906	(41)	589
Global Equity Ex-US							
International Equity Pool (AYRC)	99,404	36,441	204,005	53,647	6,784	(299)	4,408
International Equity - Small Cap Pool (AYRK)	7,220	2,647	14,818	3,897	493	(22)	320
Emerging Markets Pool (AYSC)	16,373	6,002	33,602	8,836	1,117	(49)	726
Frontier Market Pool (AYMC)	2,419	886	4,963	1,305	165	(7)	107
Private Equity							
Private Equity Pool (AYSK)	43,115	15,806	88,441	23,255	2,938	(132)	1,910
Real Assets							
Real Estate Pool (AYVK)	34,567	12,720	79,473	21,537	3,147	171	1,887
JP Morgan Real Estate (AY7A)							
REIT Holdings (AYPC)	8,154	2,989	16,726	4,398	556	(25)	361
Farmland Pool (AYTK)	17,450	6,397	35,795	9,412	1,189	(54)	773
Timber Pool (AYUK)	8,743	3,205	17,934	4,716	596	(27)	388
Energy Pool (AYVC)	2,484	910	5,096	1,340	170	(8)	110
TIPS Internally Managed (AY6N)	2,042	748	4,189	1,102	139	(6)	91
MLP Pool (AYWK)	11,296	4,141	23,172	6,092	770	(34)	500
Private Infrastructure (AYZK)	2,430	891	4,987	1,311	166	(8)	108
Public Infrastructure (AYMK)	3,838	1,407	7,872	2,070	262	(12)	170
Absolute Return							
Absolute Return Pool (AYTC)	23,269	8,530	47,732	12,550	1,586	(71)	1,031
Fixed Income							
Taxable Municipal Bond Pool (AYZC)	5,499	2,016	11,288	2,969	375	(17)	244
US Treasury Fixed Income Pool (AY1A)	31,070	11,385	62,853	16,460	2,036	(123)	1,340
Mondrian Inv. Partners Inc (AY63)	8,483	3,108	17,130	4,483	553	(34)	365
High Yield Pool (AYPK)	14,774	5,415	30,223	7,941	999	(48)	651
Lazard Emerging Income (AY5M)	3,630	1,331	7,453	1,960	248	(11)	161
Tactical Fixed Income Pool (AYIC)	2,425	889	4,980	1,310	166	(7)	108
Short-term Fixed Income							
State of AK Short Term Pool (AY70)	(512,904)	(188,073)	(1,060,916)	(279,609)	(35,769)	1,281	(23,090)

THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Revenue
ALASKA RETIREMENT MANAGEMENT BOARD
333 Willoughby Avenue, 11th Floor
PO Box 110405
Juneau, Alaska 99811-0405
Main: 907.465.3749
Fax: 907.465.2389

October 29, 2014

David Mabry
Managing Director
Crestline Investors, Inc
201 Main Street, Suite 1900
Fort Worth, Texas 76102

Dear David: RE: Redemption from Blue Glacier Fund, L.P.

On Thursday October 30, 2014, please redeem and wire transfer **$9,700,000.00** to the following account at State Street Bank:

State Street Bank
ABA Number: 011-000-028
Account Number: 00132191
Account Name: State of Alaska – AY9F
Attn: Mary Ellen MacDonald, 617-664-9416

Sincerely,

Gary M. Bader
Chief Investment Officer

GMB/scv

cc: Scott Jones, Comptroller
Bob Mitchell, Investment Officer
Zachary Hanna, Investment Officer
Nancy Fong, Bank of New York
Mary Ellen MacDonald, State Street Bank.

LETTER OF DIRECTION

READER'S FILE

State Street Global Advisors
State Street Financial Center
One Lincoln Street
Boston, MA 02111

VIA FACSIMILE: 617-204-0088

Please accept this letter as authorization to execute the following instruction(s).

Letter of Direction Date	09/05/2014			
Client Account Name	State of Alaska Defined Benefit Plans			
Client Account Number	AY6A			
Fund Name and Code	Small Cap Overlay Separate Account			
Transaction Type	Change in Notional			
Transaction Amount(s)	Notional Value	$11,000,000	In-Kind:	
Trade Date	09/05/2014	Settlement Date (if required)		
Special Instructions	Please adjust notional value to $11 million			

We understand that we will contact our custodian/trustee to ensure that funds are properly received by SSgA or the appropriate custodian on settlement and/or trade date. This letter should be faxed to the SSgA Boston office at 617-204-0088.

Sincerely yours,

Gary M. Bader
Authorized Signature

09/05/2014
Date

Gary M. Bader
Authorized Signator Name (Printed)

(907) 465-4399
Phone

cc: JP Morgan

LETTER OF DIRECTION

State Street Global Advisors
State Street Financial Center
One Lincoln Street
Boston, MA 02111

READER'S FILE

VIA FACSIMILE: 617-204-0088

Please accept this letter as authorization to execute the following instruction(s).

Letter of Direction Date	09/05/2014			
Client Account Name	State of Alaska Defined Benefit Plans			
Client Account Number	AY6B			
Fund Name and Code	Large Cap Overlay Separate Account			
Transaction Type	Change in Notional			
Transaction Amount(s)	Notional Value	$11,000,000	In-Kind:	
Trade Date	09/05/2014	Settlement Date (if required)		
Special Instructions	Please adjust notional value to $11 million			

We understand that we will contact our custodian/trustee to ensure that funds are properly received by SSgA or the appropriate custodian on settlement and/or trade date. This letter should be faxed to the SSgA Boston office at 617-204-0088.

Sincerely yours,

Gary M. Bader

Authorized Signature

09/05/2014
Date

Gary M. Bader
Authorized Signator Name (Printed)

(907) 465-4399
Phone

cc: JP Morgan

THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Revenue
ALASKA RETIREMENT MANAGEMENT BOARD
333 Willoughby Avenue, 11th Floor
PO Box 110405
Juneau, Alaska 99811-0405
Main: 907.465.3749
Fax: 907.465.2389

October 2, 2014

REVISION

Mary Ellen MacDonald
State Street Global Services
IIS Public Funds
1200 Crown Colony Drive, CC5
Quincy, MA 02169

Dear Ms. MacDonald:

The Alaska Retirement Management Board (ARMB) requests the following changes to be made on Tuesday, October 7, 2014. Please process the following cash transfer using the currently applicable sending pool ratios:

Jennison Small Cap (AY4G)	< $40,000,000 >
Luther King Small Cap (AY4F)	< $30,000,000 >
Lord Abbett Small Cap (AY5F)	< $30,000,000 >
Pyramis Global Advisors (AY1F)	$100,000,000

If you have any questions, please do not hesitate to contact me at (907) 465-4399.

Sincerely,

Gary M. Bader

Gary M. Bader
Chief Investment Officer

cc: Gail Schubert, ARMB Chair
Angela Rodell, Commissioner
Pamela Leary, Director
Scott Jones, State Comptroller
James McKnight, Senior Investment Compliance Officer
Bob Mitchell, State Investment Officer
Shane Carson, State Investment Officer
Liam Dundon, NRS
Diane Murphy, NRS

GMB/smh

THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Revenue
ALASKA RETIREMENT MANAGEMENT BOARD
333 Willoughby Avenue, 11th Floor
PO Box 110405
Juneau, Alaska 99811-0405
Main: 907.465.3749
Fax: 907.465.2389

October 20, 2014

Mary Ellen MacDonald
State Street Global Services
IIS Public Funds
1200 Crown Colony Drive, CC5
Quincy, MA 02169

Dear Ms. MacDonald:

The Alaska Retirement Management Board (ARMB) requests the following changes to be made on October 22, 2014:

US Treasury Fixed Income Pool (AY1A)	$<50,000,000>
MacKay Shields (AY9P)	$50,000,000

This transaction applies to the ARMB Defined Benefit Pension Plans (AY21-AY24), the ARMB Retirement Health Funds (AYW2-AYW4) and the ARMB Defined Contribution Plans (AY6G-AY6I, AYX2-AYX3, AYY2-AYY3). Please use a pro-rata split based on ownership in AY1A pertaining to all the Pension Plans, Retirement Health Funds and Defined Contribution Plans referenced above.

If you have any questions please call me at (907) 465-4399.

Sincerely,

Gary M. Bader
Chief Investment Officer

cc: Gail Schubert, Chair ARMB
Pamela Leary, Director
Scott Jones, State Comptroller
James McKnight, Senior Investment Compliance Officer
Kayla Wisner, Accountant
Bob Mitchell, State Investment Officer
Casey Colton, State Investment Officer
Emily Howard, State Investment Officer
Alyson Campbell, State Investment Officer

GMB/jnw

THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Revenue
ALASKA RETIREMENT MANAGEMENT BOARD
333 Willoughby Avenue, 11th Floor
PO Box 110405
Juneau, Alaska 99811-0405
Main: 907.465.4399
Fax: 907.465.4397

November 3, 2014

Mary Ellen MacDonald
State Street Global Services
IIS Public Funds
1200 Crown Colony Drive, CC5
Quincy, MA 02169

Dear Ms. MacDonald:

The Alaska Retirement Management Board (ARMB) requests the following changes to be made on Wednesday, November 12, 2014. Please process the following cash transfer using the applicable sending pool ratio:

Short Term Pool (AY70)	< $200,000,000 >
Arrowstreet Capital (AYLQ)	$200,000,000

If you have any questions, please do not hesitate to contact me at (907) 465-4399.

Sincerely,

Gary M. Bader
Chief Investment Officer

cc: Gail Schubert, ARMB Chair
Angela Rodell, Commissioner
Pamela Leary, Director
Scott Jones, State Comptroller
James McKnight, Senior Investment Compliance Officer
Bob Mitchell, State Investment Officer
Shane Carson, State Investment Officer
Liam Dundon, NRS
Diane Murphy, NRS

GMB/smh

THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Revenue
ALASKA RETIREMENT MANAGEMENT BOARD
333 Willoughby Avenue, 11th Floor
PO Box 110405
Juneau, Alaska 99811-0405
Main: 907.465.4399
Fax: 907.465.4397

November 3, 2014

Mary Ellen MacDonald
State Street Global Services
IIS Public Funds
1200 Crown Colony Drive, CC5
Quincy, MA 02169

Dear Ms. MacDonald:

The Alaska Retirement Management Board (ARMB) requests the following changes to be made on Thursday, November 13, 2014. Please process the following cash transfer using the applicable sending pool ratio:

Short Term Pool (AY70)	< $200,000,000 >
McKinley Capital (AY69)	$100,000,000
SSgA Russell 1000 Value (AY4M)	$60,000,000
Analytic/SSgA Index (AY4W)	$36,000,000
Analytic Buy-Write Account (AY4X)	$4,000,000

Furthermore please take this letter as your authorization to wire the following amounts listed to the corresponding Morgan Stanley Prime Broker accounts per the wire instructions below:

Wire out on behalf of AY4W	
Wire out from AY70	$36,000,000

Wire out on behalf of AY4X	
Wire out from AY70	$4,000,000

The wire instructions for the Analytic/SSgA Index (AY4W) are as follows:
Citibank, N.A. New York
ABA# 021000089
Account – Morgan Stanley & Co., NY 38890774
State of Alaska Retirement and Benefits Plans c/o SSgA 038CDCJN0

The wire instructions for the Analytic Buy-Write Account (AY4X) are as follows:
Citibank, N.A. New York
ABA# 021000089
Account – Morgan Stanley & Co., NY 38890774
State of Alaska Retirement and Benefits Plans c/o Analytic 038CDCNT2

THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Revenue
ALASKA RETIREMENT MANAGEMENT BOARD
333 Willoughby Avenue, 11th Floor
PO Box 110405
Juneau, Alaska 99811-0405
Main: 907.465.4399
Fax: 907.465.4397

November 5, 2014

Mary Ellen MacDonald
State Street Global Services
IIS Public Funds
1200 Crown Colony Drive, CC5
Quincy, MA 02169

Dear Ms. MacDonald:

The Alaska Retirement Management Board (ARMB) requests the following changes to be made on Thursday, November 13, 2014. Please process the following cash transfer using the applicable sending pool ratio:

Short Term Pool (AY70)	< $200,000,000 >
SSgA Russell 200 (AY4R)	$200,000,000

If you have any questions, please do not hesitate to contact me at (907) 465-4399.

Sincerely,

Gary M. Bader
Chief Investment Officer

cc: Gail Schubert, ARMB Chair
Angela Rodell, Commissioner
Pamela Leary, Director
Scott Jones, State Comptroller
James McKnight, Senior Investment Compliance Officer
Bob Mitchell, State Investment Officer
Shane Carson, State Investment Officer
Liam Dundon, NRS
Diane Murphy, NRS

GMB/smh

THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Revenue
ALASKA RETIREMENT MANAGEMENT BOARD
333 Willoughby Avenue, 11th Floor
PO Box 110405
Juneau, Alaska 99811-0405
Main: 907.465.3749
Fax: 907.465.2389

November 6, 2014

Mary Ellen MacDonald
State Street Corporation
IIS Public Funds
1200 Crown Colony Drive, CC5
Quincy, MA 02169

Dear Ms. MacDonald:

The Alaska Retirement Management Board (ARMB) requests the following changes to be made on November 26, 2014. Please process the following cash transfer using the applicable sending pool ratio:

Short-term Fixed Income Pool (AY70)	<$20,000,000>
Lazard Emerging Income (AY5M)	$20,000,000

Furthermore take this letter as your authorization to wire the following amounts listed to the corresponding accounts per the wire instructions below:

Wire out on behalf of AY5M	
Wire out from AY5M	$20,000,000

USD
Bank: JP Morgan Chase Bank NA
Address: 270 Park Avenue, NY, NY 10017, United States
ABA: 021-000-021
Account name: Lazard Emerging Income, Ltd
Account#: 432218407
Reference: Alaska Retirement Management Board
If you have any questions, please do not hesitate to contact me at (907) 465-4399.

Sincerely,

Gary M. Bader

Gary M. Bader
Chief Investment Officer

ALASKA RETIREMENT MANAGEMENT BOARD
FINANCIAL REPORT

As of October 31, 2014

ALASKA RETIREMENT MANAGEMENT BOARD
Schedule of Investment Income and Changes in Invested Assets by Fund
For the Four Months Ending October 31, 2014

	Beginning Invested Assets	Investment Income[1]	Net Contributions (Withdrawals)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income[2]
Public Employees' Retirement System (PERS)						
Defined Benefit Plans:						
Retirement Trust	$ 7,720,341,308	$ (22,942,525)	$ 200,126,066	$ 7,897,524,849	2.30%	-0.29%
Retirement Health Care Trust	6,948,399,164	(21,875,029)	(62,844,426)	6,863,679,709	-1.22%	-0.32%
Total Defined Benefit Plans	14,668,740,472	(44,817,554)	137,281,640	14,761,204,558	0.63%	-0.30%
Defined Contribution Plans:						
Participant Directed Retirement	491,615,700	(1,051,134)	23,362,195	513,926,761	4.54%	-0.21%
Health Reimbursement Arrangement	155,432,460	(438,013)	9,106,879	164,101,326	5.58%	-0.27%
Retiree Medical Plan	28,293,975	(66,531)	3,911,404	32,138,848	13.59%	-0.22%
Defined Benefit Occupational Death and Disability:						
Public Employees	10,850,124	(33,044)	423,461	11,240,541	3.60%	-0.30%
Police and Firefighters	5,165,027	(14,759)	347,116	5,497,384	6.43%	-0.28%
Total Defined Contribution Plans	691,357,285	(1,603,481)	37,151,055	726,904,860	5.14%	-0.23%
Total PERS	**15,360,097,757**	**(46,421,035)**	**174,432,695**	**15,488,109,418**	0.83%	-0.30%
Teachers' Retirement System (TRS)						
Defined Benefit Plans:						
Retirement Trust	3,770,919,368	(12,688,089)	426,233,425	4,184,464,704	10.97%	-0.32%
Retirement Health Care Trust	2,264,530,724	(7,525,532)	80,335,510	2,337,340,702	3.22%	-0.33%
Total Defined Benefit Plans	6,035,450,092	(20,213,621)	506,568,935	6,521,805,406	8.06%	-0.32%
Defined Contribution Plans:						
Participant Directed Retirement	215,005,412	(489,504)	2,880,626	217,396,534	1.11%	-0.23%
Health Reimbursement Arrangement	49,102,919	(137,391)	1,575,224	50,540,752	2.93%	-0.28%
Retiree Medical Plan	11,565,438	(25,248)	829,410	12,369,600	6.95%	-0.21%
Defined Benefit Occupational Death and Disability	3,074,708	(9,526)	(9)	3,065,173	-0.31%	-0.31%
Total Defined Contribution Plans	278,748,477	(661,669)	5,285,251	283,372,059	1.66%	-0.24%
Total TRS	**6,314,198,569**	**(20,875,290)**	**511,854,186**	**6,805,177,465**	7.78%	-0.32%
Judicial Retirement System (JRS)						
Defined Benefit Plan Retirement Trust	139,434,530	(349,905)	3,433,198	142,517,823	2.21%	-0.25%
Defined Benefit Retirement Health Care Trust	26,405,394	(82,373)	(19,775)	26,303,246	-0.39%	-0.31%
Total JRS	**165,839,924**	**(432,278)**	**3,413,423**	**168,821,069**	1.80%	-0.26%
National Guard/Naval Militia Retirement System (MRS)						
Defined Benefit Plan Retirement Trust	37,555,947	(203,246)	49,766	37,402,467	-0.41%	-0.54%
Other Participant Directed Plans						
Supplemental Annuity Plan	3,312,097,202	20,477,059	(5,145,133)	3,327,429,128	0.46%	0.62%
Deferred Compensation Plan	785,486,812	4,785,506	(2,914,079)	787,358,239	0.24%	0.61%
Total All Funds	**25,975,276,211**	**(42,669,284)**	**681,690,858**	**26,614,297,786**		
Total Non-Participant Directed	21,171,071,086	(66,391,211)	663,507,249	21,768,187,124	2.82%	-0.31%
Total Participant Directed	4,804,205,125	23,721,927	18,183,609	4,846,110,662	0.87%	0.49%
Total All Funds	**$ 25,975,276,211**	**$ (42,669,284)**	**$ 681,690,858**	**$ 26,614,297,786**	**2.46%**	**-0.16%**

Notes:

(1) Includes interest, dividends, securities lending, expenses, realized and unrealized gains/losses

(2) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates and can be found at: http://www.revenue.state.ak.us/treasury/programs/programs/other/armb/investmentresults.aspx

ALASKA RETIREMENT MANAGEMENT BOARD
Schedule of Investment Income and Changes in Invested Assets by Fund
For the Month Ended October 31, 2014

	Beginning Invested Assets	Investment Income[1]	Net Contributions (Withdrawals)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income[2]
Public Employees' Retirement System (PERS)						
Defined Benefit Plans:						
Retirement Trust	$ 7,862,214,288	$ 64,015,367	$ (28,704,806)	$ 7,897,524,849	0.45%	0.82%
Retirement Health Care Trust	6,829,164,284	53,239,388	(18,723,963)	6,863,679,709	0.51%	0.78%
Total Defined Benefit Plans	14,691,378,572	117,254,755	(47,428,769)	14,761,204,558	0.48%	0.80%
Defined Contribution Plans:						
Participant Directed Retirement	497,013,096	9,196,753	7,716,912	513,926,761	3.40%	1.84%
Health Reimbursement Arrangement	160,062,650	1,312,913	2,725,763	164,101,326	2.52%	0.81%
Retiree Medical Plan	30,575,810	266,357	1,296,681	32,138,848	5.11%	0.85%
Defined Benefit Occupational Death and Disability:						
Public Employees	11,075,823	88,419	76,299	11,240,541	1.49%	0.80%
Police and Firefighters	5,369,521	43,773	84,090	5,497,384	2.38%	0.81%
Total Defined Contribution Plans	704,096,900	10,908,215	11,899,745	726,904,860	3.24%	1.54%
Total PERS	**15,395,475,472**	**128,162,970**	**(35,529,024)**	**15,488,109,418**	0.60%	0.83%
Teachers' Retirement System (TRS)						
Defined Benefit Plans:						
Retirement Trust	4,178,711,345	33,782,580	(28,029,221)	4,184,464,704	0.14%	0.81%
Retirement Health Care Trust	2,328,356,200	18,097,971	(9,113,469)	2,337,340,702	0.39%	0.78%
Total Defined Benefit Plans	6,507,067,545	51,880,551	(37,142,690)	6,521,805,406	0.23%	0.80%
Defined Contribution Plans:						
Participant Directed Retirement	210,392,007	3,802,449	3,202,078	217,396,534	3.33%	1.79%
Health Reimbursement Arrangement	49,356,590	404,183	779,979	50,540,752	2.40%	0.81%
Retiree Medical Plan	11,757,795	103,261	508,544	12,369,600	5.20%	0.86%
Defined Benefit Occupational Death and Disability	3,041,308	23,865	-	3,065,173	0.78%	0.78%
Total Defined Contribution Plans	274,547,700	4,333,758	4,490,601	283,372,059	3.21%	1.57%
Total TRS	**6,781,615,245**	**56,214,309**	**(32,652,089)**	**6,805,177,465**	0.35%	0.83%
Judicial Retirement System (JRS)						
Defined Benefit Plan Retirement Trust	141,781,430	1,154,302	(417,909)	142,517,823	0.52%	0.82%
Defined Benefit Retirement Health Care Trust	26,122,342	204,443	(23,539)	26,303,246	0.69%	0.78%
Total JRS	**167,903,772**	**1,358,745**	**(441,448)**	**168,821,069**	0.55%	0.81%
National Guard/Naval Militia Retirement System (MRS)						
Defined Benefit Plan Retirement Trust	37,115,725	400,963	(114,221)	37,402,467	0.77%	1.08%
Other Participant Directed Plans						
Supplemental Annuity Plan	3,282,020,348	46,399,107	(990,327)	3,327,429,128	1.38%	1.41%
Deferred Compensation Plan	774,274,838	13,345,013	(261,612)	787,358,239	1.69%	1.72%
Total All Funds	**26,438,405,400**	**245,881,107**	**(69,988,721)**	**26,614,297,786**		
Total Non-Participant Directed	21,674,705,111	173,137,785	(79,655,772)	21,768,187,124	0.43%	0.80%
Total Participant Directed	4,763,700,289	72,743,322	9,667,051	4,846,110,662	1.73%	1.53%
Total All Funds	**$ 26,438,405,400**	**$ 245,881,107**	**$ (69,988,721)**	**$ 26,614,297,786**	**0.67%**	**0.93%**

Notes:

(1) Includes interest, dividends, securities lending, expenses, realized and unrealized gains/losses

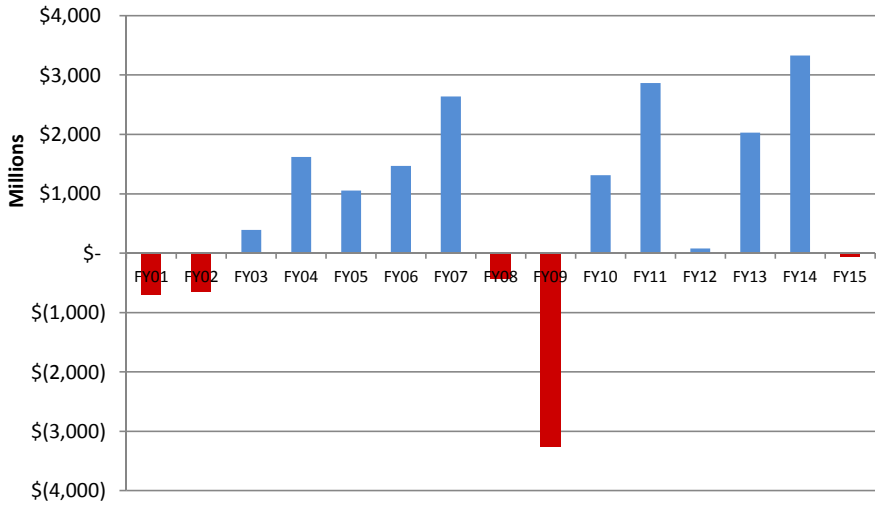
(2) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates and can be found at: http://www.revenue.state.ak.us/treasury/programs/programs/other/armb/investmentresults.aspx

Total Defined Benefit Assets

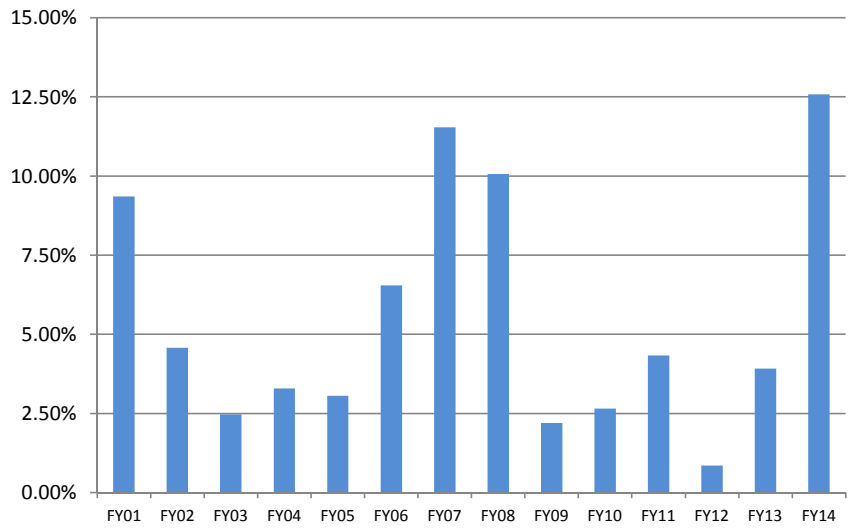
As of October 31, 2014

Totals Assets History

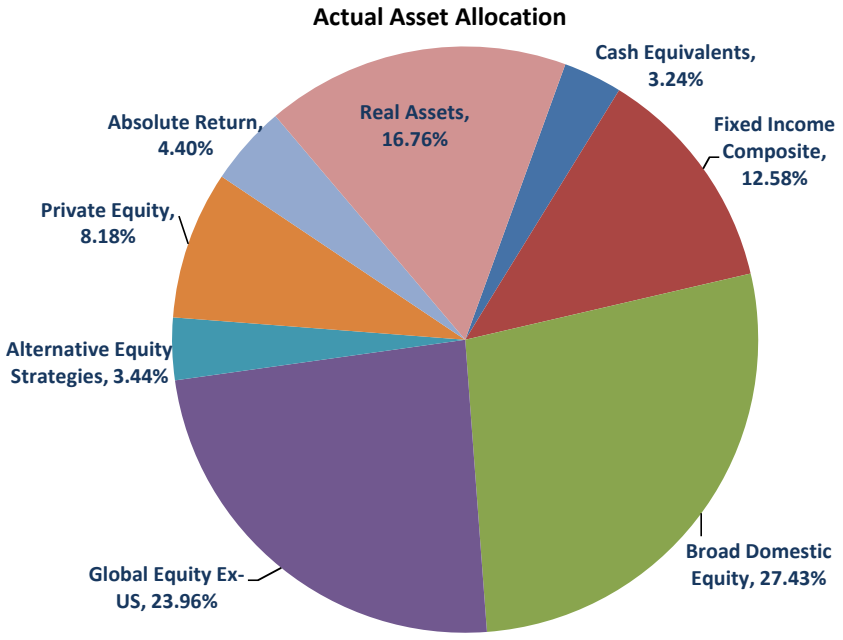
Income by Fiscal Year



5-year Annualized Returns as of Fiscal Year End



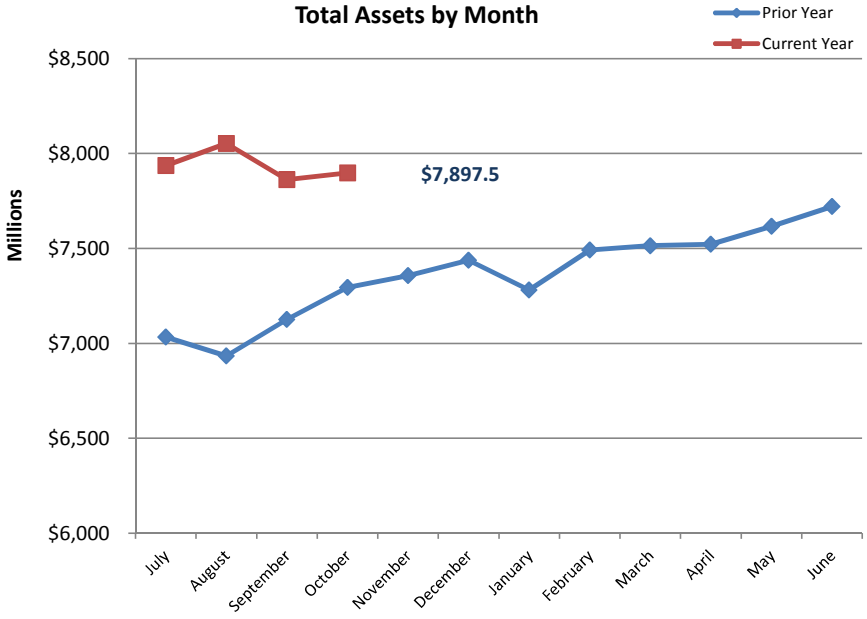
Actual Asset Allocation



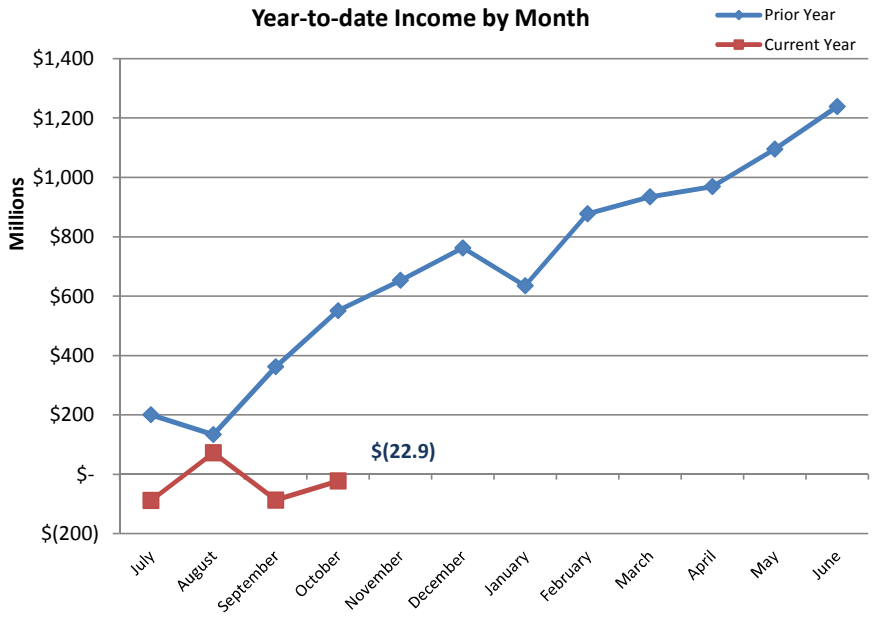
Public Employees' Retirement Pension Trust Fund

For the Four Months Ending October 31, 2014

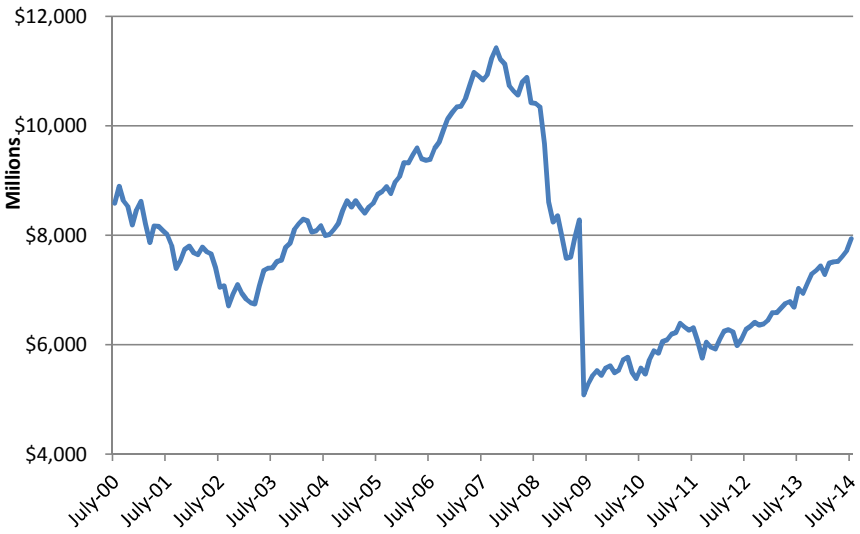
Total Assets by Month



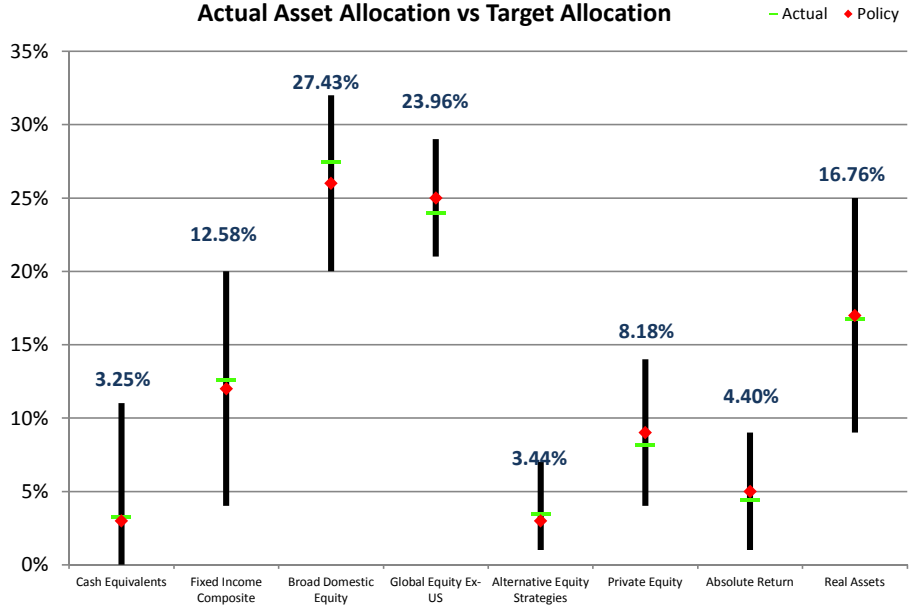
Year-to-date Income by Month



Total Assets History



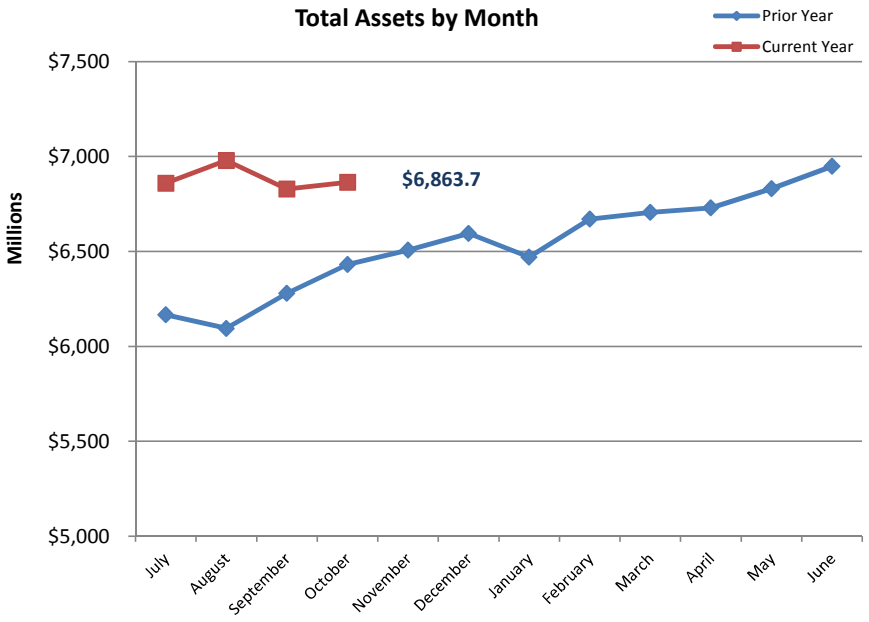
Actual Asset Allocation vs Target Allocation



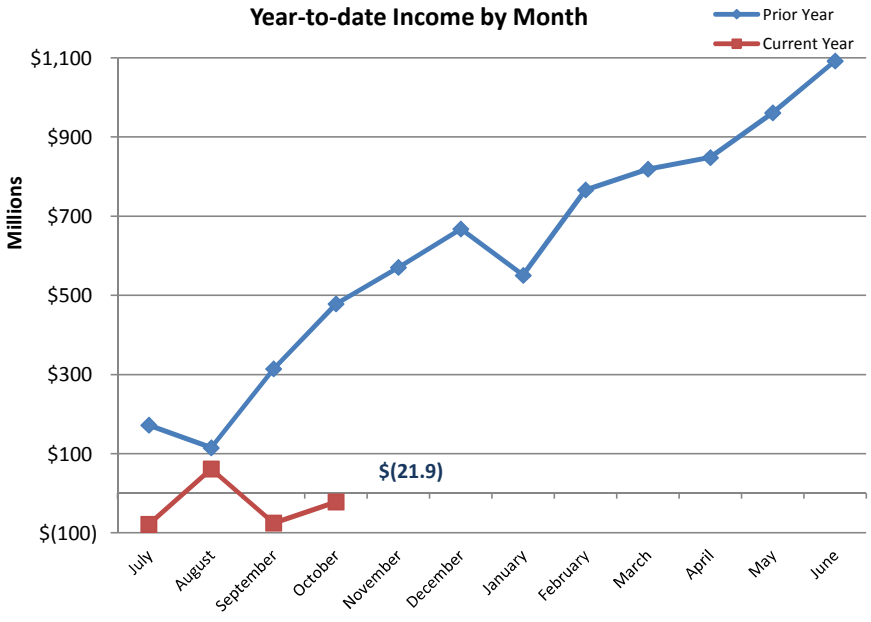
Public Employees' Retirement Health Care Trust Fund

For the Four Months Ending October 31, 2014

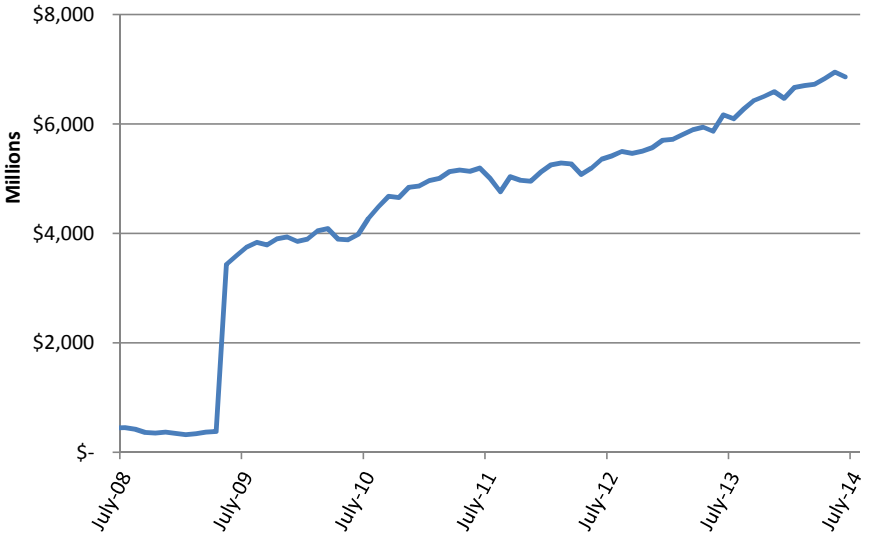
Total Assets by Month



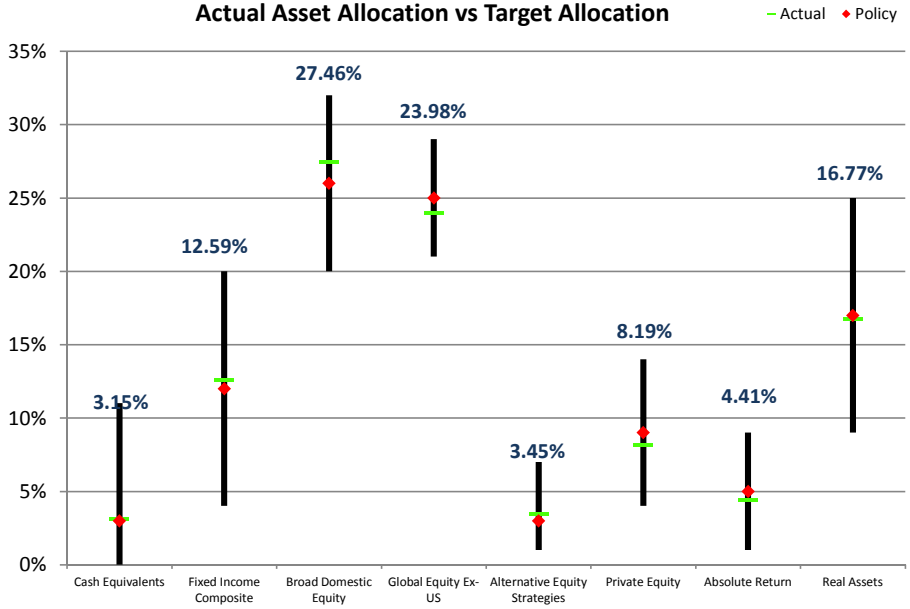
Year-to-date Income by Month



Total Assets History



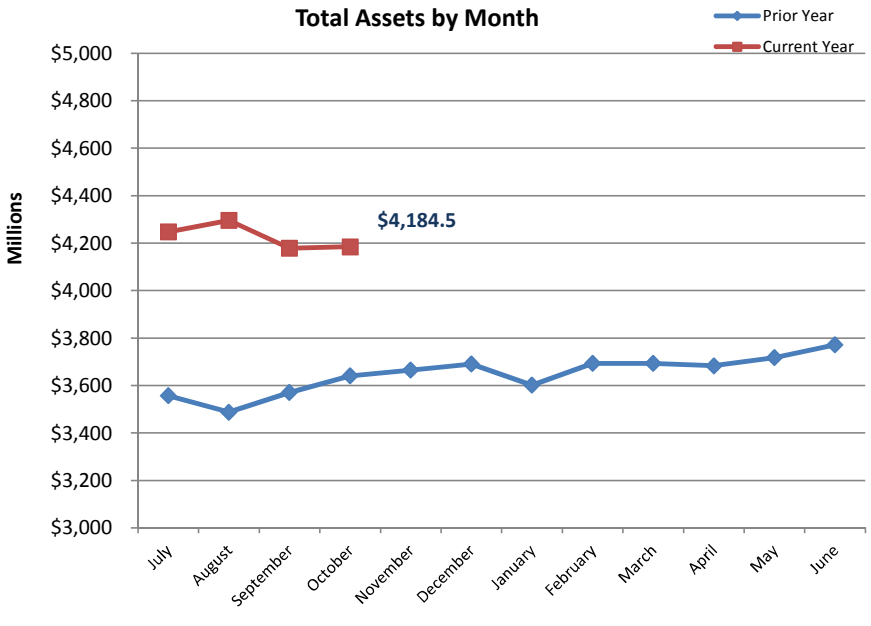
Actual Asset Allocation vs Target Allocation



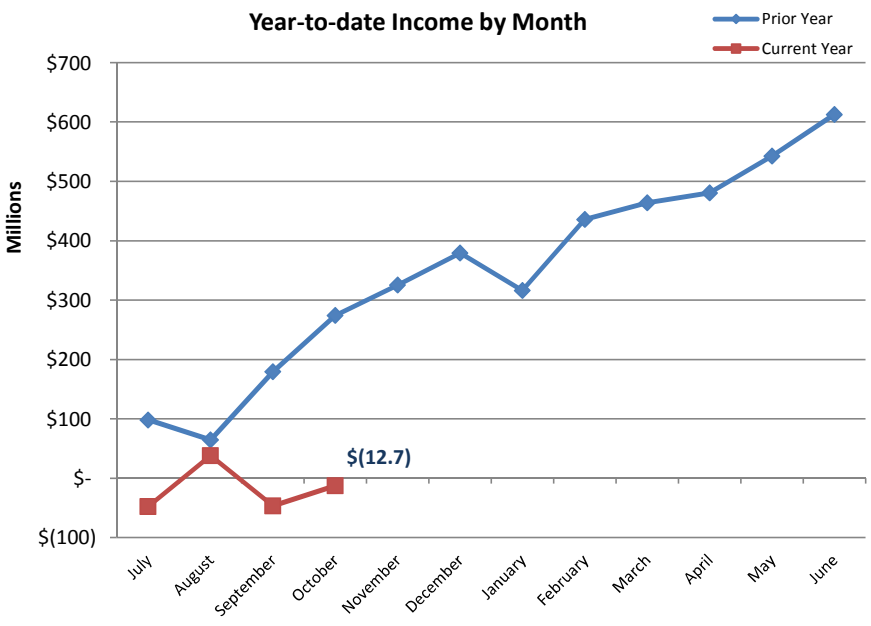
Teachers' Retirement Pension Trust Fund

For the Four Months Ending October 31, 2014

Total Assets by Month

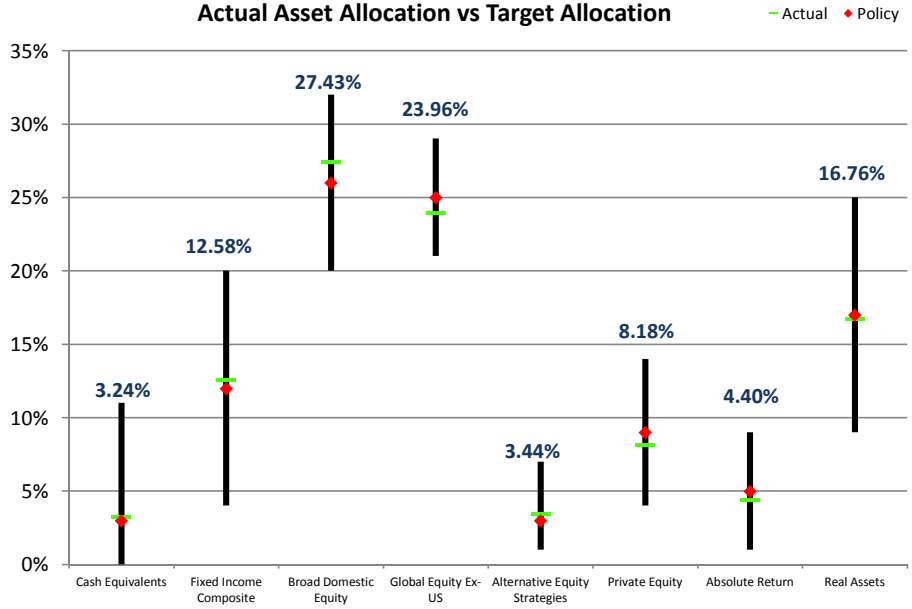


Year-to-date Income by Month



Total Assets History

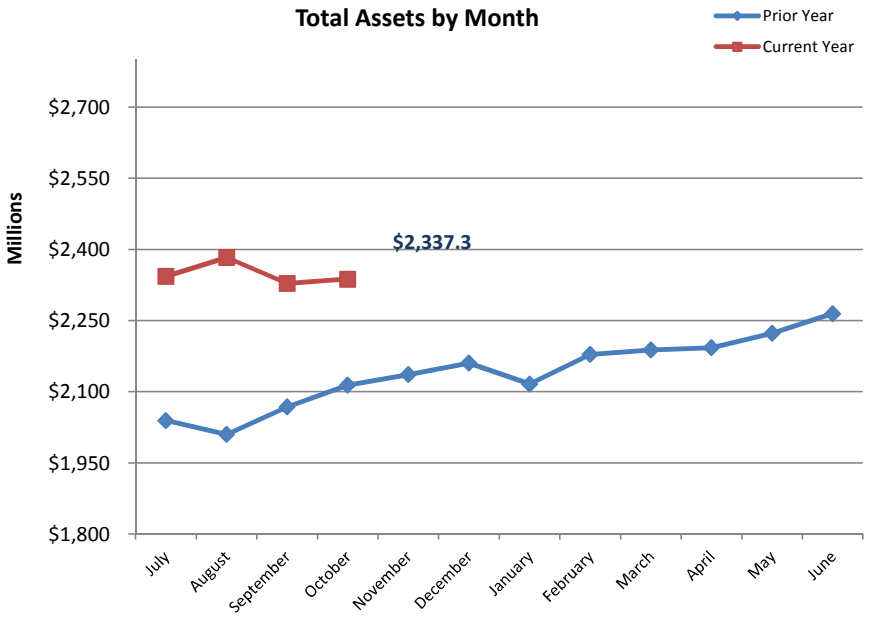
Actual Asset Allocation vs Target Allocation



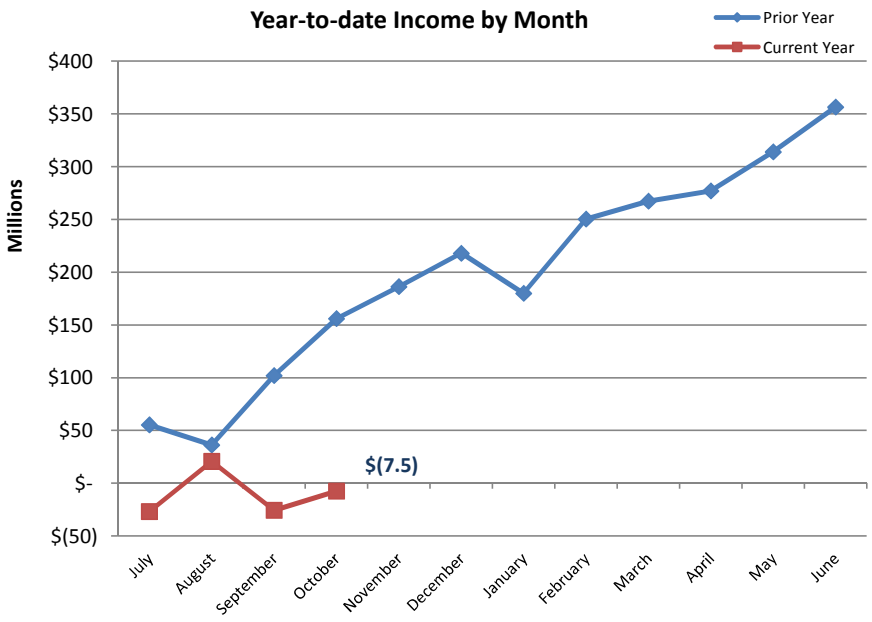
Teachers' Retirement Health Care Trust Fund

For the Four Months Ending October 31, 2014

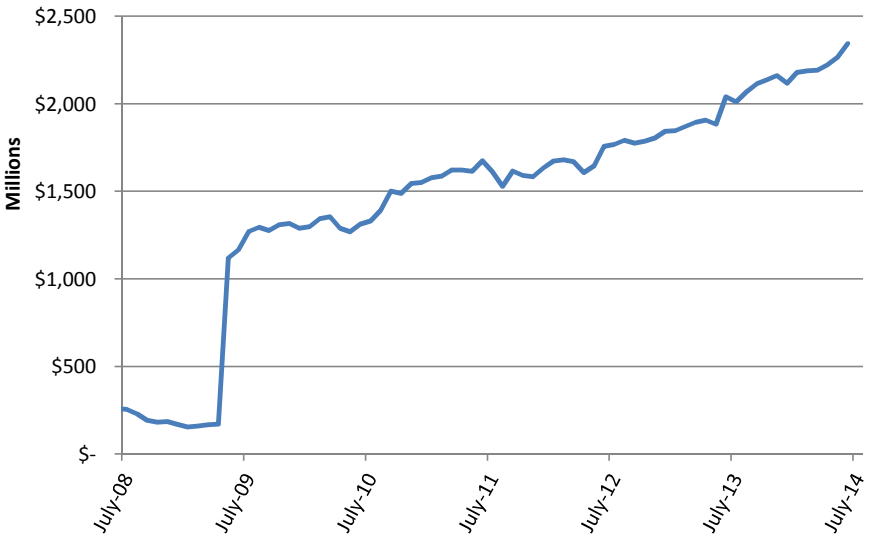
Total Assets by Month



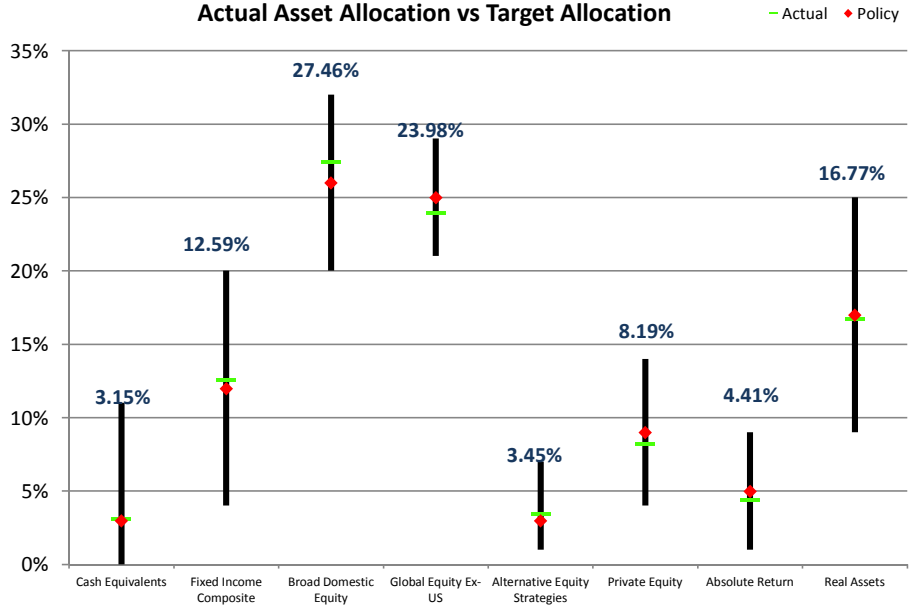
Year-to-date Income by Month



Total Assets History



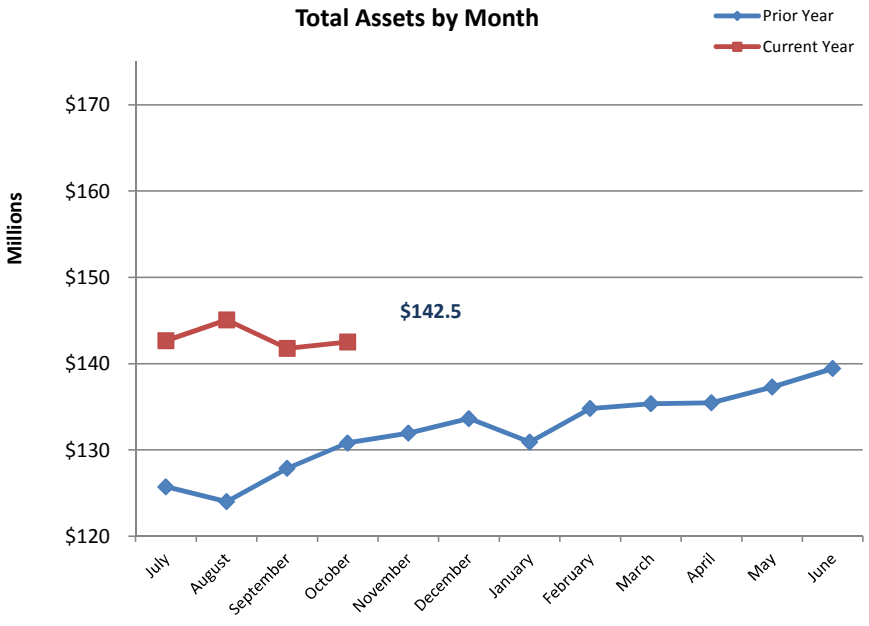
Actual Asset Allocation vs Target Allocation



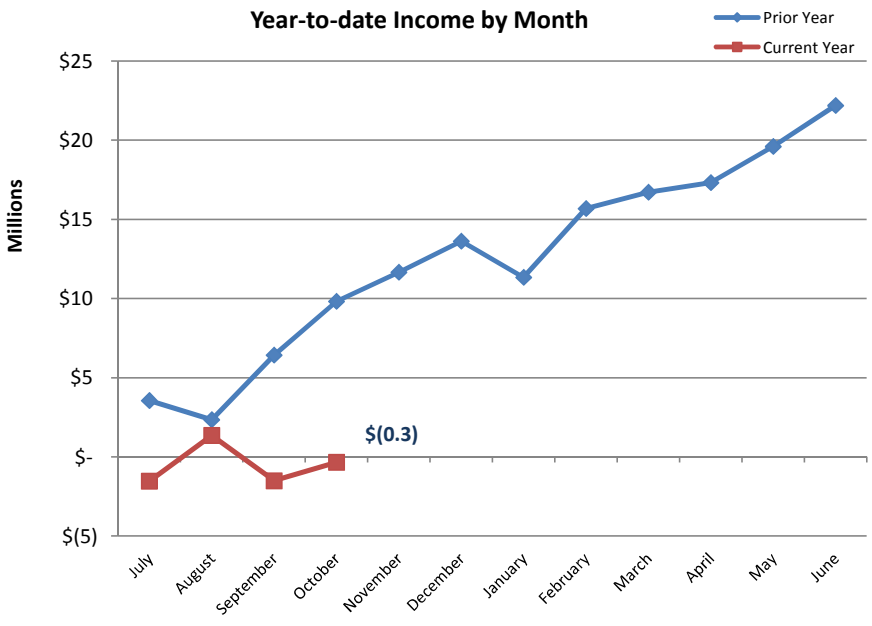
Judicial Retirement Pension Trust Fund

For the Four Months Ending October 31, 2014

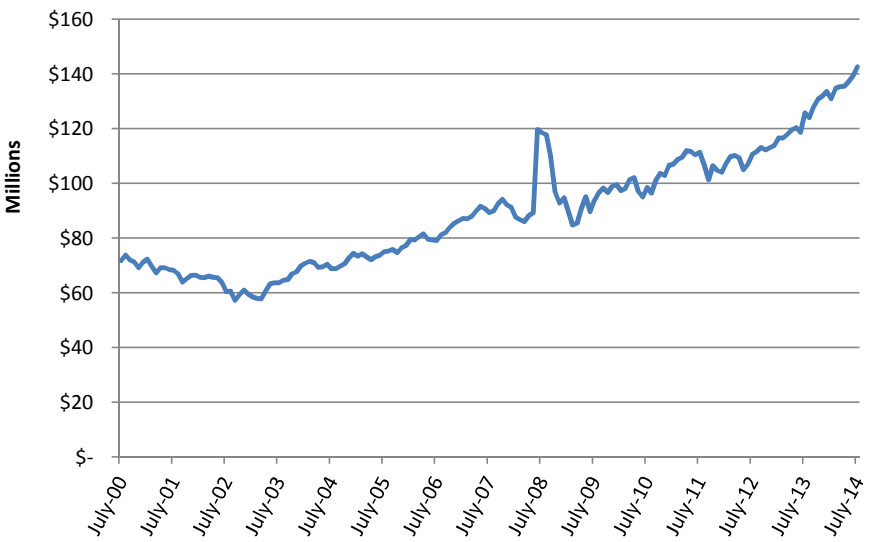
Total Assets by Month



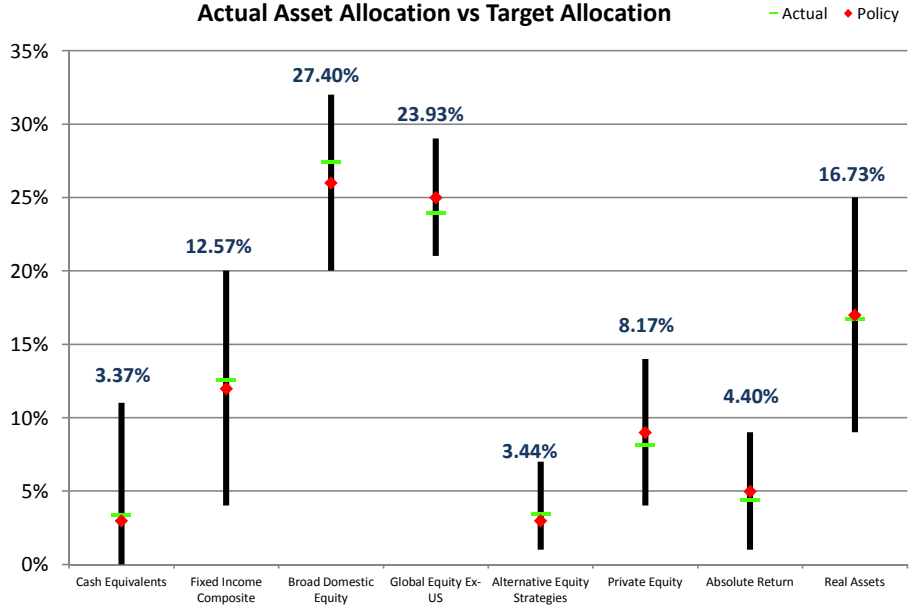
Year-to-date Income by Month



Total Assets History



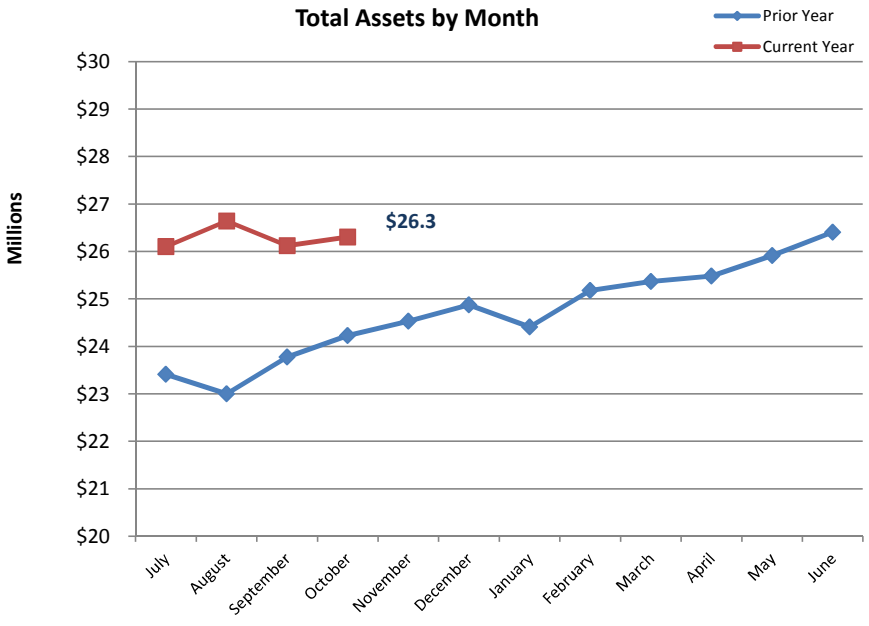
Actual Asset Allocation vs Target Allocation



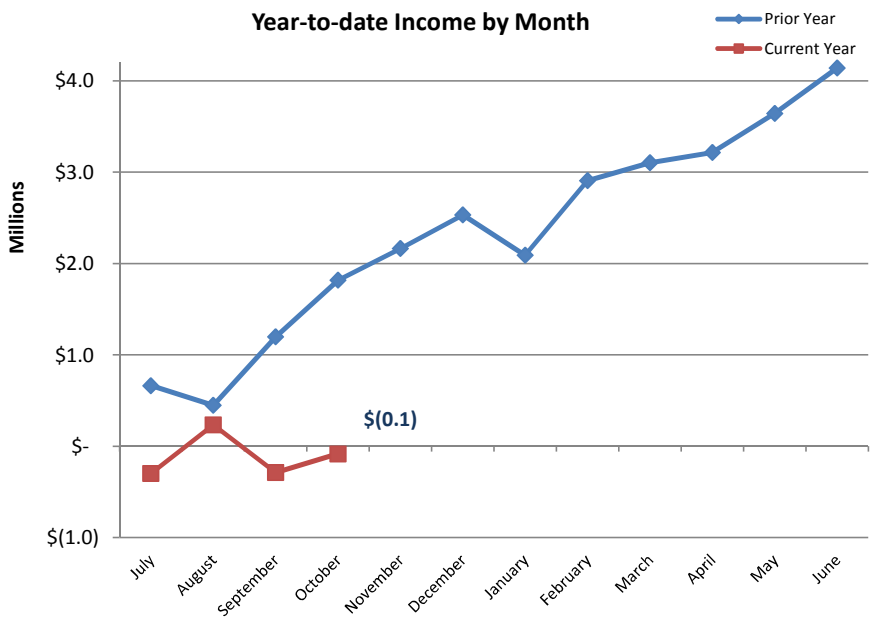
Judicial Retirement Health Care Trust Fund

For the Four Months Ending October 31, 2014

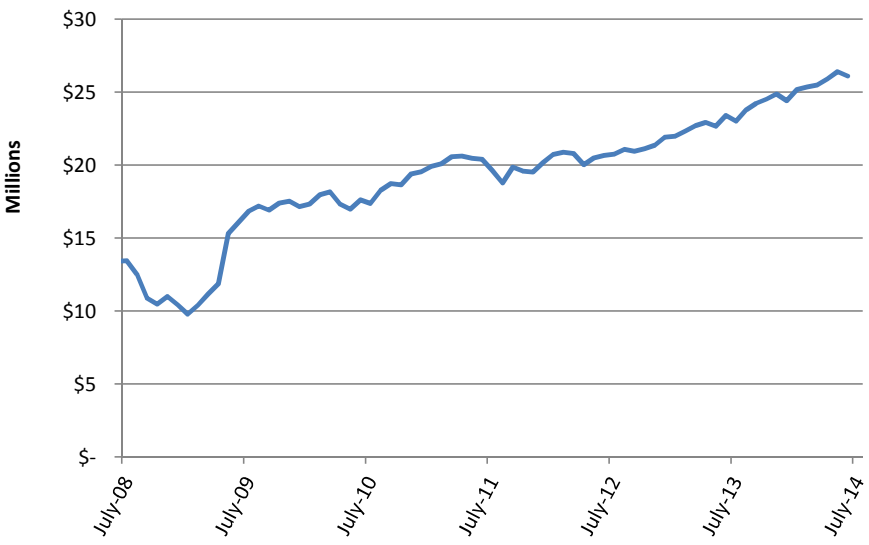
Total Assets by Month



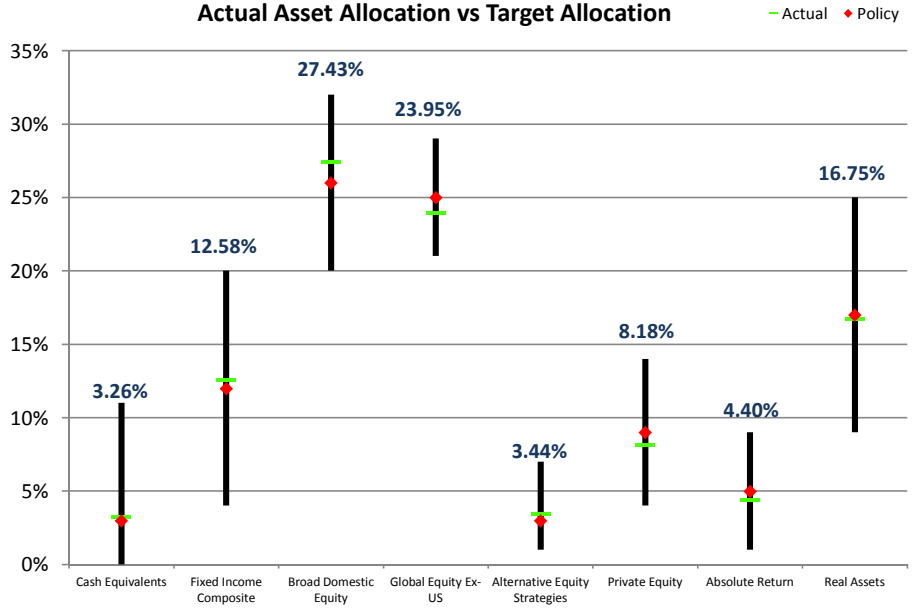
Year-to-date Income by Month



Total Assets History



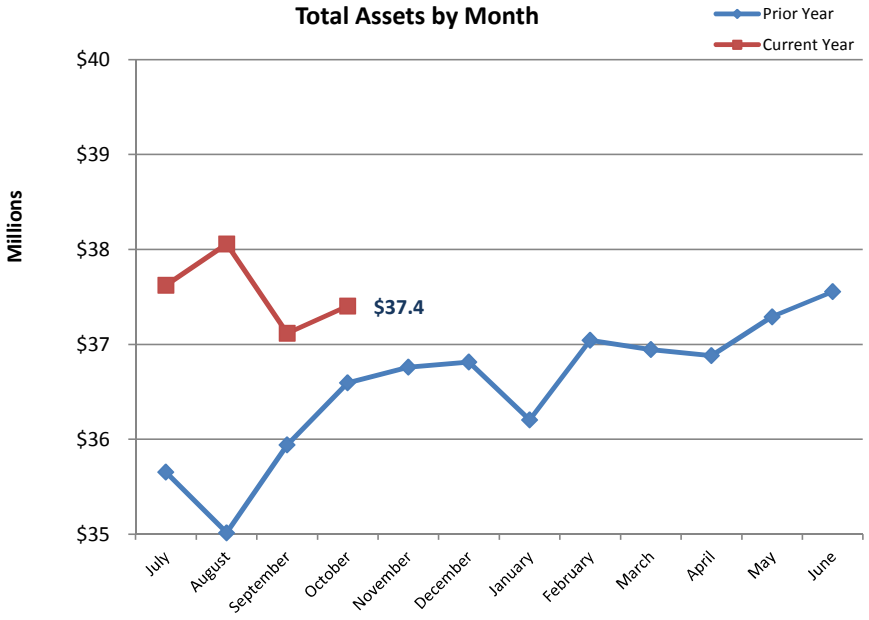
Actual Asset Allocation vs Target Allocation



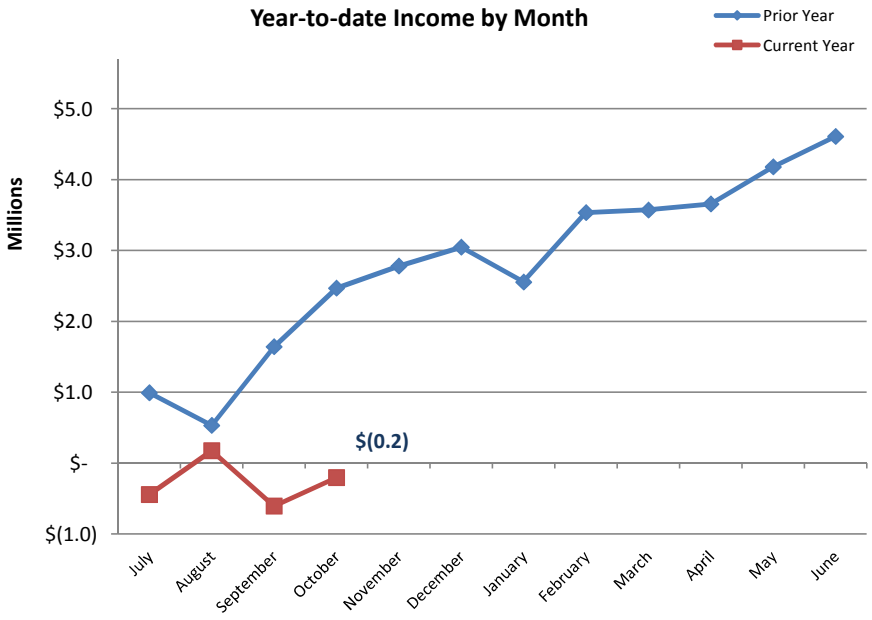
Military Retirement Trust Fund

For the Four Months Ending October 31, 2014

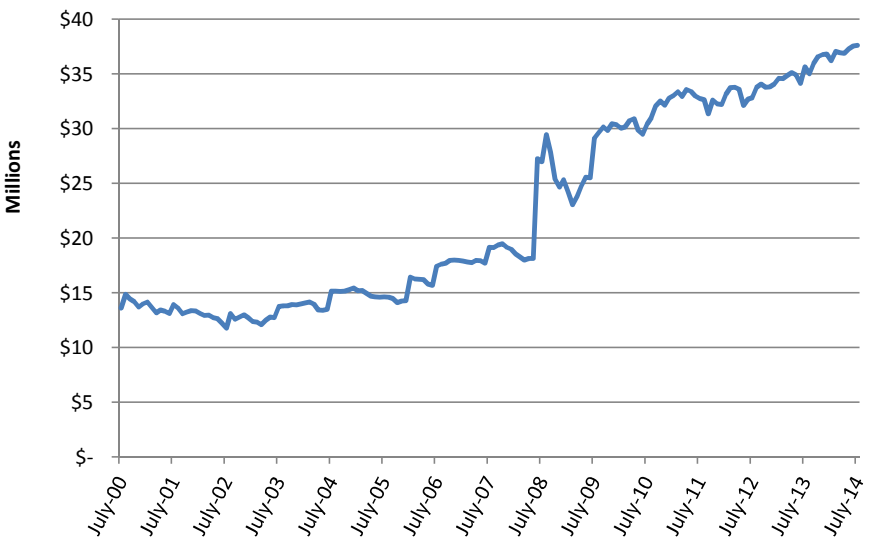
Total Assets by Month



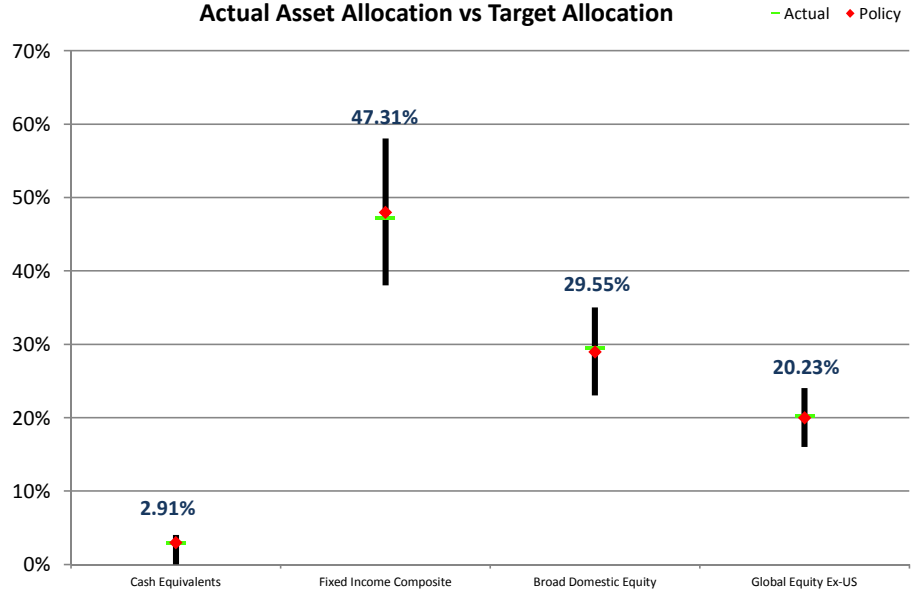
Year-to-date Income by Month



Total Assets History



Actual Asset Allocation vs Target Allocation



ALASKA RETIREMENT MANAGEMENT BOARD

Reporting of Funds by Manager

All Non-Participant Directed Plans

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For The Month Ended October 31, 2014

	Beginning Invested Assets	Investment Income	Net Contributions and (Withdrawals)	Ending Invested Assets	% increase (decrease)
Cash					
Short-Term Fixed Income Pool	$ 697,886,723	$ 75,803	$ 348,855	$ 698,311,381	0.06%
Total Cash	697,886,723	75,803	348,855	698,311,381	0.06%
Fixed Income					
US Treasury Fixed Income	1,345,684,949	9,474,090	(50,000,000)	1,305,159,039	-3.01%
Taxable Municipal Bond Pool					
Western Asset Management	113,404,421	1,915,272	-	115,319,693	1.69%
Guggenheim Partners	110,594,569	1,226,960	-	111,821,529	1.11%
	223,998,990	3,142,232	-	227,141,222	1.40%
Tactical Fixed Income Pool					
Pyramis Global Advisors	-	103,570	100,000,000	100,103,570	100.00%
International Fixed Income Pool					
Mondrian Investment Partners	359,342,423	458,185	-	359,800,608	0.13%
High Yield Pool					
MacKay Shields, LLC	555,776,730	5,435,119	50,000,000	611,211,849	9.97%
Emerging Debt Pool					
Lazard Emerging Income	149,568,184	(106,784)	-	149,461,400	-0.07%
Total Fixed Income	2,634,371,276	18,506,412	100,000,000	2,752,877,688	4.50%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For The Month Ended October 31, 2014

Domestic Equities					
Small Cap Pool					
Passively Managed					
SSgA Russell 2000 Growth	16,628,449	1,046,523	-	17,674,972	6.29%
SSgA Russell 2000 Value	59,337,226	4,153,024	-	63,490,250	7.00%
Total Passive	75,965,675	5,199,547	-	81,165,222	6.84%
Actively Managed					
Barrow, Haney, Mewhinney & Strauss	99,418,897	6,866,728	-	106,285,625	6.91%
DePrince, Race & Zollo Inc.- Micro Cap	91,413,186	7,659,707	-	99,072,893	8.38%
Frontier Capital Mgmt. Co.	98,697,097	4,344,845	-	103,041,942	4.40%
Jennison Associates, LLC	139,339,830	3,625,110	(40,000,000)	102,964,940	-26.11%
Lord Abbet Small Cap Growth Fund	128,415,348	5,024,524	(30,000,000)	103,439,872	-19.45%
Lord Abbett & Co.- Micro Cap	99,219,999	7,588,273	-	106,808,272	7.65%
Luther King Capital Management	124,601,653	6,539,048	(30,000,000)	101,140,701	-18.83%
SSgA Futures Small Cap	10,464,388	693,587	-	11,157,975	6.63%
Transition Account	-	-	-	-	-
Victory Capital Management	103,228,983	7,388,665	-	110,617,648	7.16%
Total Active	894,799,381	49,730,487	(100,000,000)	844,529,868	-5.62%
Total Small Cap	970,765,056	54,930,034	(100,000,000)	925,695,090	-4.64%
Large Cap Pool					
Passively Managed					
SSgA Russell 1000 Growth	1,406,045,850	36,995,059	-	1,443,040,909	2.63%
SSgA Russell 1000 Value	1,215,553,367	27,498,397	-	1,243,051,764	2.26%
SSgA Russell 200	547,005,797	11,817,179	-	558,822,976	2.16%
Total Passive	3,168,605,014	76,310,635	-	3,244,915,649	2.41%
Actively Managed					
Allianz Global Investors	357,758,738	9,109,686	-	366,868,424	2.55%
Barrow, Haney, Mewhinney & Strauss	330,165,815	5,489,333	-	335,655,148	1.66%
Lazard Freres	377,539,817	12,579,922	-	390,119,739	3.33%
McKinley Capital Mgmt.	352,954,017	7,476,858	-	360,430,875	2.12%
Quantitative Management Assoc.	331,703,650	5,689,396	-	337,393,046	1.72%
SSgA Futures large cap	13,492,856	256,907	-	13,749,763	1.90%
Transition Account	-	-	-	-	-
Total Active	1,763,614,893	40,602,102	-	1,804,216,995	2.30%
Total Large Cap	4,932,219,907	116,912,737	-	5,049,132,644	2.37%
Total Domestic Equity	5,902,984,963	171,842,771	(100,000,000)	5,974,827,734	1.22%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For The Month Ended October 31, 2014

Alternative Equity Strategies					
Alternative Equity Strategy Pool					
Relational Investors, LLC	199,005,787	394,679	(23,119,412)	176,281,054	-11.42%
Analytic Buy Write Account	247,420,355	(4,996,124)	-	242,424,231	-2.02%
Allianz Global Investors Buy-Write Account	-	-	-	-	-
ARMB Equity Yield Strategy	135,076,556	2,733,325	-	137,809,881	2.02%
Total Alternative Equity Strategy Pool	581,502,698	(1,868,120)	(23,119,412)	556,515,166	-4.30%
Convertible Bond Pool					
Advent Capital	190,502,438	1,443,576	-	191,946,014	0.76%
Total Alternative Equity Strategies	772,005,136	(424,544)	(23,119,412)	748,461,180	-3.05%
Global Equities Ex US					
Small Cap Pool					
Mondrian Investment Partners	147,770,519	(579,942)	-	147,190,577	-0.39%
Schroder Investment Management	156,424,505	(4,306,769)	-	152,117,736	-2.75%
Total Small Cap	304,195,024	(4,886,711)	-	299,308,313	-1.61%
Large Cap Pool					
Blackrock ACWI Ex-US IMI	541,220,284	(6,164,260)	-	535,056,024	-1.14%
Brandes Investment Partners	1,042,276,055	(30,050,345)	-	1,012,225,710	-2.88%
Cap Guardian Trust Co	778,655,903	(5,475,253)	-	773,180,650	-0.70%
Lazard Freres	416,229,269	(1,509,463)	-	414,719,806	-0.36%
McKinley Capital Management	378,995,230	3,160,552	-	382,155,782	0.83%
SSgA Futures International	-	-	-	-	-
Allianz Global Investors	187,429,607	(2,095,606)	-	185,334,001	-1.12%
Arrow Street Capital	-	-	-	-	-
Baillie Gifford Overseas Limited	186,639,710	724,042	-	187,363,752	0.39%
State Street Global Advisors	637,848,274	(6,903,018)	-	630,945,256	-1.08%
Total Large Cap	4,169,294,332	(48,313,351)	-	4,120,980,981	-1.16%
Emerging Markets Equity Pool					
Lazard Asset Management	408,071,984	10,292,935	-	418,364,919	2.52%
Eaton Vance	278,295,653	(713,121)	-	277,582,532	-0.26%
Total Emerging Markets Pool	686,367,637	9,579,814	-	695,947,451	1.40%
Frontier Market Pool					
Everest Capital Frontier Markets Equity	103,471,500	(4,094,800)	-	99,376,700	-3.96%
Total Global Equities	5,263,328,493	(47,715,048)	-	5,215,613,445	-0.91%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For The Month Ended October 31, 2014

Private Equity Pool					
Abbott Capital	796,174,982	2,268,046	(18,682,047)	779,760,981	-2.06%
Angelo, Gordon & Co.	8,177,604	-	-	8,177,604	-
Blum Capital Partners-Strategic	7,510,514	-	-	7,510,514	-
Lexington Partners	49,942,848	7	(983,748)	48,959,107	-1.97%
Merit Capital Partners	15,063,746	(3)	(205,160)	14,858,583	-1.36%
NB SOF III	9,045,197	-	-	9,045,197	-
Resolute Fund III	3,544,180	-	59,448	3,603,628	1.68%
Glendon Opportunities	-	-	16,093,989	16,093,989	100.00%
New Mountain Partners IV	-	-	-	-	-
Onex Partnership III	21,134,360	-	-	21,134,360	-
Pathway Capital Management LLC	847,106,919	(5,021,018)	(16,054,757)	826,031,144	-2.49%
Warburg Pincus Prvt Eqty XI	16,324,490	-	300,000	16,624,490	1.84%
Warburg Pincus X	26,798,514	(2)	(299,970)	26,498,542	-1.12%
Total Private Equity	1,800,823,354	(2,752,970)	(19,772,245)	1,778,298,139	-1.25%
Absolute Return Pool					
Global Asset Management (USA) Inc.	361,796,547	1,363,031	-	363,159,578	0.38%
Prisma Capital Partners	410,708,702	1,470,057	-	412,178,759	0.36%
Mariner Investment Group, Inc.	-	-	-	-	-
Crestline Investors, Inc.	196,175,817	261,931	(14,501,306)	181,936,442	-7.26%
Total Absolute Return Investments	968,681,066	3,095,019	(14,501,306)	957,274,779	-1.18%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For The Month Ended October 31, 2014

Real Assets					
Farmland Pool					
UBS Agrivest, LLC	488,578,980	7,543,119	170,000	496,292,099	1.58%
Hancock Agricultural Investment Group	219,824,023	1,766,474	-	221,590,497	0.80%
Total Farmland Pool	708,403,003	9,309,593	170,000	717,882,596	1.34%
Timber Pool					
Timberland Invt Resource LLC	258,942,622	7,496,476	(3,500,000)	262,939,098	1.54%
Hancock Natural Resource Group	96,737,891	2,008	-	96,739,899	0.00%
Total Timber Pool	355,680,513	7,498,484	(3,500,000)	359,678,997	1.12%
Energy Pool					
EIG Energy Fund XV	34,479,570	739,329	-	35,218,899	2.14%
EIG Energy Fund XD	7,465,467	(264,856)	-	7,200,611	-3.55%
EIG Energy Fund XIV-A	54,126,597	(816,114)	-	53,310,483	-1.51%
EIG Energy Fund XVI	8,121,432	(894,397)	-	7,227,035	-11.01%
Total Energy Pool	104,193,066	(1,236,038)	-	102,957,028	-1.19%
REIT Pool					
REIT Trans Account	20,490	3	-	20,493	0.01%
REIT Holdings	307,105,339	27,536,289	-	334,641,628	8.97%
Total REIT Pool	307,125,829	27,536,292	-	334,662,121	8.97%
Treasury Inflation Proof Securities					
TIPS Internally Managed Account	83,383,478	707,273	-	84,090,751	0.85%
Master Limited Partnerships					
Advisory Research MLP	231,416,911	(9,414,452)	-	222,002,459	-4.07%
Tortoise Capital Advisors	255,912,300	(11,362,775)	-	244,549,525	-4.44%
Total Master Limited Partnerships	487,329,211	(20,777,227)	-	466,551,984	-4.26%
Infrastructure Private Pool					
IFM Global Infrastructuer Fund-Private	-	-	-	-	-
JP Morgan Infrastructure Fund-Private	100,000,000	-	-	100,000,000	-
Total Infrastructure Private Pool	100,000,000	-	-	100,000,000	-
Infrastructure Public Pool					
Brookfield Investment Mgmt.-Public	82,664,965	(221,900)	-	82,443,065	-0.27%
Lazard Asset Mgmt.-Public	76,500,819	1,260,586	-	77,761,405	1.65%
Total Infrastructure Public Pool	159,165,784	1,038,686	-	160,204,470	0.65%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For The Month Ended October 31, 2014

Real Estate					
Core Commingled Accounts					
JP Morgan	209,747,956	4,341,813	(2,116,316)	211,973,453	1.06%
UBS Trumbull Property Fund	84,685,082	3,299,939	(595,420)	87,389,601	3.19%
Total Core Commingled	294,433,038	7,641,752	(2,711,736)	299,363,054	1.67%
Core Separate Accounts					-
Cornerstone Real Estate Advisers Inc.	122,376,172	-	-	122,376,172	
LaSalle Investment Management	153,824,457	(15)	(185,299)	153,639,143	-0.12%
Sentinel Separate Account	156,951,053	(42)	(576,118)	156,374,893	-0.37%
UBS Realty	309,809,088	(15)	(1,153,663)	308,655,410	-0.37%
Total Core Separate	742,960,770	(72)	(1,915,080)	741,045,618	-0.26%
Non-Core Commingled Accounts					
Almanac Realty Securities IV	16,993,644	-	(9,382,042)	7,611,602	-55.21%
Almanac Realty Securities V	21,758,441	7	(524,289)	21,234,159	-2.41%
BlackRock Diamond Property Fund	28,724,219	(1,208,408)	(4,748,517)	22,767,294	-20.74%
Colony Investors VIII, L.P.	23,407,117	-	-	23,407,117	-
Cornerstone Apartment Venture III	688,128	-	-	688,128	-
Coventry	12,660,953	-	-	12,660,953	-
ING Clarion Development Ventures II	1,883,724	-	-	1,883,724	-
ING Clarion Development Ventures III	24,202,033	-	-	24,202,033	-
KKR Real Estate Partners Americas LP.	25,112,947	-	-	25,112,947	-
LaSalle Medical Office Fund II	5,673,884	-	-	5,673,884	-
Lowe Hospitality Partners	2,780,995	-	-	2,780,995	-
Silverpeak Legacy Pension Partners II, L.P.	64,056,062	-	-	64,056,062	-
Silverpeak Legacy Pension Partners III, L.P.	8,046,176	-	-	8,046,176	-
Tishman Speyer Real Estate Venture VI	45,282,959	-	-	45,282,959	-
Tishman Speyer Real Estate Venture VII	10,678,126	-	-	10,678,126	-
Total Non-Core Commingled	291,949,408	(1,208,401)	(14,654,848)	276,086,159	-5.43%
Total Real Estate	1,329,343,216	6,433,279	(19,281,664)	1,316,494,831	-0.97%
Total Real Assets	3,634,624,100	30,510,342	(22,611,664)	3,642,522,778	0.22%
Total Assets	$ 21,674,705,111	$ 173,137,785	$ (79,655,772)	$ 21,768,187,124	0.43%

ALASKA RETIREMENT MANAGEMENT BOARD

Reporting of Funds by Manager

Participant Directed Plans

Supplemental Annuity Plan
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
October 31, 2014

Interim Transit Account	Beginning Invested Assets	Investment Income	Net Contributions (Withdrawals)	Transfers In (Out)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (2)
Treasury Division [1]							
Cash and Cash Equivalents	$ 1,330,259	$ (206)	$ 5,229,162	$ -	$ 6,559,215	393.08%	-0.01%
Participant Options							
T. Rowe Price							
Stable Value Fund	337,084,526	679,221	(1,153,943)	3,843,962	340,453,766	1.00%	0.20%
Small Cap Stock Fund	123,645,926	7,296,881	(324,038)	(1,136,782)	129,481,987	4.72%	5.94%
Alaska Balanced Trust	1,179,513,776	12,759,954	(3,849,392)	(2,445,107)	1,185,979,231	0.55%	1.08%
Long Term Balanced Fund	523,918,678	7,193,996	(157,376)	(3,200,466)	527,754,832	0.73%	1.38%
AK Target Date 2010 Trust	7,801,678	89,903	16,462	(510,204)	7,397,839	-5.18%	1.19%
AK Target Date 2015 Trust	101,884,440	1,346,207	(9,497)	(318,009)	102,903,141	1.00%	1.32%
AK Target Date 2020 Trust	63,808,575	905,154	161,318	(974,520)	63,900,527	0.14%	1.43%
AK Target Date 2025 Trust	38,733,000	607,586	142,812	(105,112)	39,378,286	1.67%	1.57%
AK Target Date 2030 Trust	28,484,953	477,499	241,318	270,694	29,474,464	3.47%	1.66%
AK Target Date 2035 Trust	23,960,944	416,324	147,205	(153,071)	24,371,402	1.71%	1.74%
AK Target Date 2040 Trust	24,449,230	445,063	99,496	141,756	25,135,545	2.81%	1.81%
AK Target Date 2045 Trust	25,878,239	465,326	250,298	(229,631)	26,364,232	1.88%	1.80%
AK Target Date 2050 Trust	27,321,862	501,807	193,308	(31,454)	27,985,523	2.43%	1.83%
AK Target Date 2055 Trust	18,958,928	333,152	239,317	(251,178)	19,280,219	1.69%	1.76%
Total Investments with T. Rowe Price	2,525,444,755	33,518,073	(4,002,712)	(5,099,122)	2,549,860,994		
State Street Global Advisors							
State Street Treasury Money Market Fund - Inst.	36,833,132	2	(422,779)	914,166	37,324,521	1.33%	0.00%
S&P 500 Stock Index Fund Series A	334,994,500	8,149,306	(394,483)	1,065,954	343,815,277	2.63%	2.43%
Russell 3000 Index	57,408,263	1,541,289	(292,113)	383,224	59,040,663	2.84%	2.68%
US Real Estate Investment Trust Index	28,839,027	3,056,541	(7,941)	(120,484)	31,767,143	10.15%	10.62%
World Equity Ex-US Index	24,840,320	(270,266)	(110,892)	(390,901)	24,068,261	-3.11%	-1.10%
Long US Treasury Bond Index	11,489,492	280,363	18,542	2,661,624	14,450,021	25.77%	2.19%
US Treasury Inflation Protected Securities Index	15,839,980	132,351	(61,753)	(248,073)	15,662,505	-1.12%	0.84%
World Government Bond Ex-US Index	9,738,406	(77,430)	(34,294)	89,660	9,716,342	-0.23%	-0.79%
Global Balanced Fund	55,786,735	363,864	(180,469)	549,781	56,519,911	1.31%	0.65%
Total Investments with SSGA	575,769,855	13,176,020	(1,486,182)	4,904,951	592,364,644		
BlackRock							
Government/Credit Bond Fund	45,333,939	397,294	(39,381)	582,646	46,274,498	2.07%	0.87%
Intermediate Bond Fund	12,594,381	87,503	(145,500)	195,588	12,731,972	1.09%	0.69%
Total Investments with Barclays Global Investors	57,928,320	484,797	(184,881)	778,234	59,006,470		
Brandes Institutional							
International Equity Fund Fee	81,042,073	(1,551,059)	(225,492)	(485,111)	78,780,411	-2.79%	-1.92%
RCM							
Sustainable Core Opportunities Fund	40,505,087	771,482	(320,222)	(98,952)	40,857,395	0.87%	1.91%
Total All Funds	$ 3,282,020,348	$ 46,399,107	$ (990,327)	$ -	$ 3,327,429,128	1.38%	1.41%

Notes: Source data provided by the record keeper, Great West Life. (1) Represents net contributions in transit to/from the record keeper.
(2) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

Supplemental Annuity Plan
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
October 31, 2014
$ (Thousands)

Invested Assets (at fair value)	**July**	**August**	**September**	**October**
Investments with Treasury Division				
Cash and cash equivalents	$ 6,952	$ 7,920	$ 1,330	$ 6,559
Investments with T. Rowe Price				
Stable Value Fund	337,468	339,982	337,085	340,454
Small Cap Stock Fund	127,861	130,619	123,646	129,482
Alaska Balanced Trust	1,184,014	1,197,476	1,179,514	1,185,979
Long Term Balanced Fund	521,457	532,786	523,919	527,755
AK Target Date 2010 Trust	8,310	7,697	7,802	7,398
AK Target Date 2015 Trust	101,864	103,561	101,884	102,903
AK Target Date 2020 Trust	62,538	64,289	63,809	63,901
AK Target Date 2025 Trust	37,641	39,154	38,733	39,378
AK Target Date 2030 Trust	26,962	28,128	28,485	29,474
AK Target Date 2035 Trust	22,625	24,006	23,961	24,371
AK Target Date 2040 Trust	23,071	24,213	24,449	25,136
AK Target Date 2045 Trust	24,583	25,805	25,878	26,364
AK Target Date 2050 Trust	25,776	27,100	27,322	27,986
AK Target Date 2055 Trust	17,055	18,519	18,959	19,280
State Street Global Advisors				
State Street Treasury Money Market Fund - Inst.	36,580	37,327	36,833	37,325
S&P 500 Stock Index Fund Series A	324,031	336,062	334,995	343,815
Russell 3000 Index	54,512	57,336	57,408	59,041
US Real Estate Investment Trust Index	30,398	30,728	28,839	31,767
World Equity Ex-US Index	26,093	26,226	24,840	24,068
Long US Treasury Bond Index	10,679	11,483	11,489	14,450
US Treasury Inflation Protected Securities Index	16,554	16,416	15,840	15,663
World Government Bond Ex-US Index	10,147	10,223	9,738	9,716
Global Balanced Fund	56,301	57,430	55,787	56,520
Investments with BlackRock				
Government/Credit Bond Fund	45,303	45,547	45,334	46,274
Intermediate Bond Fund	12,508	12,599	12,594	12,732
Investments with Brandes Institutional				
International Equity Fund Fee	84,623	84,803	81,042	78,780
Investments with RCM				
Sustainable Core Opportunities Fund	38,809	41,386	40,505	40,857
Total Invested Assets	**$ 3,274,713**	**$ 3,338,819**	**$ 3,282,020**	**$ 3,327,429**
Change in Invested Assets				
Beginning Assets	$ 3,312,097	$ 3,274,713	$ 3,338,819	$ 3,282,020
Investment Earnings	(36,071)	65,542	(55,393)	46,399
Net Contributions (Withdrawals)	(1,313)	(1,436)	(1,406)	(990)
Ending Invested Assets	**$ 3,274,713**	**$ 3,338,819**	**$ 3,282,020**	**$ 3,327,429**

Source data provided by the record keeper, Great West Life.

Deferred Compensation Plan
Schedule of Invested Assets and Changes in Invested Assets
for the Month Ended
October 31, 2014

	Beginning Invested Assets	Investment Income	Net Contributions (Withdrawals)	Transfers In (Out)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (1)
Participant Options							
T. Rowe Price							
Interest Income Fund	$ 179,591,007	$ 391,975	$ (349,415)	$ 1,643,580	$ 181,277,147	0.94%	0.22%
Small Cap Stock Fund	90,111,165	5,354,883	(67,349)	(684,587)	94,714,112	5.11%	5.97%
Alaska Balanced Trust	14,508,966	155,158	38,602	(387,325)	14,315,401	-1.33%	1.08%
Long Term Balanced Fund	50,661,967	692,185	76,777	(536,004)	50,894,925	0.46%	1.37%
AK Target Date 2010 Trust	3,074,451	36,649	4,123	(5,866)	3,109,357	1.14%	1.19%
AK Target Date 2015 Trust	10,262,501	139,067	41,683	(17,245)	10,426,006	1.59%	1.35%
AK Target Date 2020 Trust	14,542,883	206,697	80,202	(372,035)	14,457,747	-0.59%	1.44%
AK Target Date 2025 Trust	7,041,516	113,569	73,978	213,996	7,443,059	5.70%	1.58%
AK Target Date 2030 Trust	4,607,101	76,402	39,442	7,040	4,729,985	2.67%	1.65%
AK Target Date 2035 Trust	3,023,449	54,262	23,186	(31,799)	3,069,098	1.51%	1.80%
AK Target Date 2040 Trust	3,014,508	49,406	35,141	(91,442)	3,007,613	-0.23%	1.65%
AK Target Date 2045 Trust	1,698,292	30,425	32,853	(9,039)	1,752,531	3.19%	1.78%
AK Target Date 2050 Trust	1,340,241	25,031	13,097	(1,904)	1,376,465	2.70%	1.86%
AK Target Date 2055 Trust	2,053,800	39,183	9,108	139,265	2,241,356	9.13%	1.84%
Total Investments with T. Rowe Price	385,531,847	7,364,892	51,428	(133,365)	392,814,802		
State Street Global Advisors							
State Street Treasury Money Market Fund - Inst.	12,206,527	-	17,895	519,360	12,743,782	4.40%	0.00%
Russell 3000 Index	20,132,551	546,602	(122,035)	222,855	20,779,973	3.22%	2.71%
US Real Estate Investment Trust Index	10,186,799	1,086,357	5,431	264,768	11,543,355	13.32%	10.52%
World Equity Ex-US Index	8,626,982	(86,940)	28,559	(6,950)	8,561,651	-0.76%	-1.01%
Long US Treasury Bond Index	3,687,603	80,906	1,521	618,793	4,388,823	19.02%	2.02%
US Treasury Inflation Protected Securities Index	7,637,721	64,023	10,655	(89,922)	7,622,477	-0.20%	0.84%
World Government Bond Ex-US Index	3,578,278	(27,787)	4,606	13,151	3,568,248	-0.28%	-0.77%
Global Balanced Fund	40,331,822	257,244	(206,696)	(113,412)	40,268,958	-0.16%	0.64%
Total Investments with SSGA	106,388,283	1,920,405	(260,064)	1,428,643	109,477,267		
BlackRock							
S&P 500 Index Fund	175,469,151	4,273,774	(43,095)	(628,326)	179,071,504	2.05%	2.44%
Government/Credit Bond Fund	28,879,305	254,309	(53,693)	7,703	29,087,624	0.72%	0.88%
Intermediate Bond Fund	14,244,470	97,838	(18,445)	(7,186)	14,316,677	0.51%	0.69%
Total Investments with Barclays Global Investors	218,592,926	4,625,921	(115,233)	(627,809)	222,475,805		
Brandes Institutional							
International Equity Fund Fee	47,081,287	(884,027)	37,872	(415,178)	45,819,954	-2.68%	-1.89%
RCM							
Sustainable Core Opportunities Fund	16,680,495	317,822	24,385	(252,291)	16,770,411	0.54%	1.92%
Total All Funds	$ 774,274,838	$ 13,345,013	$ (261,612)	$ -	$ 787,358,239	1.69%	1.72%

Notes: Source data provided by the record keeper, Great West Life.
(1) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

Deferred Compensation Plan
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
October 31, 2014
$ (Thousands)

Invested Assets (at fair value)	**July**	**August**	**September**	**October**
Investments with T. Rowe Price				
Interest Income Fund				
Cash and cash equivalents	$ 6,053	$ 9,325	$ 8,447	$ 9,067
Synthetic Investment Contracts	174,149	170,933	171,144	172,210
Small Cap Stock Fund	91,564	94,865	90,111	94,714
Long Term Balanced Fund	14,384	15,119	14,509	14,315
Alaska Balanced Trust	51,030	51,987	50,662	50,895
AK Target Date 2010 Trust	3,023	3,053	3,074	3,109
AK Target Date 2015 Trust	9,771	9,945	10,263	10,426
AK Target Date 2020 Trust	13,775	14,430	14,543	14,458
AK Target Date 2025 Trust	6,875	7,139	7,042	7,443
AK Target Date 2030 Trust	4,534	4,464	4,607	4,730
AK Target Date 2035 Trust	3,136	3,096	3,023	3,069
AK Target Date 2040 Trust	2,896	3,050	3,015	3,008
AK Target Date 2045 Trust	1,611	1,681	1,698	1,753
AK Target Date 2050 Trust	1,250	1,334	1,340	1,376
AK Target Date 2055 Trust	1,909	2,051	2,054	2,241
State Street Global Advisors				
State Street Treasury Money Market Fund - Inst.	12,052	12,178	12,207	12,744
Russell 3000 Index	19,311	20,245	20,133	20,780
US Real Estate Investment Trust Index	11,351	10,968	10,187	11,543
World Equity Ex-US Index	8,973	9,177	8,627	8,562
Long US Treasury Bond Index	3,393	3,656	3,688	4,389
US Treasury Inflation Protected Securities Index	7,832	7,700	7,638	7,622
World Government Bond Ex-US Index	3,869	3,918	3,578	3,568
Global Balanced Fund	40,960	41,605	40,332	40,269
Investments with BlackRock				
S&P 500 Index Fund	171,771	176,659	175,469	179,072
Government/Credit Bond Fund	29,050	29,191	28,879	29,088
Intermediate Bond Fund	14,475	14,377	14,244	14,317
Investments with Brandes Institutional				
International Equity Fund Fee	49,285	49,171	47,081	45,820
Investments with RCM				
Sustainable Opportunities Fund	15,784	16,987	16,680	16,770
Total Invested Assets	**$ 774,066**	**$ 788,302**	**$ 774,275**	**$ 787,358**
Change in Invested Assets				
Beginning Assets	$ 785,487	$ 774,066	$ 788,302	$ 774,275
Investment Earnings	(11,707)	17,483	(14,335)	13,345
Net Contributions (Withdrawals)	287	(3,247)	308	(262)
Ending Invested Assets	**$ 774,066**	**$ 788,302**	**$ 774,275**	**$ 787,358**

Source data provided by the record keeper, Great West Life.

Defined Contribution Retirement - Participant Directed PERS
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
October 31, 2014

Interim Transit Account	Beginning Invested Assets	Investment Income	Net Contributions (Withdrawals)	Transfers In (Out)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (2)
Treasury Division [1]							
Cash and Cash Equivalents	$ 5,372,907	$ 763	$ (137,347)	$ -	$ 5,236,323	-2.54%	0.01%
Participant Options							
T. Rowe Price							
Alaska Money Market	4,086,373	37	22,607	168,905	4,277,922	4.69%	0.00%
Small Cap Stock Fund	47,625,380	2,936,588	315,081	879,800	51,756,849	8.67%	6.09%
Alaska Balanced Trust	1,629,900	17,971	28,507	15,674	1,692,052	3.81%	1.09%
Long Term Balanced Fund	22,704,035	310,326	104,055	(235,700)	22,882,716	0.79%	1.37%
AK Target Date 2010 Trust	1,664,331	20,425	43,877	5,552	1,734,185	4.20%	1.21%
AK Target Date 2015 Trust	6,917,033	93,665	165,083	(78,528)	7,097,253	2.61%	1.35%
AK Target Date 2020 Trust	14,192,772	214,637	366,326	(79,583)	14,694,152	3.53%	1.50%
AK Target Date 2025 Trust	20,135,308	329,445	497,465	(70,614)	20,891,604	3.76%	1.62%
AK Target Date 2030 Trust	20,620,333	359,081	591,930	(68,886)	21,502,458	4.28%	1.72%
AK Target Date 2035 Trust	23,491,842	432,052	655,134	14,397	24,593,425	4.69%	1.81%
AK Target Date 2040 Trust	29,671,764	561,450	702,955	65,055	31,001,224	4.48%	1.87%
AK Target Date 2045 Trust	35,974,378	677,625	962,404	2,139	37,616,546	4.56%	1.86%
AK Target Date 2050 Trust	41,842,454	786,445	1,140,101	(113,903)	43,655,097	4.33%	1.86%
AK Target Date 2055 Trust	21,322,518	413,785	907,961	(38,029)	22,606,235	6.02%	1.90%
Total Investments with T. Rowe Price	291,878,421	7,153,532	6,503,486	466,279	306,001,718		
State Street Global Advisors							
Money Market	1,254,286	-	22,497	57,347	1,334,130	6.37%	0.00%
S&P 500 Stock Index Fund Series A	36,317,266	836,140	306,017	(1,519,461)	35,939,962	-1.04%	2.34%
Russell 3000 Index	36,676,524	1,002,239	217,140	(232,124)	37,663,779	2.69%	2.73%
US Real Estate Investment Trust Index	6,881,562	737,187	58,187	(38,455)	7,638,481	11.00%	10.70%
World Equity Ex-US Index	23,409,348	(233,557)	158,973	(76,878)	23,257,886	-0.65%	-1.00%
Long US Treasury Bond Index	567,142	15,377	9,483	(65,711)	526,291	-7.20%	2.85%
US Treasury Inflation Protected Securities Index	2,997,761	25,728	19,122	(49,650)	2,992,961	-0.16%	0.86%
World Government Bond Ex-US Index	5,539,827	(44,250)	25,089	30,534	5,551,200	0.21%	-0.79%
Global Balanced Fund	11,728,770	87,242	62,507	753,651	12,632,170	7.70%	0.72%
Total Investments with SSGA	125,372,486	2,426,106	879,015	(1,140,747)	127,536,860		
BlackRock							
Government/Credit Bond Fund	28,230,831	249,707	119,212	(185,957)	28,413,793	0.65%	0.89%
Intermediate Bond Fund	411,526	2,585	8,928	24,863	447,902	8.84%	0.60%
Total Investments with Barclays Global Investors	28,642,357	252,293	128,140	(161,094)	28,861,695		
Brandes Institutional							
International Equity Fund Fee	40,971,288	(738,654)	286,952	799,390	41,318,976	0.85%	-1.78%
RCM							
Sustainable Core Opportunities Fund	4,775,637	102,714	56,666	36,172	4,971,189	4.09%	2.13%
Total All Funds	$ 497,013,096	$ 9,196,753	$ 7,716,912	$ -	$ 513,926,761	3.40%	1.84%

Notes:Source data provided by the record keeper, Great West Life. (1) Represents net contributions in transit to/from the record keeper.
(2) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

Defined Contribution Retirement - Participant Directed PERS
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
October 31, 2014
$ (Thousands)

Invested Assets (at fair value)	**July**	**August**	**September**	**October**
Investments with Treasury Division				
Cash and cash equivalents	$ 7,897	$ 5,808	$ 5,373	$ 5,236
Investments with T. Rowe Price				
Alaska Money Market	3,930	4,288	4,086	4,278
Small Cap Stock Fund	48,943	49,624	47,625	51,757
Alaska Balanced Trust	1,689	1,637	1,630	1,692
Long Term Balanced Fund	22,623	23,171	22,704	22,883
AK Target Date 2010 Trust	1,599	1,662	1,664	1,734
AK Target Date 2015 Trust	6,655	6,911	6,917	7,097
AK Target Date 2020 Trust	13,660	14,223	14,193	14,694
AK Target Date 2025 Trust	19,184	20,117	20,135	20,892
AK Target Date 2030 Trust	19,606	20,623	20,620	21,502
AK Target Date 2035 Trust	22,377	23,489	23,492	24,593
AK Target Date 2040 Trust	28,517	30,017	29,672	31,001
AK Target Date 2045 Trust	34,393	36,233	35,974	37,617
AK Target Date 2050 Trust	39,991	42,129	41,842	43,655
AK Target Date 2055 Trust	19,592	21,055	21,323	22,606
State Street Global Advisors				
Money Market	1,093	1,230	1,254	1,334
S&P 500 Stock Index Fund Series A	35,743	37,537	36,317	35,940
Russell 3000 Index	34,232	36,919	36,677	37,664
US Real Estate Investment Trust Index	6,980	7,262	6,882	7,638
World Equity Ex-US Index	26,247	25,389	23,409	23,258
Long US Treasury Bond Index	508	605	567	526
US Treasury Inflation Protected Securities Index	3,085	3,096	2,998	2,993
World Government Bond Ex-US Index	5,694	5,730	5,540	5,551
Global Balanced Fund	11,522	11,724	11,729	12,632
Investments with BlackRock				
Government/Credit Bond Fund	28,182	28,517	28,231	28,414
Intermediate Bond Fund	412	425	412	448
Investments with Brandes Institutional				
International Equity Fund Fee	39,596	41,627	40,971	41,319
Investments with RCM				
Sustainable Opportunities Fund	4,705	4,840	4,776	4,971
Total Invested Assets	**$ 488,654**	**$ 505,891**	**$ 497,013**	**$ 513,927**
Change in Invested Assets				
Beginning Assets	$ 491,616	$ 488,654	$ 505,891	$ 497,013
Investment Earnings	(9,423)	13,087	(13,911)	9,197
Net Contributions (Withdrawals)	6,462	4,149	5,034	7,717
Ending Invested Assets	**$ 488,654**	**$ 505,891**	**$ 497,013**	**$ 513,927**

Source data provided by the record keeper, Great West Life.

Defined Contribution Retirement - Participant Directed TRS
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
October 31, 2014

Interim Transit Account	Beginning Invested Assets	Investment Income	Net Contributions (Withdrawals)	Transfers In (Out)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (2)
Treasury Division [(1)]							
Cash and Cash Equivalents	$ 2,027,708	$ 242	$ (104,757)	$ -	$ 1,923,193	-5.15%	0.01%
Participant Options							
T. Rowe Price							
Alaska Money Market	1,563,039	14	(13,570)	11,074	1,560,557	-0.16%	0.00%
Small Cap Stock Fund	18,940,192	1,189,173	179,566	651,617	20,960,548	10.67%	6.14%
Alaska Balanced Trust	247,677	2,766	8,454	(610)	258,287	4.28%	1.10%
Long Term Balanced Fund	11,707,238	158,659	89,933	(207,443)	11,748,387	0.35%	1.36%
AK Target Date 2010 Trust	459,365	5,269	(11,892)	-	452,742	-1.44%	1.16%
AK Target Date 2015 Trust	2,086,681	28,483	47,337	-	2,162,501	3.63%	1.35%
AK Target Date 2020 Trust	4,409,105	67,401	114,488	-	4,590,994	4.13%	1.51%
AK Target Date 2025 Trust	6,301,798	103,224	130,917	-	6,535,939	3.72%	1.62%
AK Target Date 2030 Trust	6,800,698	118,035	153,931	(4,648)	7,068,016	3.93%	1.72%
AK Target Date 2035 Trust	10,441,234	189,382	314,922	(19,230)	10,926,308	4.65%	1.79%
AK Target Date 2040 Trust	11,309,677	208,810	231,476	50	11,750,013	3.89%	1.83%
AK Target Date 2045 Trust	19,519,005	357,138	396,272	(31,115)	20,241,300	3.70%	1.81%
AK Target Date 2050 Trust	26,379,641	488,413	625,561	(2,033)	27,491,582	4.22%	1.83%
AK Target Date 2055 Trust	5,228,837	102,796	293,714	(7,117)	5,618,230	7.45%	1.91%
Total Investments with T. Rowe Price	125,394,187	3,019,563	2,561,109	390,545	131,365,404		
State Street Global Advisors							
Money Market	166,779	1	1,819	(10,336)	158,263	-5.11%	0.00%
S&P 500 Stock Index Fund Series A	12,635,071	277,763	131,379	(761,292)	12,282,921	-2.79%	2.25%
Russell 3000 Index	16,272,997	436,391	137,158	(276,796)	16,569,750	1.82%	2.69%
US Real Estate Investment Trust Index	2,379,959	253,133	24,149	(36,690)	2,620,551	10.11%	10.66%
World Equity Ex-US Index	9,538,235	(100,728)	89,652	(234,295)	9,292,864	-2.57%	-1.06%
Long US Treasury Bond Index	99,528	2,228	1,336	669	103,761	4.25%	2.22%
US Treasury Inflation Protected Securities Index	1,228,204	10,321	8,866	(7,753)	1,239,638	0.93%	0.84%
World Government Bond Ex-US Index	2,742,232	(21,704)	19,712	31,716	2,771,956	1.08%	-0.78%
Global Balanced Fund	6,879,602	54,079	65,007	513,393	7,512,081	9.19%	0.75%
Total Investments with SSGA	51,942,607	911,484	479,078	(781,384)	52,551,785		
BlackRock							
Government/Credit Bond Fund	13,928,514	123,749	100,581	(227,484)	13,925,360	-0.02%	0.89%
Intermediate Bond Fund	94,366	670	1,429	(4,835)	91,630	-2.90%	0.72%
Total Investments with Barclays Global Investors	14,022,880	124,419	102,010	(232,319)	14,016,990		
Brandes Institutional							
International Equity Fund Fee	15,854,290	(279,346)	151,249	585,104	16,311,297	2.88%	-1.72%
RCM							
Sustainable Core Opportunities Fund	1,150,335	26,087	13,389	38,054	1,227,865	6.74%	2.22%
Total All Funds	$ 210,392,007	$ 3,802,449	$ 3,202,078	$ -	$ 217,396,534	3.33%	1.79%

Notes: Source data provided by the record keeper, Great West Life. (1) Represents net contributions in transit to/from the record keeper.
(2) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

Defined Contribution Retirement - Participant Directed TRS
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
October 31, 2014
$ (Thousands)

Invested Assets (at fair value)	**July**	**August**	**September**	**October**
Investments with Treasury Division				
Cash and cash equivalents	$ 1,915	$ 2,028	$ 2,028	$ 1,923
Investments with T. Rowe Price				
Alaska Money Market	1,594	1,601	1,563	1,561
Small Cap Stock Fund	19,566	19,689	18,940	20,961
Alaska Balanced Trust	263	254	248	258
Long Term Balanced Fund	11,630	11,937	11,707	11,748
AK Target Date 2010 Trust	511	522	459	453
AK Target Date 2015 Trust	2,064	2,100	2,087	2,163
AK Target Date 2020 Trust	4,680	4,696	4,409	4,591
AK Target Date 2025 Trust	6,313	6,480	6,302	6,536
AK Target Date 2030 Trust	6,884	7,093	6,801	7,068
AK Target Date 2035 Trust	10,355	10,627	10,441	10,926
AK Target Date 2040 Trust	11,347	11,585	11,310	11,750
AK Target Date 2045 Trust	19,671	20,021	19,519	20,241
AK Target Date 2050 Trust	26,464	27,072	26,380	27,492
AK Target Date 2055 Trust	5,114	5,251	5,229	5,618
State Street Global Advisors				
Money Market	111	159	167	158
S&P 500 Stock Index Fund Series A	12,900	13,305	12,635	12,283
Russell 3000 Index	15,430	16,563	16,273	16,570
US Real Estate Investment Trust Index	2,538	2,519	2,380	2,621
World Equity Ex-US Index	11,016	10,507	9,538	9,293
Long US Treasury Bond Index	99	101	100	104
US Treasury Inflation Protected Securities Index	1,233	1,248	1,228	1,240
World Government Bond Ex-US Index	2,779	2,836	2,742	2,772
Global Balanced Fund	6,824	6,802	6,880	7,512
Investments with BlackRock				
Government/Credit Bond Fund	13,781	13,989	13,929	13,925
Intermediate Bond Fund	89	94	94	92
Investments with Brandes Institutional				
International Equity Fund Fee	15,356	16,041	15,854	16,311
Investments with RCM				
Sustainable Opportunities Fund	1,186	1,183	1,150	1,228
Total Invested Assets	**$ 211,713**	**$ 216,303**	**$ 210,392**	**$ 217,397**
Change in Invested Assets				
Beginning Assets	$ 214,956	$ 211,713	$ 216,191	$ 210,392
Investment Earnings	(4,029)	5,608	(5,871)	3,802
Net Contributions (Withdrawals)	785	(1,018)	72	3,202
Ending Invested Assets	**$ 211,713**	**$ 216,303**	**$ 210,392**	**$ 217,397**

Source data provided by the record keeper, Great West Life.

ALASKA RETIREMENT MANAGEMENT BOARD

FINANCIAL REPORT
(Supplement to the Treasury Division Report)

As of October 31, 2014

Prepared by the Division of Retirement & Benefits

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Four Months Ending October 31, 2014

	Contributions				Expenditures				Net
	Contributions EE and ER	State of Alaska	Other	Total Contributions	Benefits	Refunds	Administrative & Investment	Total Expenditures	Contributions/ (Withdrawals)
Public Employees' Retirement System (PERS)									
Defined Benefit Plans:									
Retirement Trust	$ 106,820,881	$ 333,333,333	$ 5,940	$ 440,160,154	$ (226,248,146)	$ (3,640,963)	$ (10,144,980)	$ (240,034,089)	$ 200,126,066
Retirement Health Care Trust	48,140,251	-	8,711,321	56,851,572	(116,025,847)	-	(3,670,152)	(119,695,999)	(62,844,426)
Total Defined Benefit Plans	154,961,132	333,333,333	8,717,261	497,011,726	(342,273,993)	(3,640,963)	(13,815,132)	(359,730,088)	137,281,640
Defined Contribution Plans:									
Participant Directed Retirement	35,074,261	-	-	35,074,261	-	(11,138,420)	(573,646)	(11,712,066)	23,362,195
Health Reimbursement Arrangement [(a)]	9,106,879	-	-	9,106,879	-	-	-	-	9,106,879
Retiree Medical Plan [(a)]	3,911,404	-	-	3,911,404	-	-	-	-	3,911,404
Occupational Death and Disability: [(a)]									
Public Employees	515,149	-	-	515,149	(91,689)	-	-	(91,689)	423,461
Police and Firefighters	362,555	-	-	362,555	(15,437)	-	-	(15,437)	347,116
Total Defined Contribution Plans	48,970,248	-	-	48,970,248	(107,126)	(11,138,420)	(573,646)	(11,819,192)	37,151,055
Total PERS	**203,931,380**	**333,333,333**	**8,717,261**	**545,981,974**	**(342,381,119)**	**(14,779,383)**	**(14,388,778)**	**(371,549,280)**	**174,432,695**
Teachers' Retirement System (TRS)									
Defined Benefit Plans:									
Retirement Trust	15,968,910	554,233,333	3,991	570,206,234	(138,775,539)	(1,038,087)	(4,159,183)	(143,972,809)	426,233,425
Retirement Health Care Trust	2,043,108	112,433,333	2,879,172	117,355,613	(35,749,802)	-	(1,270,300)	(37,020,102)	80,335,510
Total Defined Benefit Plans	18,012,018	666,666,666	2,883,163	687,561,847	(174,525,341)	(1,038,087)	(5,429,483)	(180,992,911)	506,568,935
Defined Contribution Plans:									
Participant Directed Retirement	7,607,553	-	-	7,607,553	-	(4,516,426)	(210,501)	(4,726,927)	2,880,626
Health Reimbursement Arrangement [(a)]	1,575,224	-	-	1,575,224	-	-	-	-	1,575,224
Retiree Medical Plan [(a)]	829,411	-	-	829,411	-	-	-	-	829,410
Occupational Death and Disability [(a)]	(9)	-	-	(9)	-	-	-	-	(9)
Total Defined Contribution Plans	10,012,179	-	-	10,012,179	-	(4,516,426)	(210,501)	(4,726,927)	5,285,251
Total TRS	**28,024,197**	**666,666,666**	**2,883,163**	**697,574,026**	**(174,525,341)**	**(5,554,513)**	**(5,639,984)**	**(185,719,838)**	**511,854,186**
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Trust	1,841,625	5,241,619	-	7,083,244	(3,514,216)	-	(135,830)	(3,650,046)	3,433,198
Defined Benefit Retirement Health Care Trust	162,258	-	23,857	186,115	(193,171)	-	(12,719)	(205,890)	(19,775)
Total JRS	**2,003,883**	**5,241,619**	**23,857**	**7,269,359**	**(3,707,387)**	**-**	**(148,549)**	**(3,855,936)**	**3,413,423**
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Trust [(a)]	627,300	-	-	627,300	(492,033)	-	(85,501)	(577,534)	49,766
Other Participant Directed Plans									
Supplemental Annuity Plan	58,286,127	-	-	58,286,127	-	(61,780,669)	(1,650,591)	(63,431,260)	(5,145,133)
Deferred Compensation Plan	12,767,208	-	-	12,767,208	-	(15,362,365)	(318,922)	(15,681,287)	(2,914,079)
Total All Funds	**305,640,095**	**1,005,241,618**	**11,624,281**	**1,322,505,994**	**(521,105,880)**	**(97,476,930)**	**(22,232,325)**	**(640,815,135)**	**681,690,858**
Total Non-Participant Directed	191,904,946	1,005,241,618	11,624,281	1,208,770,845	(521,105,880)	(4,679,050)	(19,478,665)	(545,263,595)	663,507,249
Total Participant Directed	113,735,149	-	-	113,735,149	-	(92,797,880)	(2,753,660)	(95,551,540)	18,183,609
Total All Funds	**$ 305,640,095**	**$ 1,005,241,618**	**$ 11,624,281**	**$ 1,322,505,994**	**$ (521,105,880)**	**$ (97,476,930)**	**$ (22,232,325)**	**$ (640,815,135)**	**$ 681,690,858**

(a) Employer only contributions.

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Month Ended October 31, 2014

	Contributions				Expenditures				Net
	Contributions EE and ER	State of Alaska	Other	Total Contributions	Benefits	Refunds	Administrative & Investment	Total Expenditures	Contributions/ (Withdrawals)
Public Employees' Retirement System (PERS)									
Defined Benefit Plans:									
Retirement Trust	$ 30,069,449	$ -	$ 92	$ 30,069,541	$ (57,191,337)	$ (620,602)	$ (962,408)	$ (58,774,347)	$ (28,704,806)
Retirement Health Care Trust	5,559,939	-	7,000,560	12,560,499	(30,366,797)	-	(917,665)	(31,284,462)	(18,723,963)
Total Defined Benefit Plans	35,629,388	-	7,000,652	42,630,040	(87,558,134)	(620,602)	(1,880,073)	(90,058,809)	(47,428,769)
Defined Contribution Plans:									
Participant Directed Retirement	10,092,114	-	-	10,092,114	-	(2,299,081)	(76,121)	(2,375,202)	7,716,912
Health Reimbursement Arrangement [(a)]	2,725,763	-	-	2,725,763	-	-	-	-	2,725,763
Retiree Medical Plan [(a)]	1,296,681	-	-	1,296,681	-	-	-	-	1,296,681
Occupational Death and Disability: [(a)]									
Public Employees	144,350	-	-	144,350	(68,051)	-	-	(68,051)	76,299
Police and Firefighters	88,036	-	-	88,036	(3,946)	-	-	(3,946)	84,090
Total Defined Contribution Plans	14,346,944	-	-	14,346,944	(71,997)	(2,299,081)	(76,121)	(2,447,199)	11,899,745
Total PERS	**49,976,332**	-	**7,000,652**	**56,976,984**	**(87,630,131)**	**(2,919,683)**	**(1,956,194)**	**(92,506,008)**	**(35,529,024)**
Teachers' Retirement System (TRS)									
Defined Benefit Plans:									
Retirement Trust	7,448,448	-	-	7,448,448	(34,907,664)	(286,262)	(283,743)	(35,477,669)	(28,029,221)
Retirement Health Care Trust	301,699	-	2,310,770	2,612,469	(11,375,809)	-	(350,129)	(11,725,938)	(9,113,469)
Total Defined Benefit Plans	7,750,147	-	2,310,770	10,060,917	(46,283,473)	(286,262)	(633,872)	(47,203,607)	(37,142,690)
Defined Contribution Plans:									
Participant Directed Retirement	3,706,253	-	-	3,706,253	-	(484,425)	(19,750)	(504,175)	3,202,078
Health Reimbursement Arrangement [(a)]	779,979	-	-	779,979	-	-	-	-	779,979
Retiree Medical Plan [(a)]	508,544	-	-	508,544	-	-	-	-	508,544
Occupational Death and Disability [(a)]	-	-	-	-	-	-	-	-	-
Total Defined Contribution Plans	4,994,776	-	-	4,994,776	-	(484,425)	(19,750)	(504,175)	4,490,601
Total TRS	**12,744,923**	-	**2,310,770**	**15,055,693**	**(46,283,473)**	**(770,687)**	**(653,622)**	**(47,707,782)**	**(32,652,089)**
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Trust	459,879	-	-	459,879	(874,066)	-	(3,722)	(877,788)	(417,909)
Defined Benefit Retirement Health Care Trust	11,303	-	18,974	30,277	(50,728)	-	(3,088)	(53,816)	(23,539)
Total JRS	**471,182**	-	**18,974**	**490,156**	**(924,794)**	-	**(6,810)**	**(931,604)**	**(441,448)**
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Trust [(a)]	-	-	-	-	(95,938)	-	(18,283)	(114,221)	(114,221)
Other Participant Directed Plans									
Supplemental Annuity Plan	12,977,153	-		12,977,153	-	(13,853,764)	(113,716)	(13,967,480)	(990,327)
Deferred Compensation Plan	2,103,523	-	-	2,103,523	-	(2,339,365)	(25,770)	(2,365,135)	(261,612)
Total All Funds	**78,273,113**	-	**9,330,396**	**87,603,509**	**(134,934,336)**	**(19,883,499)**	**(2,774,395)**	**(157,592,230)**	**(69,988,721)**
Total Non-Participant Directed	49,394,070	-	9,330,396	58,724,466	(134,934,336)	(906,864)	(2,539,038)	(138,380,238)	(79,655,772)
Total Participant Directed	28,879,043	-	-	28,879,043	-	(18,976,635)	(235,357)	(19,211,992)	9,667,051
Total All Funds	**$ 78,273,113**	**$ -**	**$ 9,330,396**	**$ 87,603,509**	**$ (134,934,336)**	**$ (19,883,499)**	**$ (2,774,395)**	**$ (157,592,230)**	**$ (69,988,721)**

(a) Employer only contributions.

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Four Months Ending October 31, 2014

PARTICIPANT DIRECTED REFUNDS BY PLAN AND BY TYPE

	PERS DCR Plan	TRS DCR Plan	Supplemental Annuity Plan	Deferred Compensation	TOTAL	% of Total
Payment to Beneficiary	-	-	55,231	88,700	143,931	0.2%
Death Benefit	147,505	14,766	958,442	104,200	1,224,913	1.3%
Disability / Hardship	-	-	124,279	16,475	140,754	0.2%
Minimum Required Distribution	8,750	-	1,012,114	324,383	1,345,247	1.4%
Qualified Domestic Relations Order	58,500	-	1,202,723	102,317	1,363,540	1.5%
Separation from Service / Retirement	10,923,665	4,501,660	57,781,960	14,632,422	87,839,707	94.7%
Purchase of Service Credit	-	-	462,239	93,868	556,107	0.6%
Transfer to a Qualifying Plan	-	-	183,681	-	183,681	0.2%
TOTAL	11,138,420	4,516,426	61,780,669	15,362,365	92,797,880	100.0%

Callan

December 4, 2014

ARMB Private Equity Portfolio Review and Performance Analysis

Gary Robertson
Senior Vice President

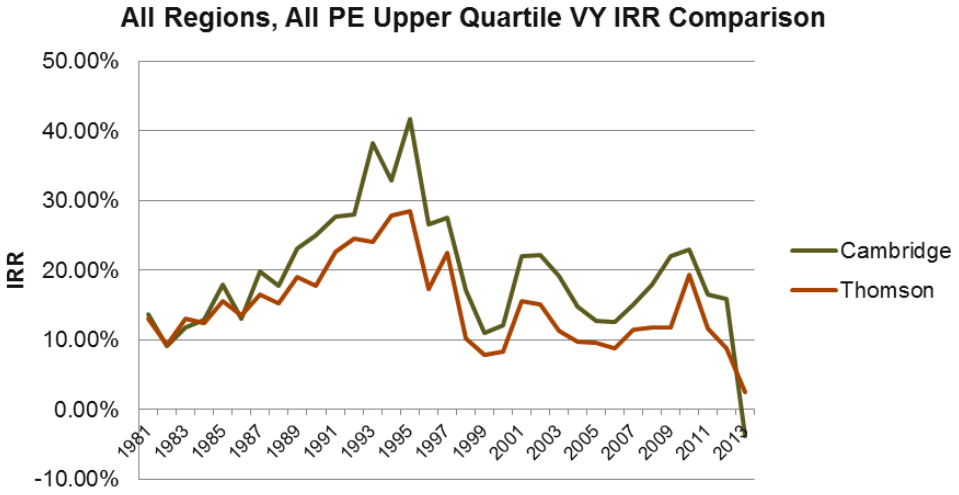
Private Equity Discussion Topics

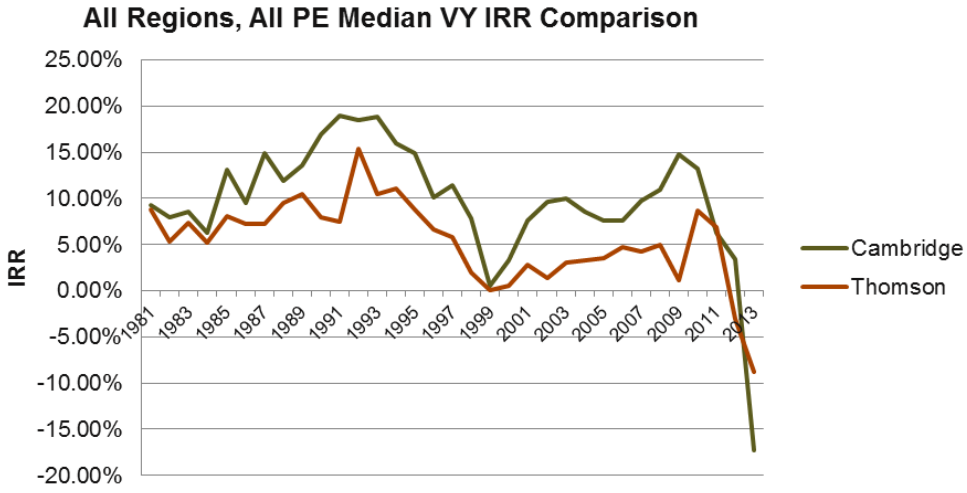
- Change to Private Equity Benchmarking Landscape
- ARMB Private Equity Program Overview
- Market Conditions
- ARMB Private Equity Performance
  - Portfolio and Manager Performance
  - Vintage Year Benchmarking
  - Strategy Diversification
- Corporate Governance Portfolio
- Summary

Appendix: How Private Equity Works (Cash Flows)

Private Equity Benchmarking: The End of an Era for Venture Economics

- Thomson Reuters ceased its proprietary private equity return data collection (f/k/a Venture Economics) and signed an agreement to resell Cambridge Associates' database information
  - The change was effective for quarter-end March 31, 2014
- Impact on private equity reporting:
  - Loss of an "industry standard" and a self-reporting private equity database
  - New Cambridge dataset has higher historical returns due to institutional due diligence and selectivity screening
  - One could quip that "median is the new top quartile"
- The two charts below show the changes in the top quartile and median returns for the last 33 vintage years
  - Returns to rank in the upper quartile have shifted significantly—comparable moves in occurred in performance ratios
  - Returns to remain above median increased even more than the upper quartile measures
- Above median performance is potentially the new nominal private equity target to achieve
  - The difference reflects a shift from an unmanaged and self-reporting universe, to a peer group of more professionally managed portfolios





Private Equity Benchmarking: The End of an Era for Venture Economics

- Impact on ARMB private equity portfolio:
  - Performance moves from upper second quartile to mid-second quartile
  - Above median performance is potentially the new nominal private equity target to achieve
- ARMB managers VY performance benchmark change, last year versus this year:
  - Although not a direct comparison given the year's passage of time, the effects of the higher upper quartile marker are evident
  - It is positive that no vintage years were reclassified as below median
  - The changes were predominately in years considered to be mature

Abbott: VY 1998-2012

	FY 2013		FY 2014		Change
VY Quartile	VE	%	CA	%	15 Yrs
1st	7	47%	2	13%	-5
2nd	8	53%	13	87%	5
3rd	0	0%	0	0%	0

Pathway: VY 2001-2012

	FY 2013		FY 2014		Change
VY Quartile	VE	%	CA	%	12 Yrs
1st	7	58%	4	33%	-3
2nd	5	42%	8	67%	3
3rd	0	0%	0	0%	0

- Even with the database change, ARMB's private equity managers benchmark competitively against the new more professional peer group data comparison
- Beside Cambridge, there are two other relatively well established data providers, and potentially some newer entrants
  - The databases tend to have less robust information sets in the 1980s and 1990s
  - FOIA-based data collection methodology also needs to be considered
- Callan plans to continue to review other database providers and assess viability

ARMB Private Equity Program Overview

Timeline

- 1998 - ARMB initiates a 3% allocation 13 years ago and hires Abbott to invest in partnerships
- 2001 - ARMB raises the allocation to 6%
- 2001 - Hires Pathway to develop a second partnerships portfolio
  - Managers have 29% of partnership investments in common (33% of total dollar commitments)
- 2005 - ARMB hires Blum Capital for direct Corporate Governance
  - Two products: listed and hybrid, neither are “private equity”
- 2006 - Private equity allocation raised to 7%
- 2007- ARMB Initiates In-House private equity portfolio
- 2009 - ARMB liquidates Corporate Governance listed product
- 2011 - Private equity allocation raised to 8%
- 2013 – Private equity allocation raised to 9% (effective July 1, 2013)

ARMB Private Equity Program Overview

Funding – ARMB's total assets increased $3.1 billion (17%) during the 12-month period. The private equity target increased by $456 million ($245 million from the total fund's rise and $211 from the 1% target increase). The total private equity NAV increased $116 million (7%), so the private equity funding changed from being slightly above to slightly below target.

As of June 30, 2014

Measure	2013	**2014**	**%**
Total Assets*	18,075,627,711	**21,133,515,139**	
PE % Target	8.0%	**9.0%**	
PE $ Target	1,446,050,217	**1,902,016,363**	
Abbott	726,918,089	**768,955,246**	**45%**
Pathway	748,410,834	**804,846,110**	**47%**
In-House	125,916,294	**142,390,977**	**8%**
Blum	9,718,454	**10,958,531**	**1%**
Total Private Equity	1,610,963,671	**1,727,150,864**	**100%**
% PE	8.9%	**8.2%**	
Difference from Target	164,913,454	**-174,865,499**	

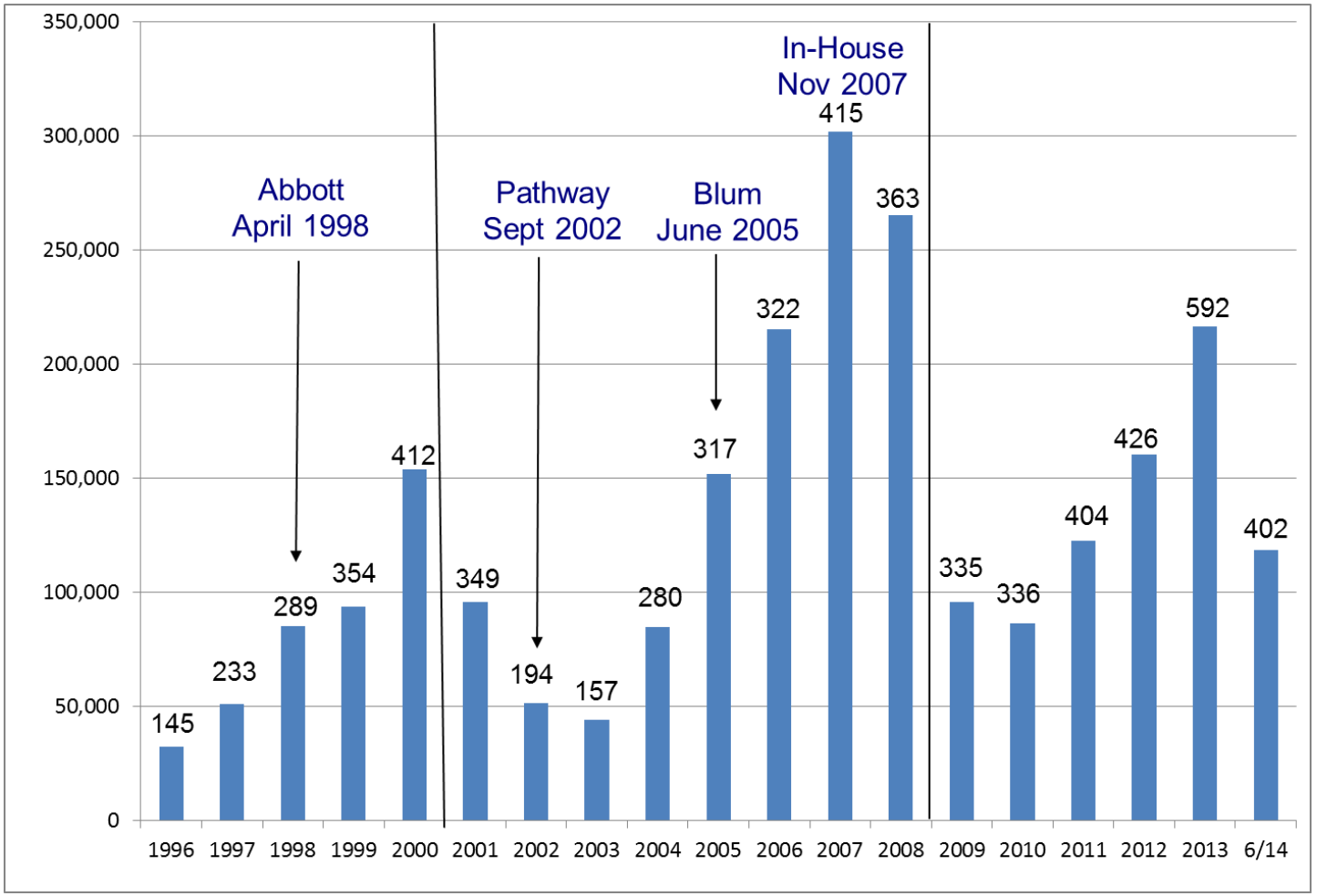
* Treasury Financials less MRS which doesn't invest in PE

- ARMB's uncalled capital increased 24% this year and is 58% of NAV (compared to 49% last year), which will support moderate growth in the NAV.

Private Equity Market Conditions

Industry Commitments To Partnerships

($ Millions, # Funds Formed)



Source: *Private Equity Analyst*

ARMB has been through about two market cycles, with the recent cycle being slow growth

Private Equity Market Conditions

Mid/Late-Expansion Phase? – Cautious Growth

- Similar to fiscal year 2013 (R3000 up 21.5%), equity markets had another four consecutive quarters of positive returns (R3000 up 25.2%)
- Improved balance between commitments, investments, and distributions, with the new company investment pace improving relative to fiscal 2013, although the market appear to be getting heated
- Fundraising vaulted to $217 billion (from $160 billion) fueled by distributions and rising total plan values, with large funds being back in vogue
- U.S. buyout deal pricing moved from to 11.2x EBITDA in 3Q14, up from 9.6x in the second quarter, and as compared to 8.5x a year earlier, fueled by public equity's continued rise.
- Credit has been easy to obtain and plentiful, but equity contributions remain meaningful
- Exits and distributions have been very strong for investors with mature portfolios
  - General partners remain focused on selling companies after delayed exits caused by the financial crisis
- The SEC established a regulatory presence in 2014, and is focusing on transparency: conflicts of interest, compliance with LP agreements, fundraising documentation, and company valuations
- The Fed, OCC, and FDIC are moving to enforce new regulatory guidelines which limit bank lending participation to transactions with no more than 6.0x debt-to-EBITDA, which is generally exceeded in today's environment

Private Equity Market Conditions

Private Equity Industry Returns
IRRs through March 31, 2014

Strategy	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	30.5%	14.8%	14.2%	9.8%	15.5%	26.1%
Buyouts	19.9%	12.7%	17.4%	14.3%	12.2%	13.4%
Mezzanine	11.8%	11.4%	12.9%	9.8%	8.3%	9.7%
All Private Equity	**20.9%**	**12.7%**	**17.1%**	**13.0%**	**12.5%**	**14.5%**
S&P 500	21.9%	14.7%	21.2%	7.4%	4.5%	9.5%

Source: Thomson/Cambridge

- All Private Equity has provided the expected return premium over longer time periods
- All Private Equity lags the public market over horizons of five-years and is due to its appraisal valuation methodology, which reduces both gain and loss volatility
- This year's five-year figure represents the full extent of public equity's bull market run after bottoming in the 1st quarter of 2009.
- The change from Thomson/Venture Economics to the Cambridge database has made private equity's revised history much more competitive with public equity

ARMB Private Equity Performance

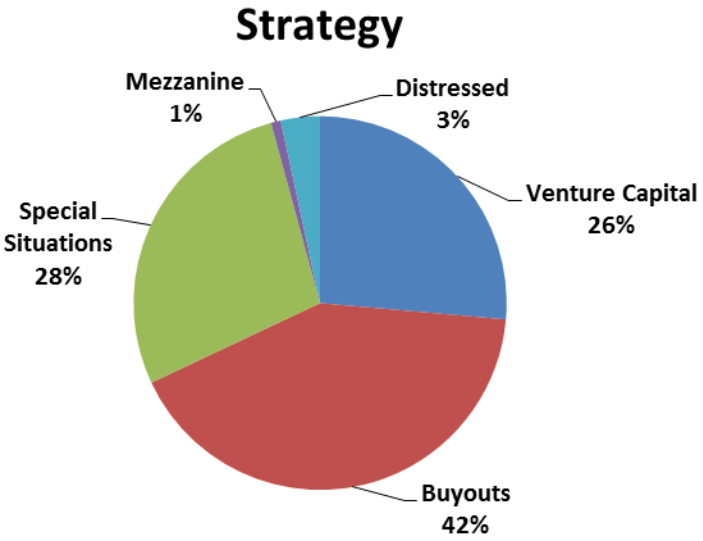
Total Portfolio: 12-Month Changes, June 30, 2014 ($000)

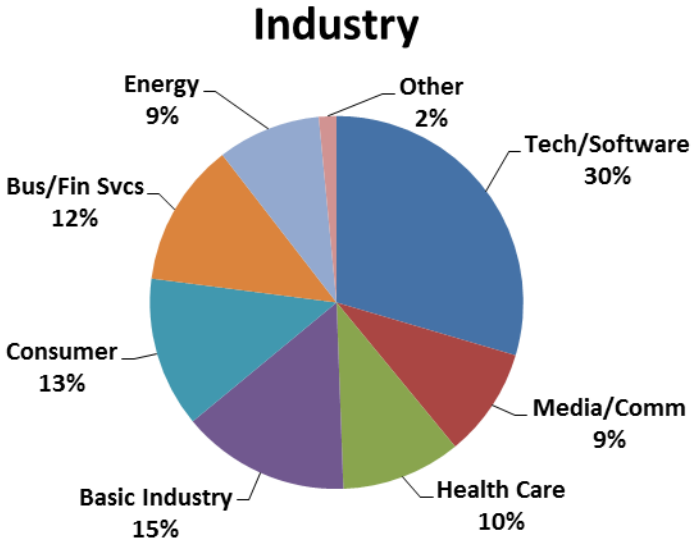
Year	Committed	Paid-In	Uncalled	Distributed	NAV	DPI	RVPI	TVPI
2013	3,536,444	2,812,066	803,896	2,332,346	1,610,963	0.83	0.57	1.40
2014	3,969,626	3,073,494	995,506	2,792,318	1,726,998	0.91	0.56	1.47
Change	**433,182**	**261,428**	**191,610**	**459,972**	**116,035**	**0.08**	**(0.01)**	**0.07**

ACM and PCM private equity holdings are March 31 values updated for June 30 cash flows, In-House and Blum are June 30 actual
NAV reflects Treasury Financials which includes additional accruals.
DPI = Distributions as a ratio of (divided by) Paid-In capital
RVPI = Residual Value (Net Asset Value) as a ratio of (divided by) Paid-In Capital
TVPI = Total Value (Distributions + NAV) as a ratio of (divided by) Paid-In Capital

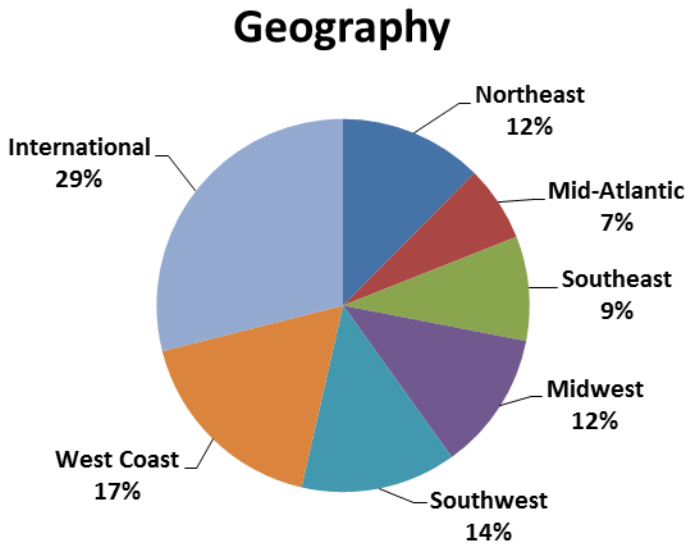
1. Total of 300 partnerships, up 31 from last year (compared to an increase of 14 funds last year)
2. Commitments increased by 12%, versus 5% the prior year
3. Paid-in capital increased 9%, versus 10% last year
4. The dollar amount of paid-in capital of $261 million was a decrease from $266 last year
5. Uncalled capital increased 24%, a reversal from a 3% decline last year
6. The portfolio is 80% paid-in (mature) up from 75%, with Abbott 80% and Pathway 79%
7. The portfolio distributed $460 million, a 29% cash flow return (distributions divided by beginning NAV), down from $473 million (36%) last year.
8. Net cash flow to ARMB was $199 million (12%) versus $207 million (13%) last year
9. NAV increased by $116 million or 7% (up from $6.8 million or 0.4% last year)
10. Total portfolio appreciation was $315 million (20%), compared to $214 million (13%) last year
11. Performance ratios DPI and TVPI increased, and RVPI decreased. The TVPI of 1.47x is second quartile versus the Thomson/Cambridge All Region upper quartile of 1.67x and a median of 1.30x

ARMB Portfolio Diversification June 30, 2014 ($000)





International = Europe 20%, Asia 2%, and Rest-of-World 6%



Note: Strategy allocations based on partnership NAV and includes ACM, PCM and In-House.
Industry and Geography allocations based underlying portfolio companies and include ACM and PCM.

Abbott Capital Management Profile

- Founded in 1986. The firm is an independent registered investment advisor and is 100% employee-owned. ACM has 11 senior professionals, eight junior professionals and a total staff of 49 employees
- ACM has had a stable team with little senior professional turnover
- The firm is headquartered in New York and has an additional office in London
- The firm has $8.4 billion in AUM (Uncalled + NAV), in both fund-of-funds and separate accounts, and has a large established client base
- ACM's ARMB investment program started in mid-1998 and represents 45% of the ARMB's private equity portfolio NAV
- ACM invests in key private equity strategies, except distressed debt, in a diversified manner. The firm has strong relationships in venture capital and an expertise in non-US investing.
- Callan would characterize ACM as a conservative global boutique, with a strong historical experience with venture capital and European private equity investing. The firm also has long-standing with highly-developed corporate finance funds

ARMB Private Equity Performance

Abbott Portfolio: 12-Month Changes, June 30, 2014 ($000)

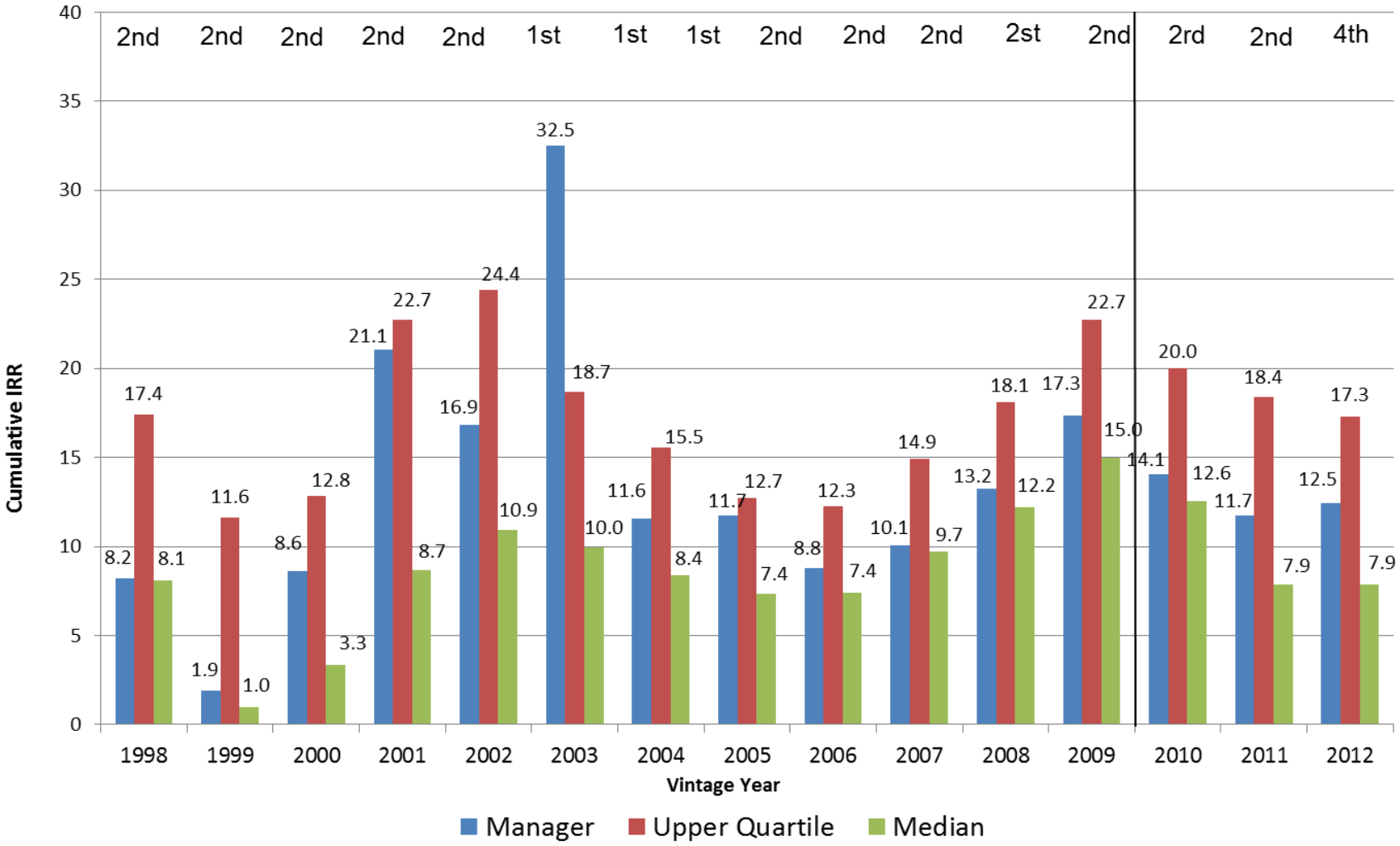
Year	Committed	Paid-In	Uncalled	Distributed	NAV	DPI	RVPI	TVPI	IRR
2013	1,809,447	1,443,039	366,408	1,329,220	726,918	0.92	0.50	1.42	8.9%
2014	1,991,045	1,548,450	442,595	1,548,191	768,955	1.00	0.50	1.50	9.7%
Change	**181,598**	**105,411**	**76,187**	**218,971**	**42,037**	**0.08**	**(0.01)**	**0.07**	**0.7%**

NAV reflects Treasury Financials which includes additional accruals. Abbott's reported NAV was $344 less.
DPI = Distributions as a ratio of (divided by) Paid-In capital
RVPI = Residual Value (Net Asset Value) as a ratio of (divided by) Paid-In Capital
TVPI = Total Value (Distributions + NAV) as a ratio of (divided by) Paid-In Capital
Benchmarks are Thomson/Cambridge All Regions 3/31/14

1. Initiated in 1998 (16 years), invested in 167 partnerships (+13). 45% of NAV
2. Commitments increased $182 million (10%), up from $ 42 million (2%) last year
3. Paid-in increased $105 million (7%), up slightly from $97 million (7%) last year
4. The portfolio is 78% paid-in (mature) and the portfolio is $259,000 short of returning capital
5. Uncalled capital increased 21% (vs. -13% last year) as more capital was committed than paid-in
6. The portfolio distributed $219 million (30% cash flow yield), up from $145 million (23%)
7. Portfolio net cash flow was a positive $114 million as more capital was distributed than paid-in, up from a positive $73 million in the prior year
8. NAV rose $42 million (+6%), compared with last year's decrease of $9 million (-1%).
9. Total portfolio appreciation was $156 million (21%), up from $84 million (10%) last year.
10. Abbott's IRR of 9.7% is second quartile versus the Thomson/Cambridge All Region composite since 1998, which has a top quartile of 15.7% and a median of 7.9%
11. The TVPI of 1.50x is also second quartile versus a top quartile of 1.67x and a median of 1.30x

Abbott: Thomson ONE Vintage Year Peer Group Benchmark

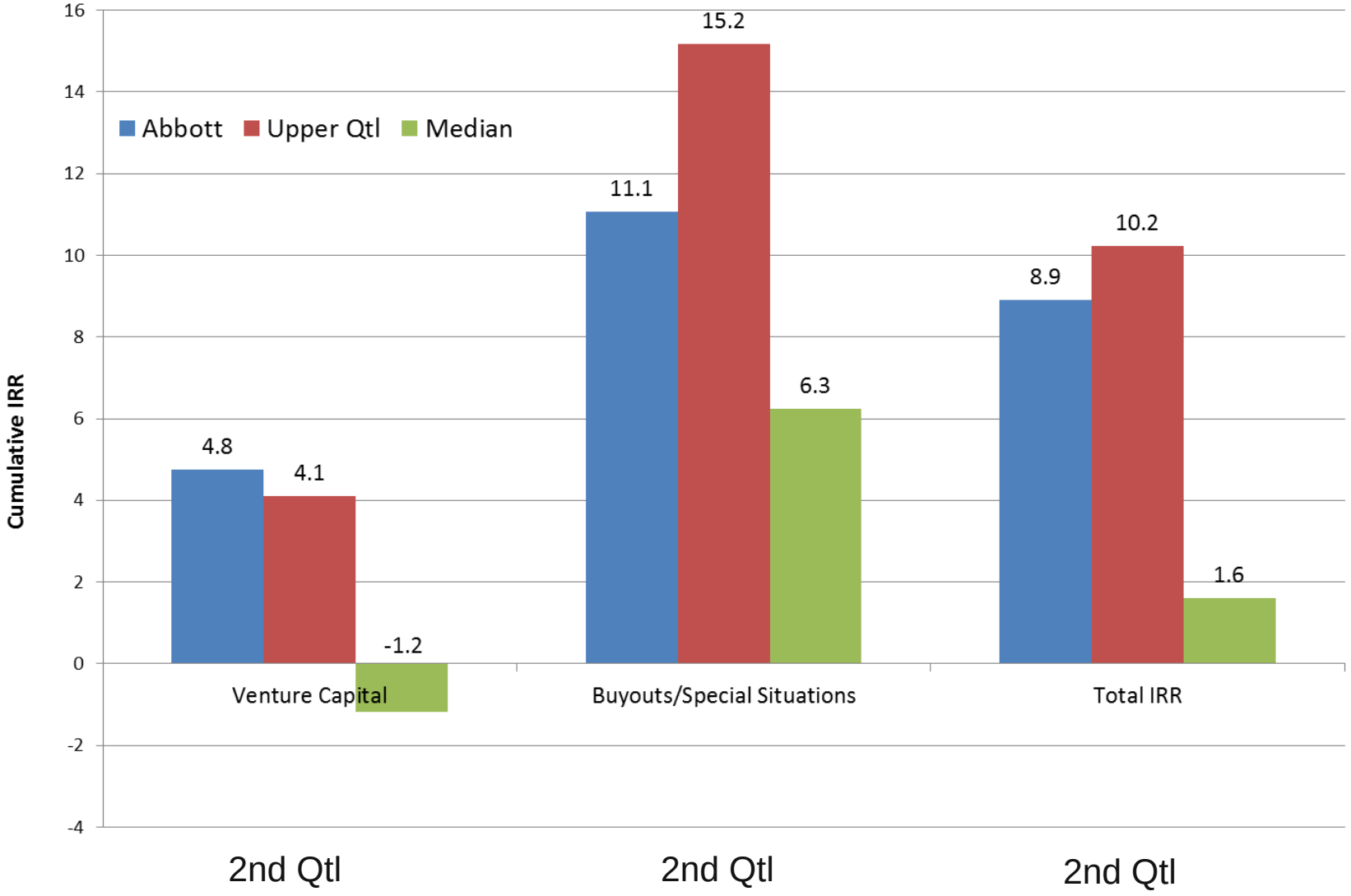
IRRs and All Region Benchmarks as of March 31, 2014



1st Quartile: 2 years 2nd Quartile: 12 years Below Median: 0 years

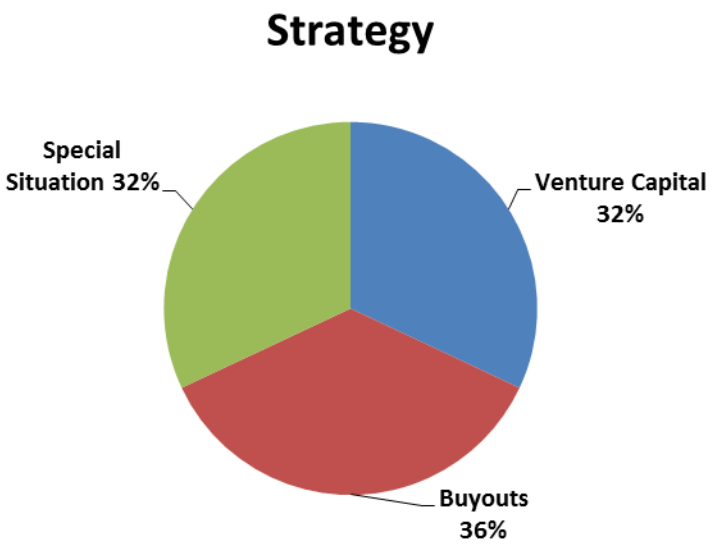
Abbott: Thomson ONE Strategy Peer Group Benchmark

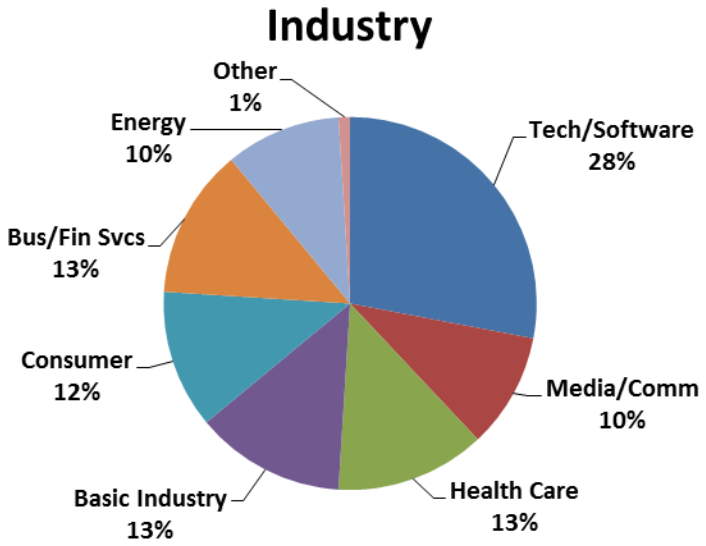
Cumulative Composite Benchmarks Inception through 3/31/2014



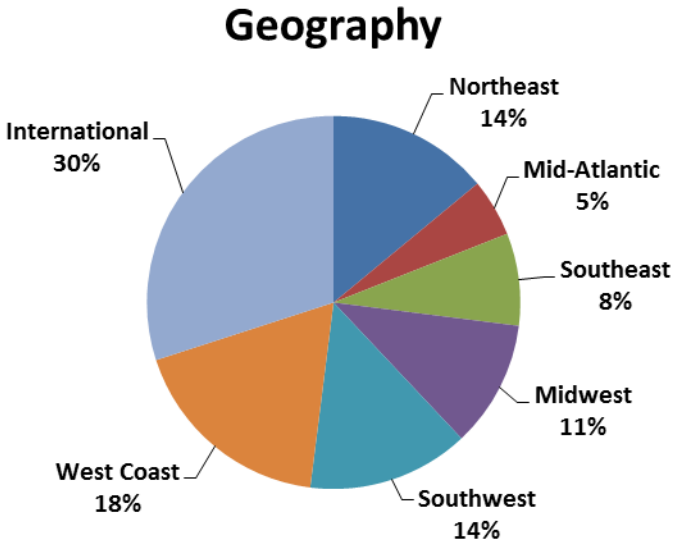
All Composites: VY 1998 – 2012

ACM Portfolio Diversification June 30, 2014 ($000)





International = Europe 22%, Asia 3%, and Rest-of-World 5%



Note: Strategy allocations are based on partnership NAV, Industry and Geography allocations are based on underlying portfolio company valuations

Pathway Capital Management Profile

- Founded in 1993. The firm is an independent registered investment advisor and is wholly owned by its twelve principals. PCM has 17 senior professionals and 22 junior professionals, with 112 total employees
- PCM has had a generally stable team. There have been two recent senior departures, one of the three founding partners departed in early-2012, and a director in 2013, but the firm has a deep staff.
- The firm is headquartered in Irvine, CA and has additional offices located in London and Rhode Island and Hong Kong. The firm also has a Pacific Basin strategic alliance with its client Tokyo Marine
- Total AUM is $25.9 billion (NAV plus uncalled), with a large established client base
- Pathway's portfolio initiated in mid-2002 and represents 46% of the ARMB's private equity portfolio NAV
- Pathway states that they use a market weighting investment strategy and do not tend to overweight particular investment strategies. The investment approach is conservative, investing with highly developed general partners with proven track records and experience investing through market cycles, primarily in developed markets
- Callan would characterize PCM as a conservative global boutique core manager that invests in key private equity strategies, except mezzanine and has an expertise in non-US investing. The firm's corporate finance investments have a mid- to large-buyouts orientation

ARMB Private Equity Performance

Pathway Portfolio: 12-Month Changes, June 30, 2014 ($000)

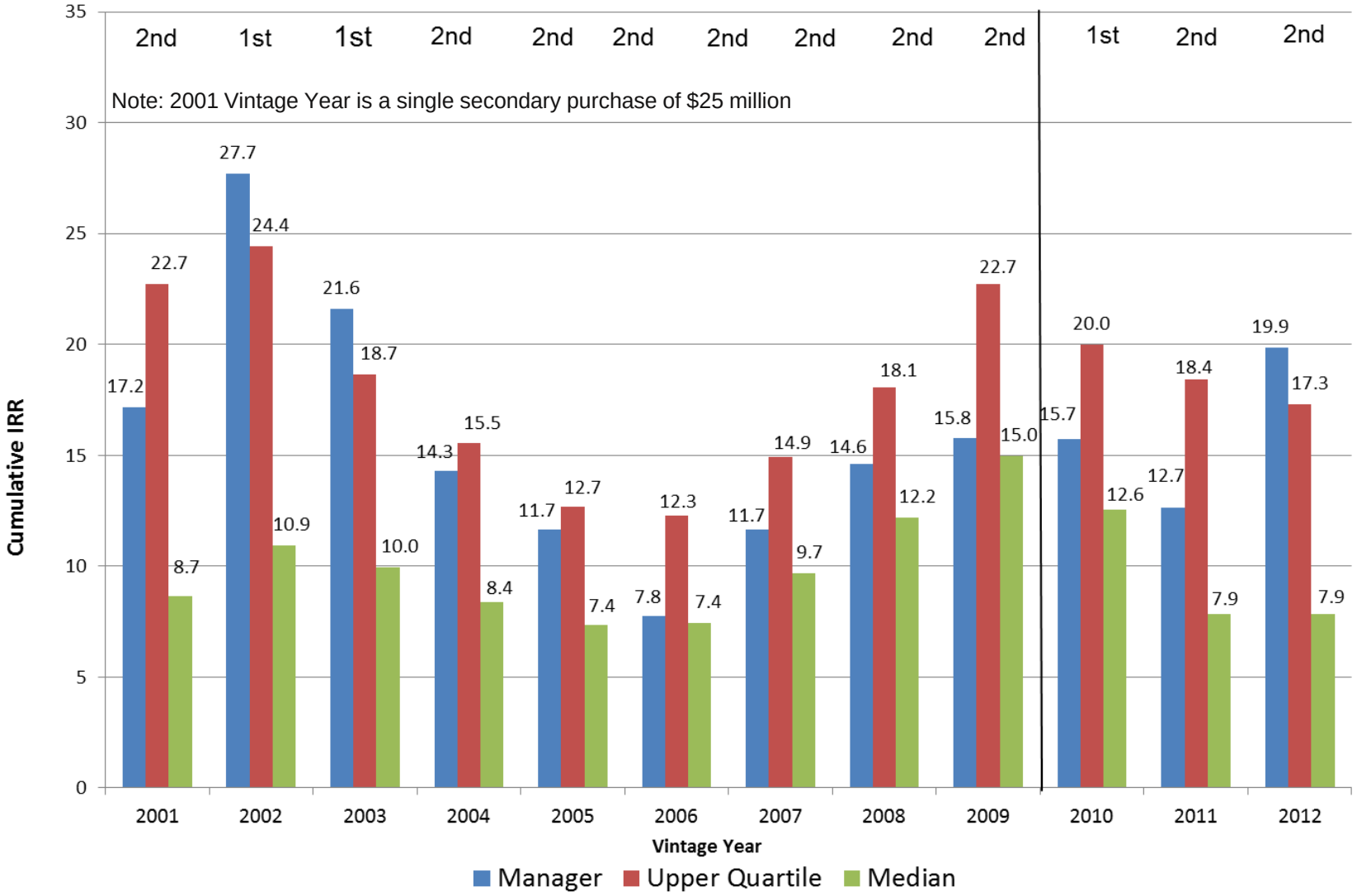
Year	Committed	Paid-In	Uncalled	Distributed	NAV	DPI	RVPI	TVPI	IRR
2013	1,416,997	1,120,755	377,543	884,565	748,411	0.79	0.67	1.46	12.7%
2014	1,598,581	1,250,735	442,735	1,092,616	804,846	0.87	0.64	1.52	13.9%
Change	**181,584**	**129,980**	**65,192**	**208,051**	**56,435**	**0.08**	**(0.02)**	**0.06**	**1.2%**

NAV reflects Treasury Financials which includes additional accruals. Pathway's reported NAV was $1.1 million lower
DPI = Distributions as a ratio of (divided by) Paid-In capital
RVPI = Residual Value (Net Asset Value) as a ratio of (divided by) Paid-In Capital
TVPI = Total Value (Distributions + NAV) as a ratio of (divided by) Paid-In Capital
Benchmarks are Thomson ONE All Regions 3/31/14

1. Initiated in mid-2002 (12 years), invested in 124 partnerships (+16), 47% of NAV
2. Commitments increased $181 (13%), up from $88 million (7%) last year
3. Paid-in increased $130 million (12%), the same as last year. The mature portfolio is 78% paid-in
4. Uncalled capital increased $65 million 17%, versus a 12% increase last year
5. Distributions were $208 million (28% cash flow yield), down from $265 million (36%)
6. Portfolio net cash flow was $78 million or 10% of initial NAV (distributions exceeded paid-in), down from $135 million or 18% of initial NAV last year
7. NAV increased $56 million (8%), versus $2.3 million (0.3%) last year
8. Portfolio appreciation was $134 million (18%), down slightly from $138 million (18%) last year.
9. Pathway's IRR of 13.9% is second quartile versus the Thomson/Cambridge All Region composite since 2002, which has a top quartile of 16.7% and a median of 8.67%
10. The 1.52x TVPI is also second quartile versus the top quartile and median of 1.62x and 1.30x

Pathway: Thomson ONE Vintage Year Peer Group Benchmark

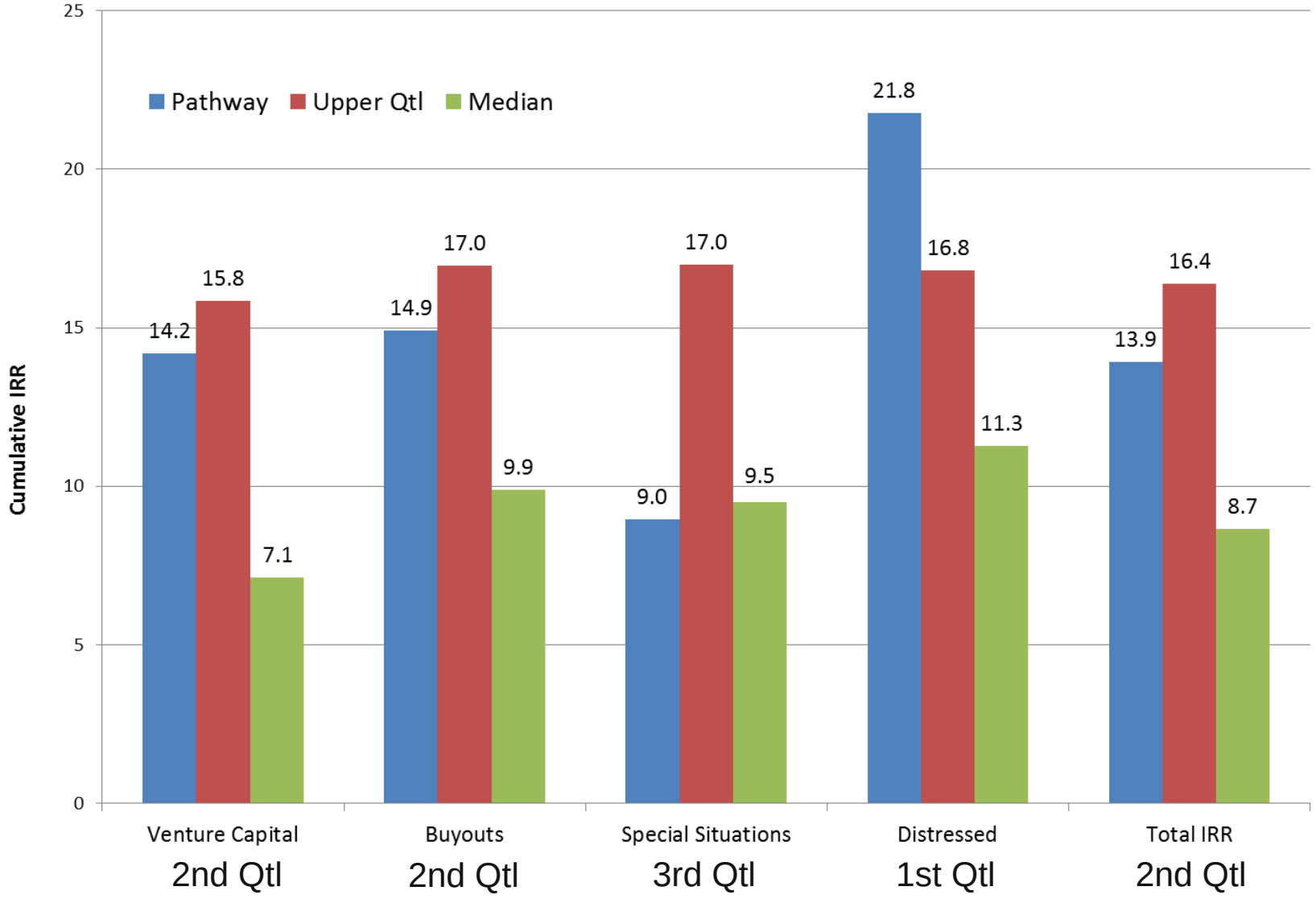
IRRs and All Region Benchmarks as of March 31, 2014



1st Quartile: 3 years 2nd Quartile: 9 years Below Median: 0 years

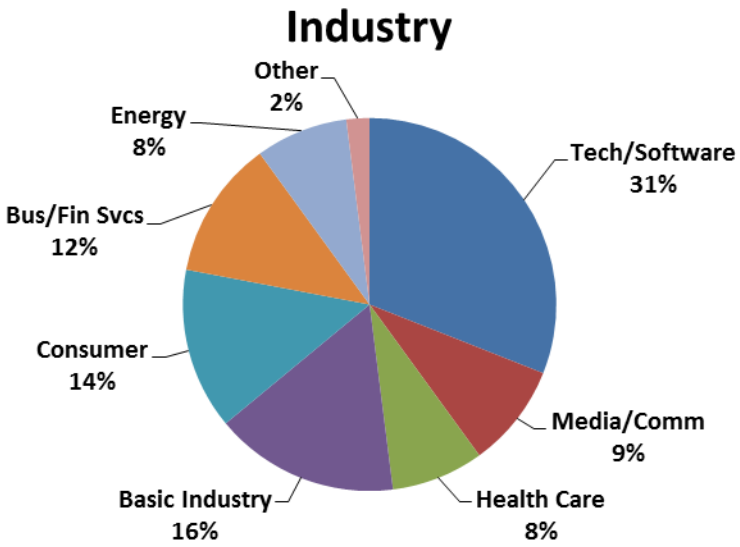
Pathway: Thomson ONE Strategy Peer Group Benchmark

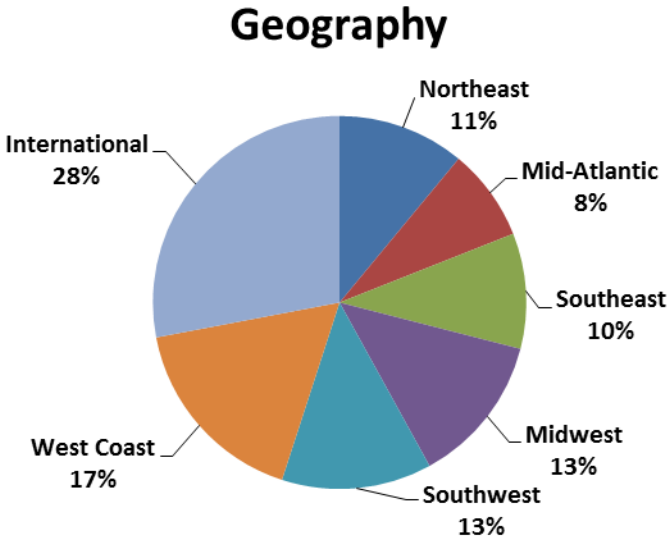
Cumulative Composite Benchmarks Inception through 3/31/2014



All Composites: VY 2002 – 2014

PCM Portfolio Diversification June 30, 2014 ($000)

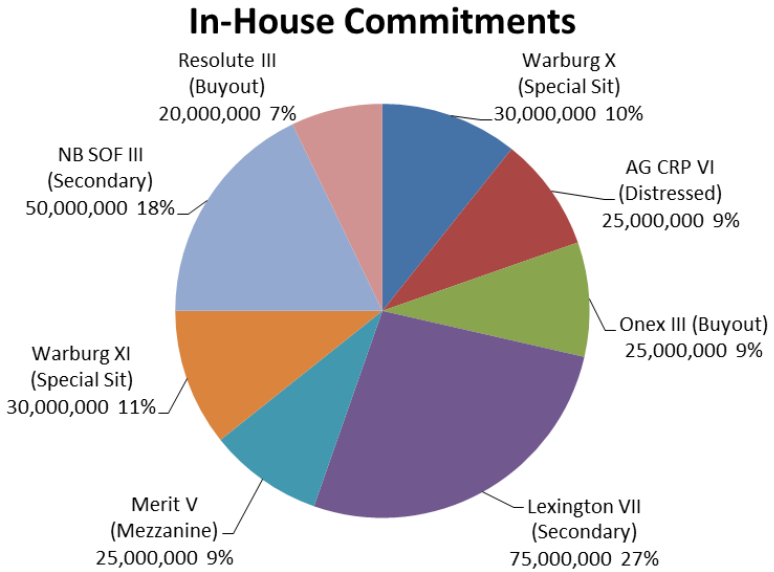


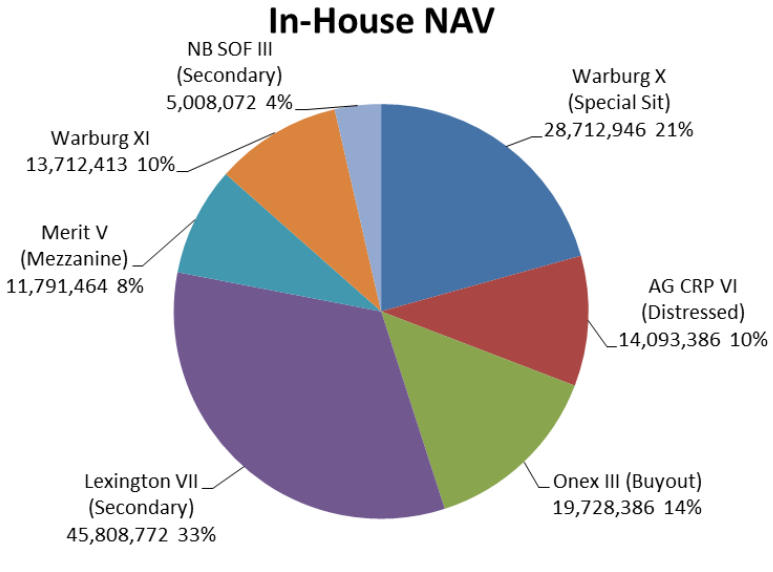


International = Europe 19%, Asia 2%, and Rest-of-World 7%

Note: Strategy allocations are based on partnership NAV, Industry and Geography allocations are based on underlying portfolio company valuations

In-House Portfolio Overview June 30, 2014 ($000)





Partnership	VY	Strategy	Overlap	Committed	Paid-In	% PI
Warburg X	2007	Special Sit	ACM	30,000,000	30,000,000	100%
AG CRP VI	2008	Distressed	None	25,000,000	25,000,000	100%
Onex III	2008	Buyout	PCM	25,000,000	24,039,160	89%
Lexington VII	2010	Secondary	None	75,000,000	60,178,863	77%
Merit V	2010	Mezzanine	None	25,000,000	17,102,041	68%
Warburg XI	2013	Special Sit	ACM	30,000,000	15,432,507	44%
NB SOF III	2013	Secondary	None	50,000,000	4,653,578	9%
Resolute III	2014	Buyout	ACM/PCM	20,000,000	0	0%
Total				**280,000,000**	**176,406,149**	**61%**

- Commitments were reinitiated in 2013 as available capital increased. New Mountain IV will be added and another new partnership is being evaluated
- The portfolio represents all key strategies except venture capital (although some VC exposure will be provided by Warburg)
- Investment pace by partnerships has been increasing from since the 2009-2010 lull and all partnership that have drawn capital have positive returns

ARMB Private Equity Performance

In-House Portfolio: 12-Month Changes, June 30, 2014 ($000)

Year	Committed	Paid-In	Uncalled	Distributed	NAV	DPI	RVPI	TVPI	IRR
2013	210,000	150,369	59,631	53,651	125,916	0.36	0.84	1.19	8.8%
2014	280,000	176,406	109,862	85,781	142,238	0.49	0.81	1.29	10.9%
Change	**70,000**	**26,037**	**50,231**	**32,130**	**16,322**	**0.13**	**(0.03)**	**0.10**	**2.1%**

1. Initiated November 2007 (8 years), 8 partnerships: 8% of NAV
2. Two funds added during the fiscal year: Neuberger Secondary III $50 million and Resolute III $20 million (combined +33% total commitments)
3. Paid-in capital increased $26 million (17%). Portfolio is 61% paid-in, down from 72% last year
4. Uncalled capital increased 84% as new commitments exceeded paid-in
5. Distributions were $32 million (26% of NAV), down from $36 million last year (33%)
6. Net cash flow was positive $6.1 million (+5%) as million as distributions exceeded paid-in, a reversal from -$2.7 million (-2%) last year
7. NAV increased $16 million (13%), down from $18 million (16%) last year
8. Total portfolio appreciation was $22.4 million (18%), up from $14.8 million (14%). The portfolio was initiated just before the bubble peaked, has weathered the downturn and continues building
9. While still early for benchmarking (given the distributed nature of the commitments) the in-house portfolio approximates the Thomson/Cambridge median
10. The 10.9% IRR is second quartile versus a database upper quartile of 16.5% and median of 10.3%. The 1.29x TVPI is third quartile versus an upper quartile of 1.56x and median of 1.31x

Benchmark = VY 2007, 2008, 2010, 2013 for Buyouts, Mezzanine, Secondary

ARMB Private Equity Performance

Blum Strategic Partners III: 12-Month Changes, June 30, 2014 ($000)

Year	Committed	Paid-In	Uncalled	Distributed	NAV	DPI	RVPI	TVPI	IRR	TWR	S&P 500
2013	50,000	47,903	314	30,162	9,718	0.63	0.20	0.83	-4.5%	-4.6%	6.1%
2014	50,000	47,903	314	30,982	10,959	0.65	0.23	0.88	-2.9%	-3.1%	8.0%
Change	**-**	**-**	**-**	**820**	**1,241**	**0.00**	**0.03**	**0.04**	**1.6%**	**1.5%**	**1.9%**

Figures are June 30 actual (not March 31 values updated for June 30 cash flows)
TWR = Time-Weighted Return (period-linked return calculation normally used for public stock portfolios)

1. Two $50 million commitments initiated in May 2005 focusing on activist investments in under-performing publicly-traded small- and mid-cap companies
2. Public-only vehicle was fully redeemed in 2009 with a $15 million loss
3. Strategic III is 0.6% of the portfolio's NAV
4. The portfolio had no distributions and no contributions
5. NAV increased by +$1.2 million, reversing a decrease of -$3.3 million last year
6. Strategic III sold its one private holding and has 5 public positions. One company accounts for 81% of the value, the top two represent 89%.
7. The portfolio has had challenges with Financials, Digital Media, and Education sector companies
8. Performance has reflected a concentrated, small company public stock portfolio

ARMB Summary

Observations

- ARMB's private equity portfolio is mature, has provided good performance, and is well-diversified
  - Had to overcome initial timing issue and target increases
  - The private equity allocation remains close to target, but is no longer overfunded
  - The portfolio is getting close to being "fully mature" defined as being cumulatively cash positive (currently 93 cents on the dollar has been received, up from 83 and 73 cents the two prior years)
- With the peer database change, performance is mid-second quartile versus high second quartile using the prior database
  - ARMB's performance remains highly competitive, since the comparison has shifted from being an "unmanaged and voluntary universe," to a "professionally managed" universe
  - Both managers are performing well relative to benchmarks and their strategy mixes are complementary
  - The In-House portfolio appreciated 14%, and new commitments, valuation, and cash flows were dynamic (large percentage changes), consistent with a developing portfolio
  - Blum investments are not private equity, and have been challenged
  - The portfolio is composed of tenured, high-quality general partners
  - ARMB has an attractive strategy mix for a large fund, and is well-diversified by other measures

ARMB Summary

Observations

- ARMB's private equity portfolio had another good year
  - Strong private equity industry liquidity continued for a second year, primarily due to steadily appreciating equity markets, an open IPO window, and easy credit
  - The total private equity portfolio produced a 29% distributed cash return, and 20% total appreciation from positive net cash flow of $199 million (12%) to ARMB, and a 7% NAV increase
- Looking forward
  - Uncalled commitments are only 37% of NAV, so we expect the portfolio NAV growth to be moderate
  - Public equity volatility appeared to be increasing in September 2014, a continuation of which could eventually affect private equity liquidity
  - The private equity market is showing signs of froth: increasing commitments and investment pace, while average price multiples have crossed into double-digits
  - ARMB's portfolio is becoming mature and year-over-year performance changes are going to become smaller
  - General partners remain keenly focused on portfolio exits, so we expect that distributions will continue to be as strong a practicable

Appendix

How Private Equity Works

ARMB invests in all major private corporate finance strategies ("private equity"):

- **Venture Capital**
  - Smaller technology/medical companies
- **Buyouts and Special Situations**
  - Larger company equity, traditional industries
- **Subordinated Debt (Mezzanine)**
  - Private high yield, senior to equity, junior to bank debt, equity-linked
- **Distressed Debt**
  - Larger company restructuring, restarting good businesses

* ARMB's strategy targets are governed by the Investment Policy Guidelines and the Annual Tactical Plan

* For distressed debt and mezzanine, the tactical plan takes into account other ARMB investment activity in this strategy

How Private Equity Works

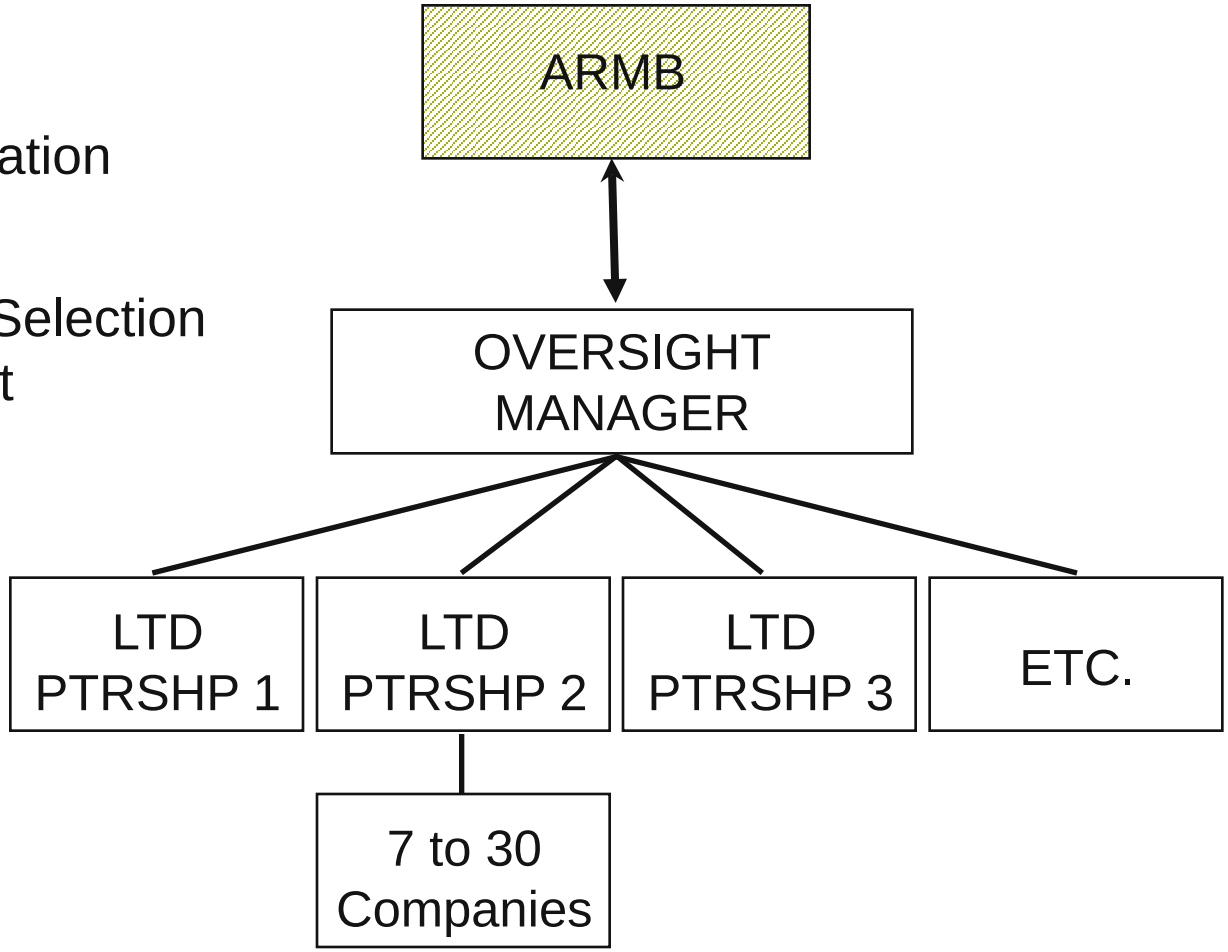
Private Equity Partnerships Program Structure

Policy
Strategic Planning
Performance Evaluation

Proactive Security Selection
Active Management
Reporting

Mini-Conglomerate
(Security)

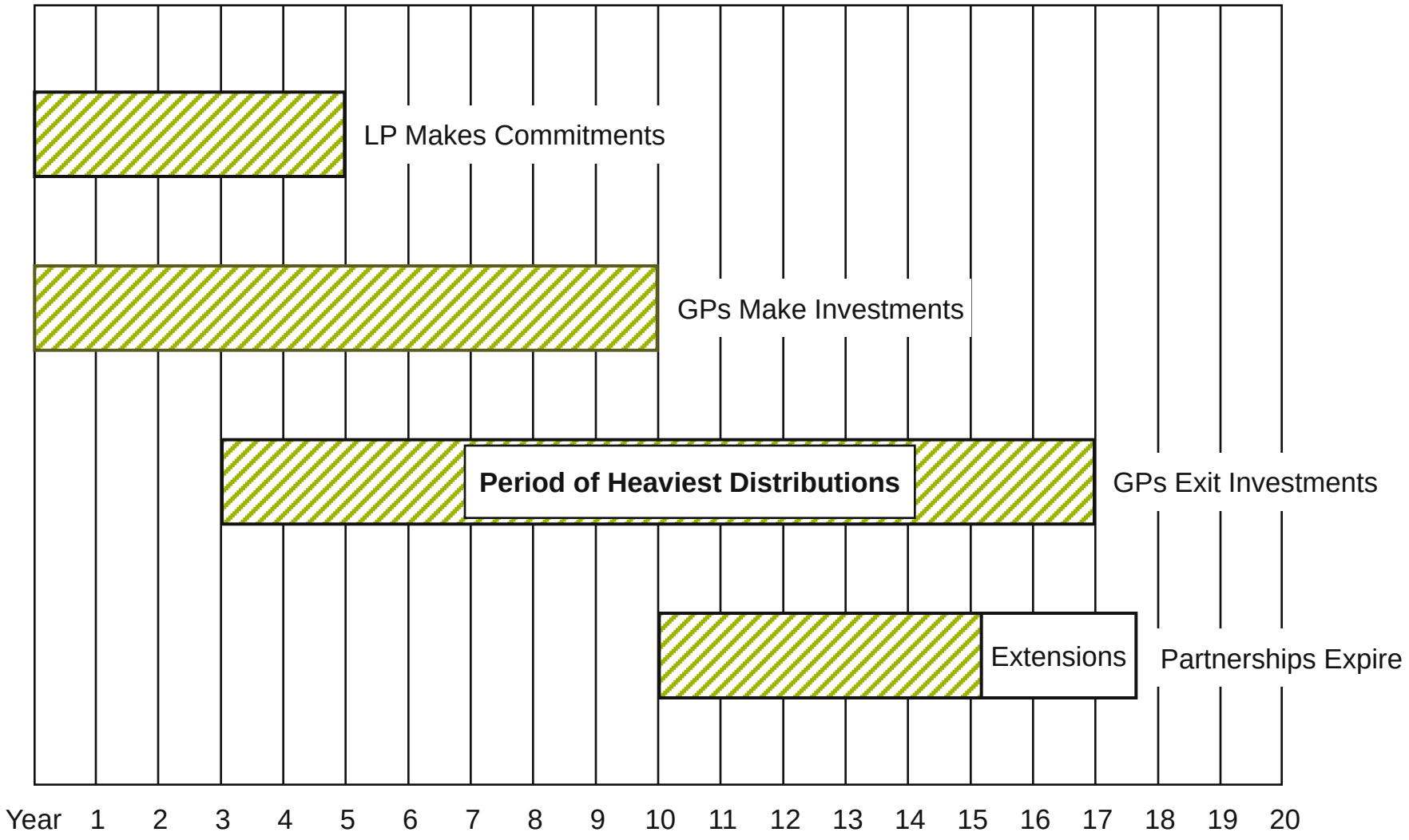
Divisions



How Private Equity Works

A Private Equity Investment Program Requires a Long-Term Horizon

Source: *The Private Equity Analyst*



Callan
FORTY YEARS

November 2014

ARMB Board Meeting

Investment Performance
Periods Ended 9/30/14

(Preliminary Real Assets returns)

Paul Erlendson
Senior Vice President

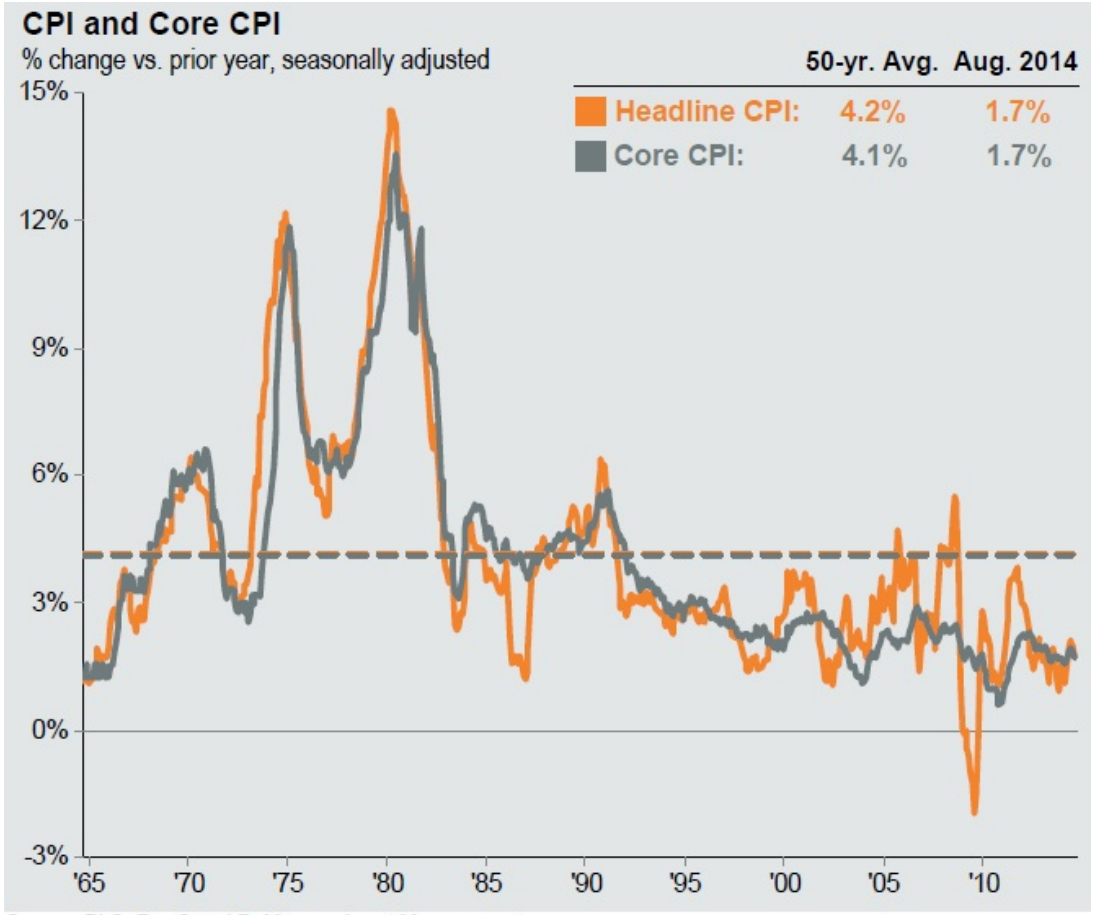
Dana Brown
Senior Vice President

Agenda

- Market and Economic Environment
- Total Fund Performance
  - Major Asset Classes

U.S. Economy: Inflation

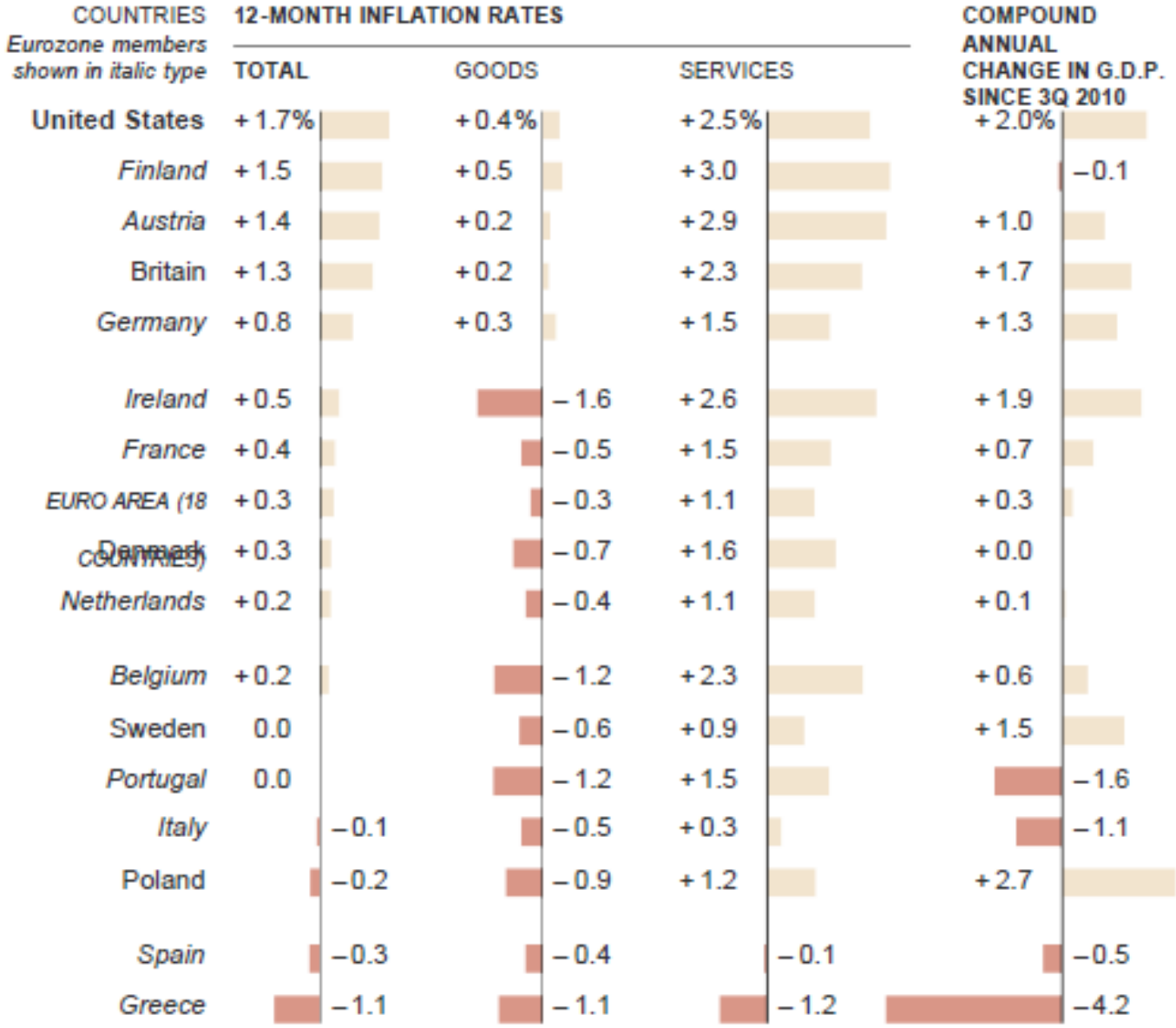
Periods Ending September 30, 2014



Source: BLS, FactSet, J.P. Morgan Asset Management.

- Inflation remains subdued: For the 12-months ending September, headline and core CPI (which excludes food and energy) both increased over the trailing year by 1.7%.
- The current annual rate of Core Inflation rate is well below the long-term average of 4.1%.

Europe as of 9/30/14: The price of goods is falling

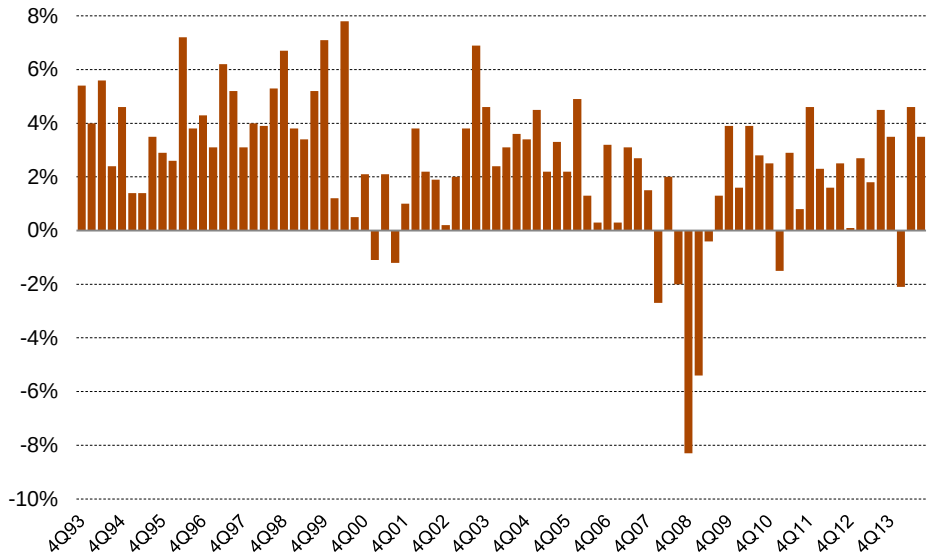


Source: NYTimes.com, “In Eurozone, deflation; In US, mild inflation”. October 25, 2014.

U.S. Economy

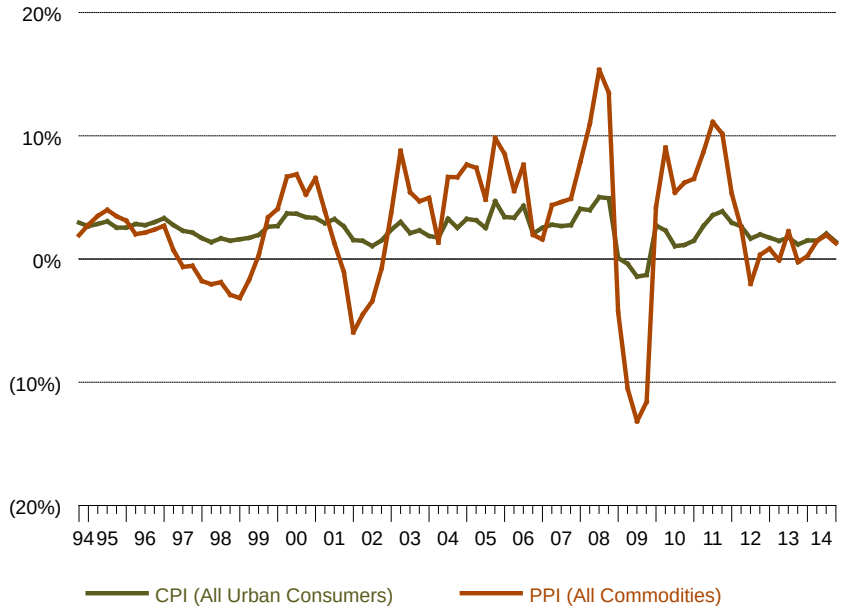
Periods Ending September 30, 2014

Quarterly Real GDP Growth (20 Years)*



Source: Bureau of Economic Analysis

Inflation Year-Over-Year

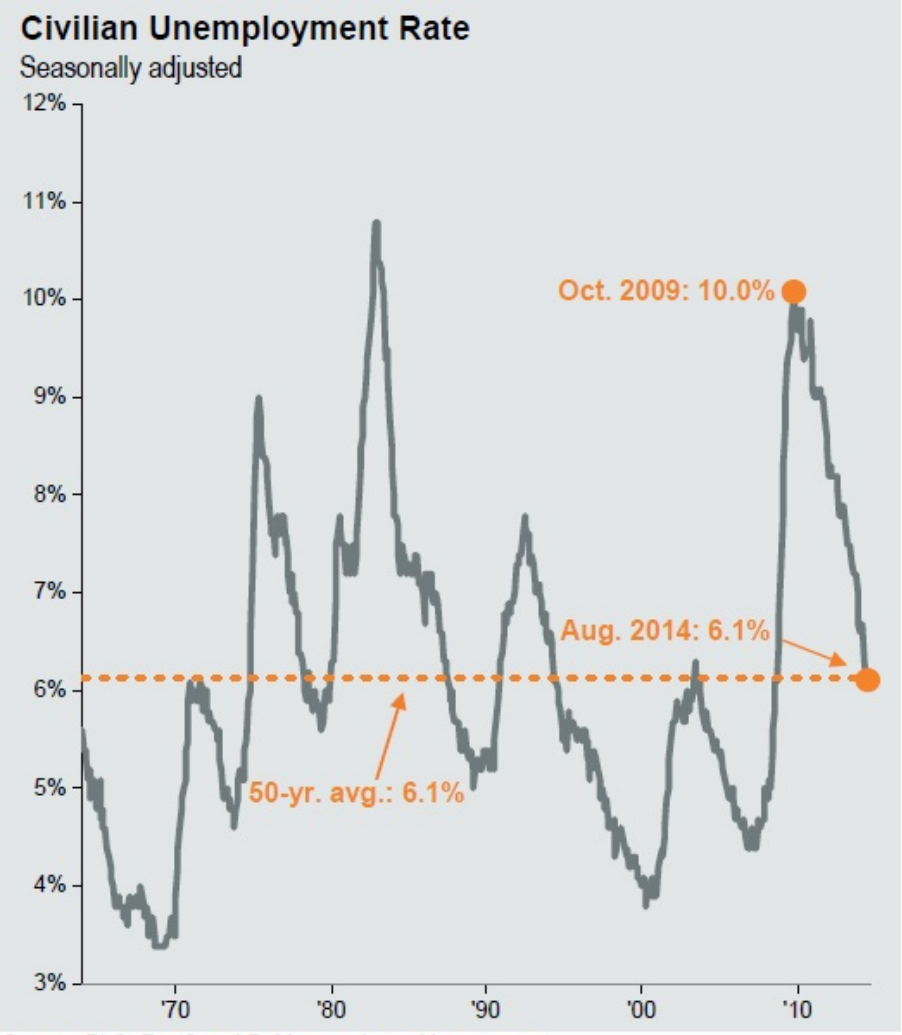


Source: Bureau of Labor Statistics

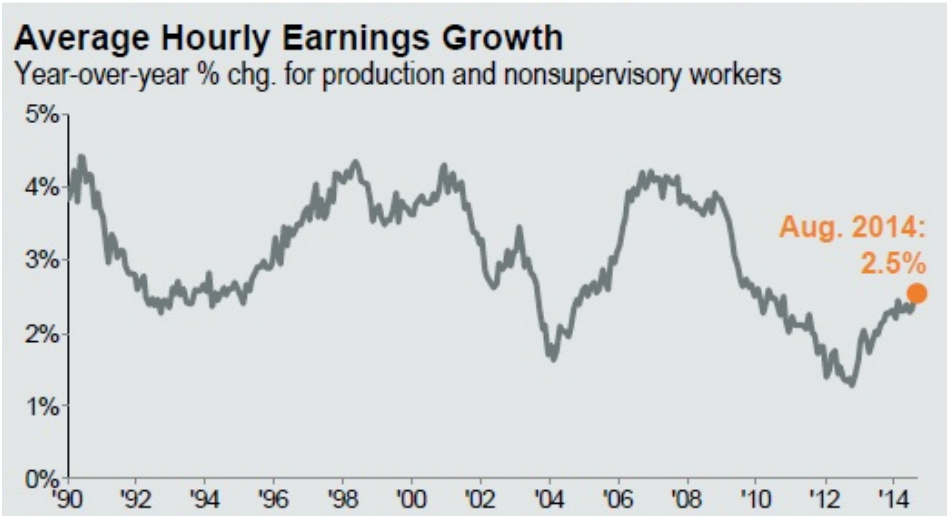
- The Federal Reserve ended its asset purchasing program in October as anticipated.
- 3rd quarter GDP was up 3.5%, extending the strong growth of 4.6% in the 2nd quarter.
- September headline & core CPI both increased over the trailing year by 1.7%.
- The unemployment rate declined to 5.9% in September from 6.7% to start the year.
- Labor market strengthened with average addition of 224,000 jobs per month in 3rd quarter.

Employment Picture

Periods Ending September 30, 2014

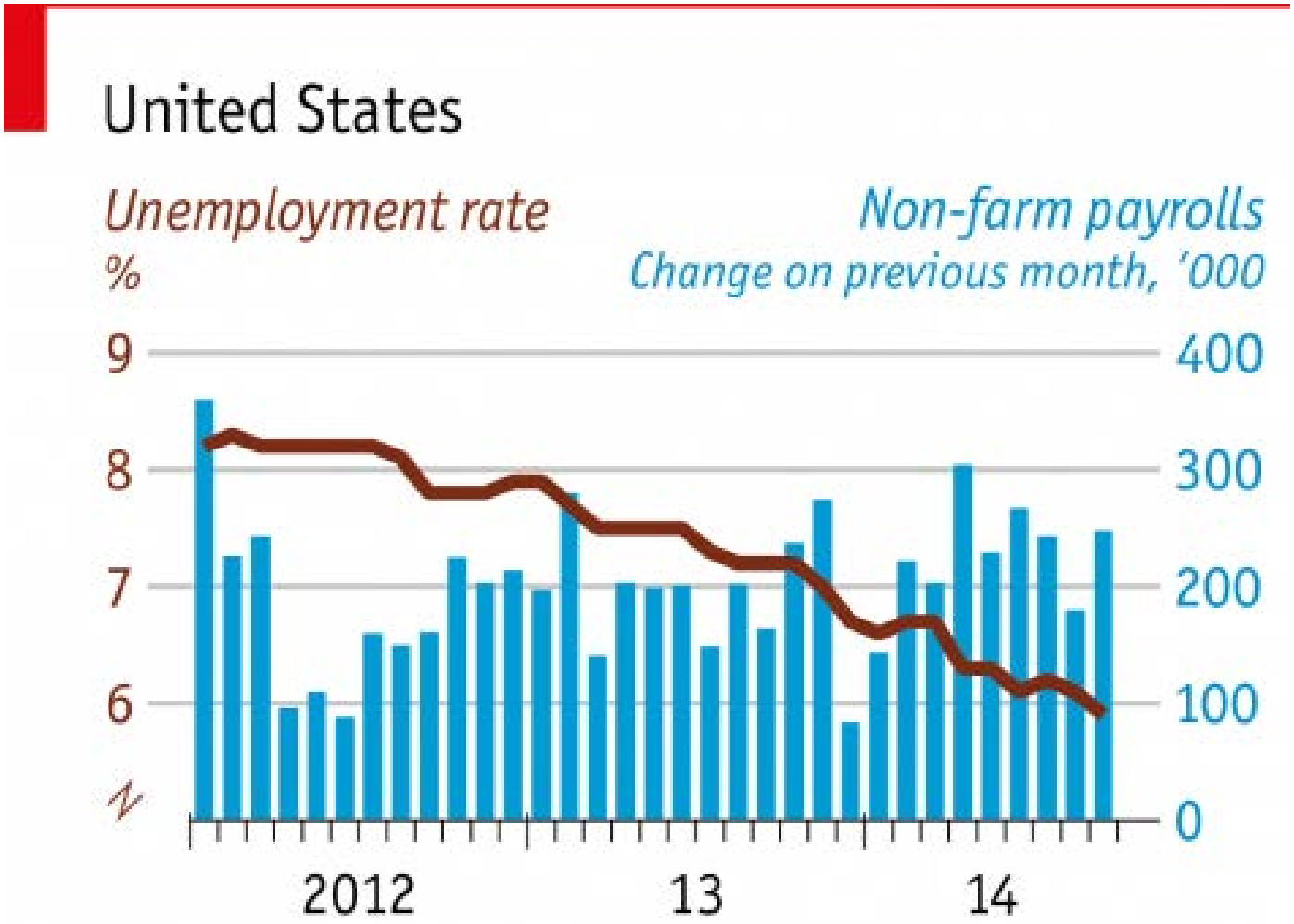


Source: BLS, FactSet, J.P. Morgan Asset Management.



US Economy

Slow and steady positive trends



Sources: The Economist, Bureau of Labor Statistics

Asset Class Performance

Periods Ending September 30, 2014

- Russell 2000 worst for quarter, down 7.4%
- Large cap rocks! S&P 500 up 1.1% for quarter and 19.7% for trailing year
- Aggregate bond index rose 0.2% for quarter and 4.0% for the trailing year
- Developed non-US equities (MSCI EAFE) lag domestic equities over 3-, 5-, and 10-year periods

11/14/14	MTD	YTD
S&P 500	1.2%	12.3%
Russell 2000	0.1%	2.0%
EAFE	-0.1%	-2.9%
EM	-2.4%	1.4%
BC Agg	0.1%	5.2%
HY*	-0.4%	4.3%
BC TIPS	0.1%	4.6%

* Barclays High Yield 2% Constrained Index

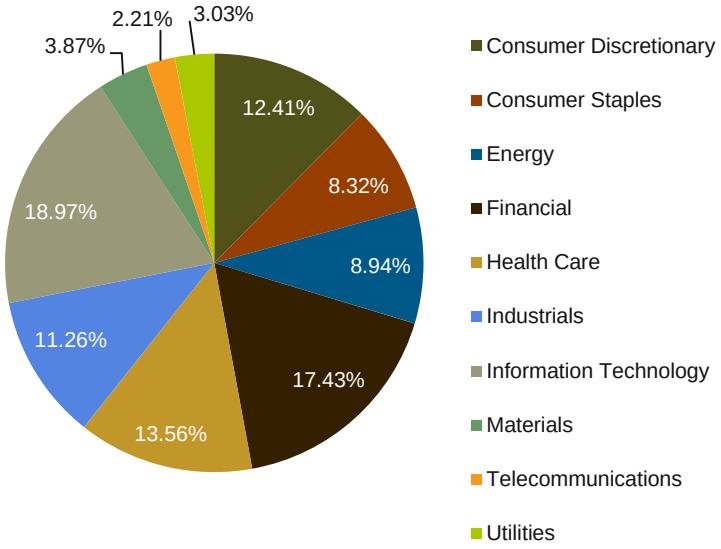
Periodic Table of Investment Returns for Periods Ended September 30, 2014

Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
S&P:500 1.1%	S&P:500 19.7%	S&P:500 23.0%	S&P:400 Mid Cap 16.4%	MSCI:Emer Markets 11.0%
Barclays:Aggregate Index 0.2%	S&P:400 Mid Cap 11.8%	S&P:400 Mid Cap 22.4%	S&P:500 15.7%	S&P:400 Mid Cap 10.3%
3 Month T-Bill 0.0%	MSCI:Emer Markets 4.7%	Russell:2000 Index 21.3%	Russell:2000 Index 14.3%	Russell:2000 Index 8.2%
MSCI:Emer Markets (3.4%)	MSCI:EAFE US$ 4.3%	MSCI:EAFE US$ 13.6%	MSCI:EAFE US$ 6.6%	S&P:500 8.1%
S&P:400 Mid Cap (4.0%)	Barclays:Aggregate Index 4.0%	MSCI:Emer Markets 7.6%	MSCI:Emer Markets 4.8%	MSCI:EAFE US$ 6.3%
MSCI:EAFE US$ (5.9%)	Russell:2000 Index 3.9%	Barclays:Aggregate Index 2.4%	Barclays:Aggregate Index 4.1%	Barclays:Aggregate Index 4.6%
Russell:2000 Index (7.4%)	3 Month T-Bill 0.0%	3 Month T-Bill 0.1%	3 Month T-Bill 0.1%	3 Month T-Bill 1.6%

U.S. Equity Returns

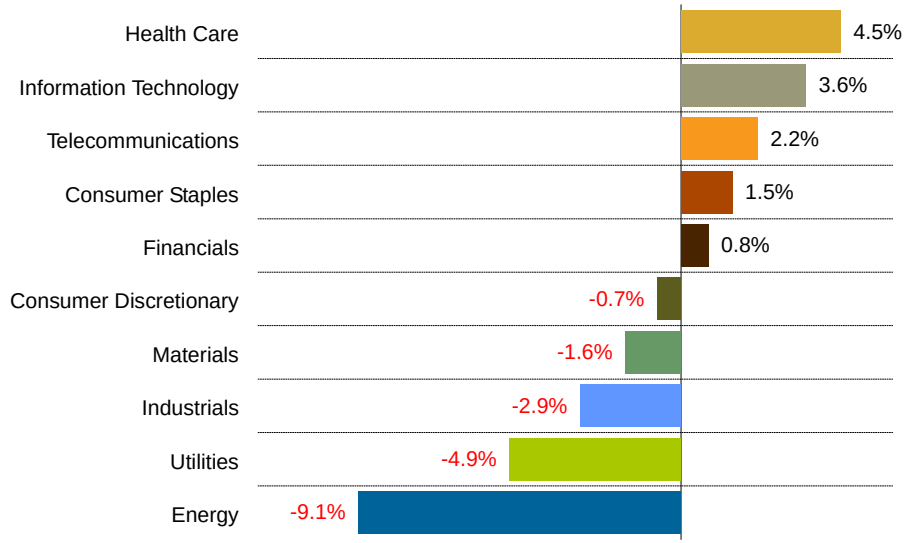
Periods Ending September 30, 2014

Economic Sector Exposure (Russell 3000)



Pie chart may not sum to 100% due to rounding
Source: Russell Investment Group

Quarterly Returns (Russell 3000)



- Energy worst performer as oil prices dropped more than 20% since August 1
- In a volatile quarter, high quality stocks beat low quality
- Companies with high foreign exposure suffered

S&P 500 Index Valuation Measures

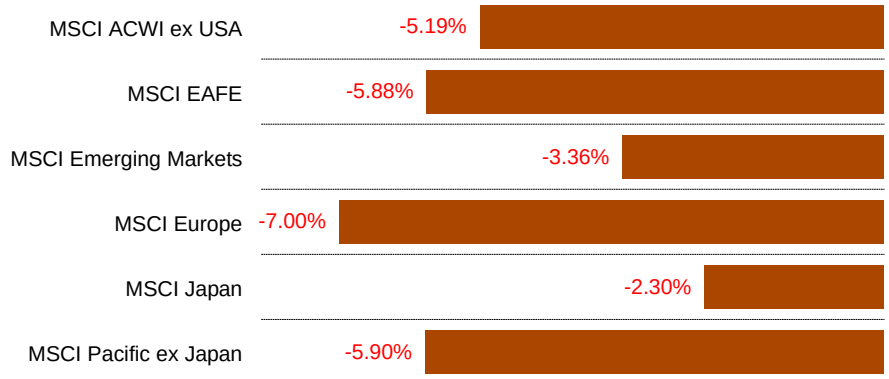
U.S. Equity: Valuation Measures			Historical Averages			
Valuation Measure	Description	Latest	1-year ago	5-year avg.	10-year avg.	25-year avg.*
P/E	Price to Earnings	15.3x	14.2x	13.4x	13.8x	15.6x
CAPE	Shiller's P/E	26.3	25.0	22.1	22.9	25.2
Div. Yield	Dividend Yield	1.9%	2.0%	2.0%	2.0%	2.1%
REY	Real Earnings Yield	3.8%	3.7%	4.2%	3.2%	2.2%
P/B	Price to Book	2.7	2.6	2.3	2.4	2.9
P/CF	Price to Cash Flow	10.7	10.6	9.2	9.7	11.3
EY Spread	EY Minus Baa Yield	1.8%	1.5%	2.1%	1.2%	-0.7%

Source: JPM Guide to the Markets, September 30, 2014

International Equity Returns

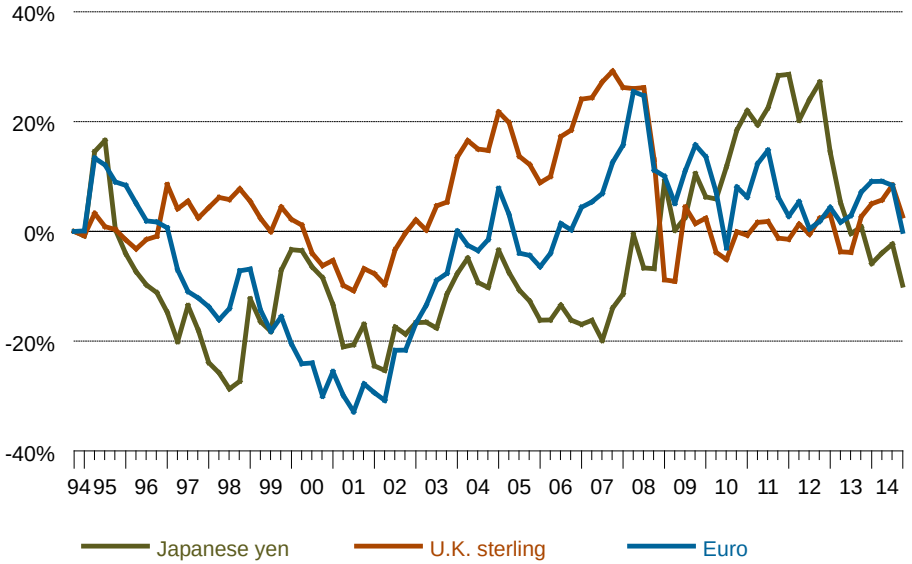
Periods Ending September 30, 2014

Regional Quarterly Performance (U.S. Dollar)



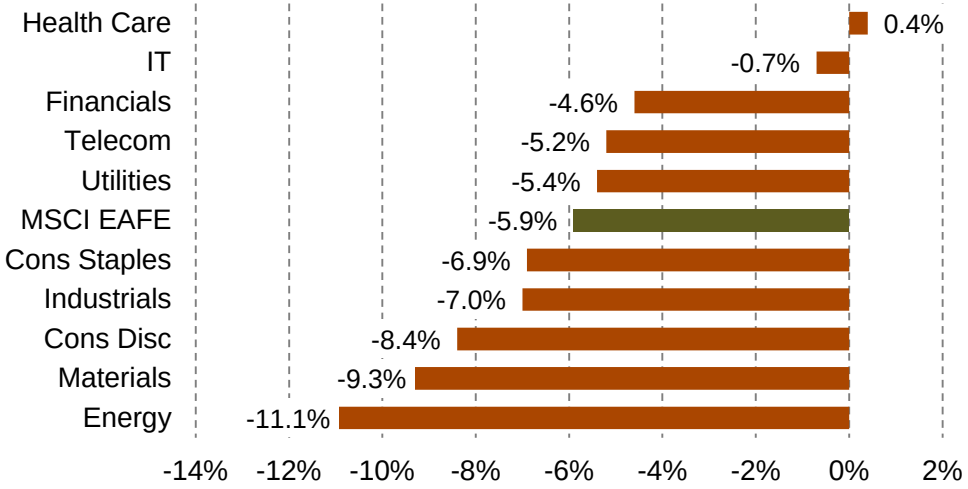
Source: MSCI

Major Currencies' Cumulative Returns (vs. U.S. Dollar)



*Euro returns from 1Q99. German mark prior to 1Q99.
Source: MSCI

MSCI EAFE Sector Returns



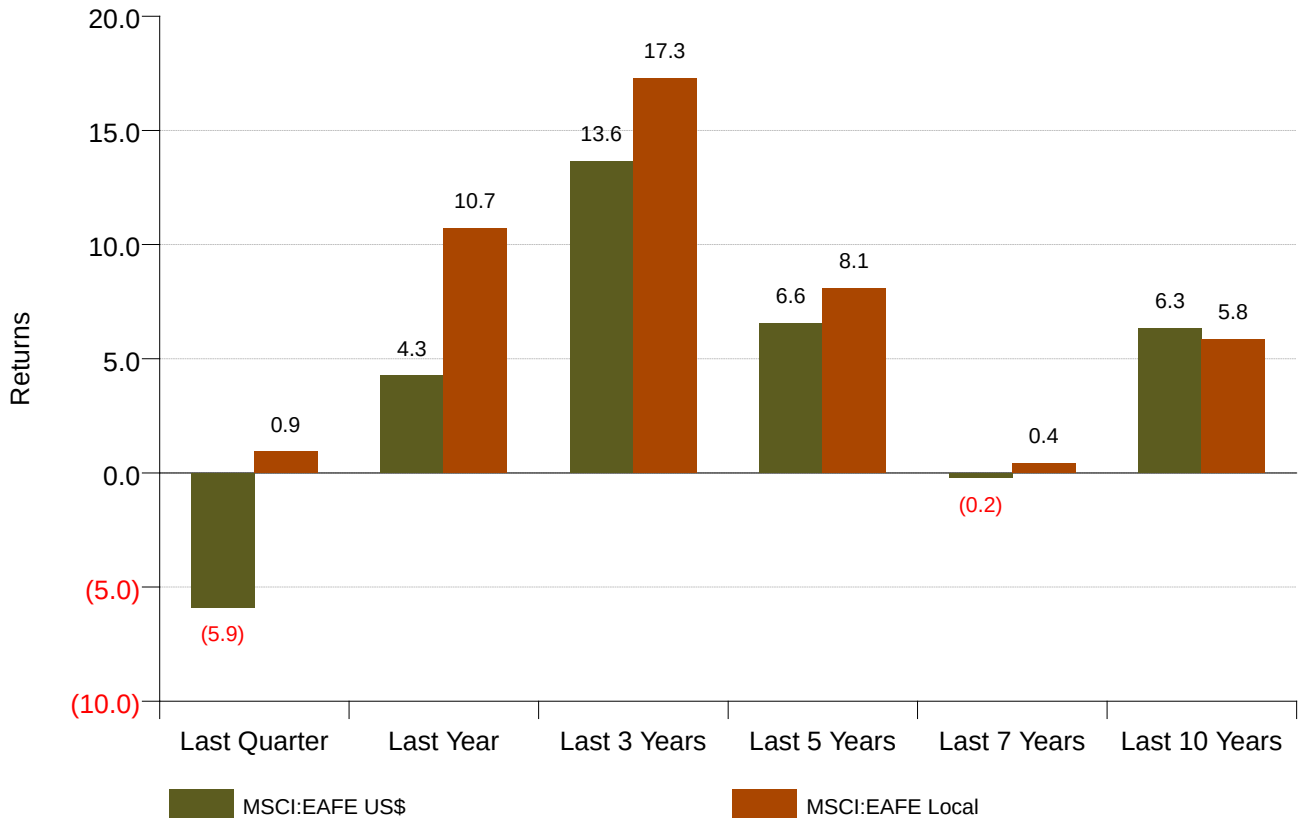
Source: Barrow Hanley Quarterly Benchmark Review

- ACWI ex-U.S. dropped in the quarter and trailed the U.S.; Europe lagged (-7.0%)
- The euro, yen and pound depreciated versus the U.S. dollar
- Emerging markets fell but bested developed markets

Domestic vs. Local Currency Returns

Currency Effect on U.S. Investors' International Returns

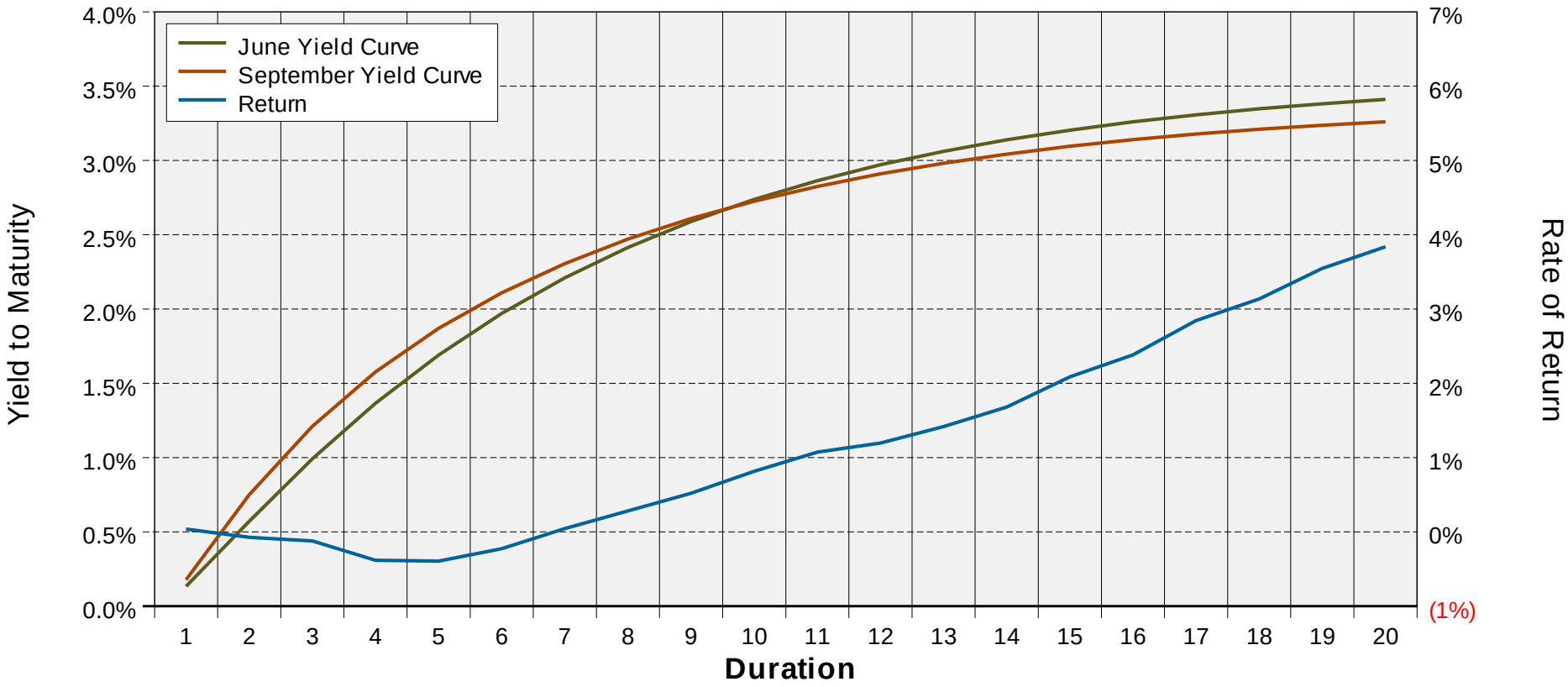
Returns for Various Time Periods
Current Quarter Ending September 30, 2014



- U.S. investors' international equity and bond returns were hurt by the dollar appreciating vs most foreign currencies during the third quarter.
- The dollar strengthened against the Euro, Yen, Pound, and dollar-bloc countries (Australia, New Zealand, Canada).

US Treasury Yield Curve

Yield Curve Change and Rate of Return
One Quarter Ended September 30, 2014

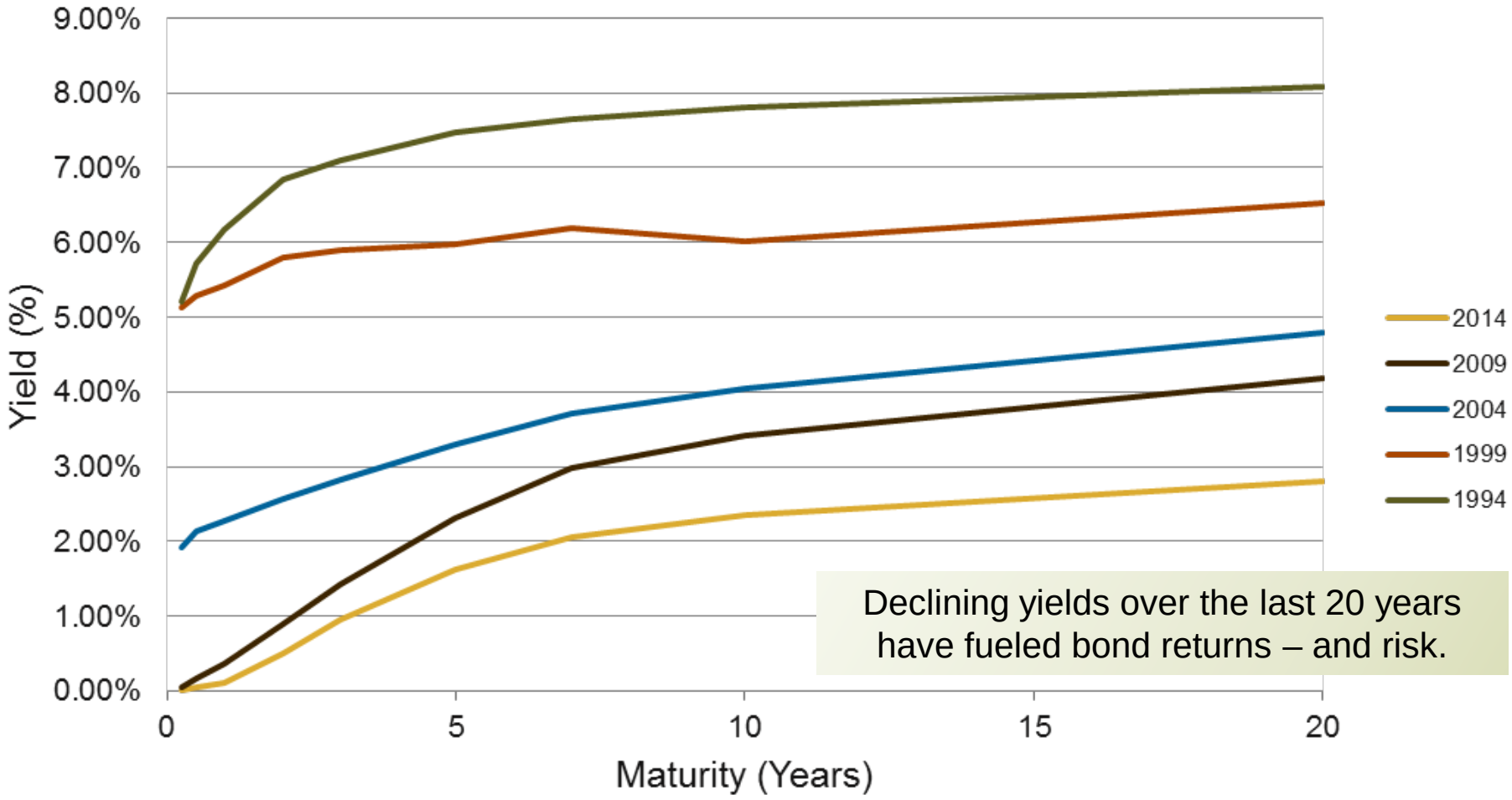


- The yield curve flattened for the third quarter in a row as short rates rose and long rates fell.
- A flattening yield curve suggests expectations of low inflation and/or low growth prospects.

Historical Yield Curves

As of October 31, 2014

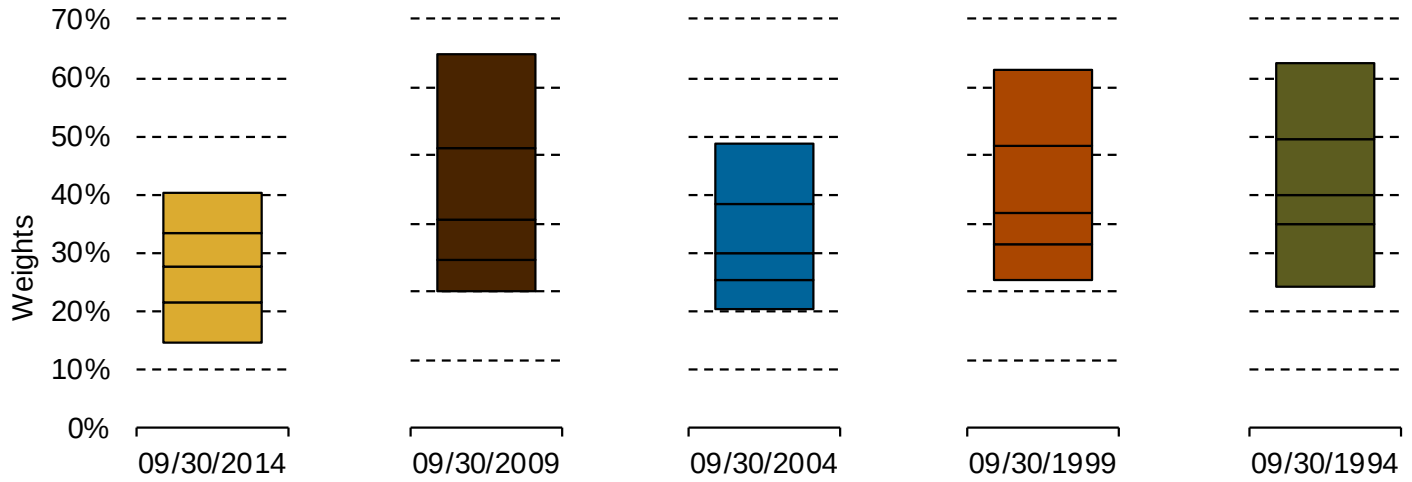
Treasury Yield Curve



Source: U.S. Treasury Department
Excludes 1-Month and 30-Year Treasuries as yields were not available for all time periods.

Historical Domestic Fixed Income Weights

Total Public Fund Database



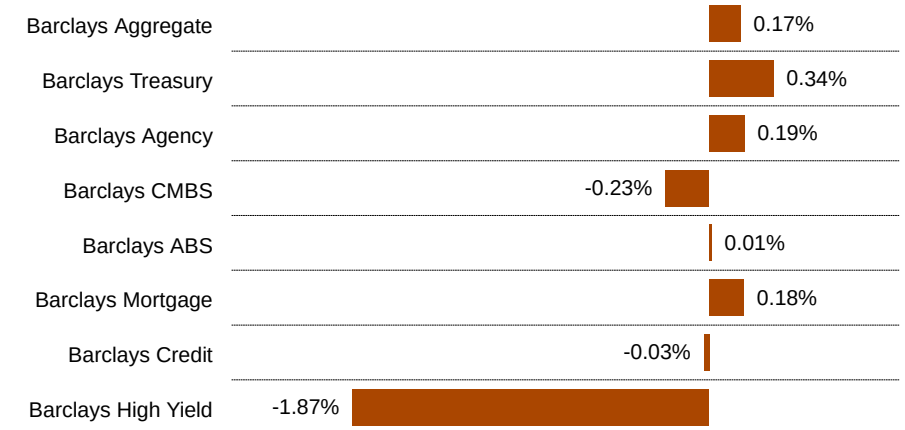
	09/30/2014	09/30/2009	09/30/2004	09/30/1999	09/30/1994
10th Percentile	40.34%	55.03%	48.75%	52.58%	62.41%
25th Percentile	33.25%	41.18%	38.37%	41.45%	49.31%
Median	27.70%	30.71%	29.86%	31.50%	39.74%
75th Percentile	21.40%	24.56%	25.37%	27.15%	34.80%
90th Percentile	14.75%	20.13%	20.30%	21.88%	24.21%
Database Member Count	233	276	240	214	154

- Public Pension Funds have been reallocating assets away from US fixed income for 20 years.
  - Concerns about the negative price impact of potentially rising interest rates continue to influence investors.
- The apparent rise in fixed income in 2009 was caused by equity market losses incurred in 2008.

Total Rates of Return by Bond Sector

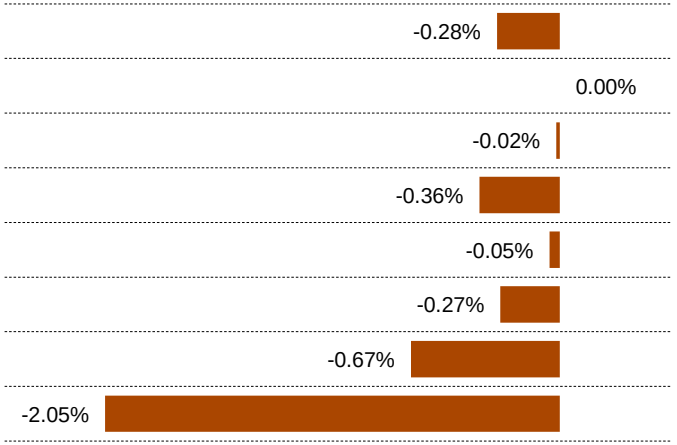
Periods Ending September 30, 2014

Absolute Returns for Quarter ended September 30, 2014

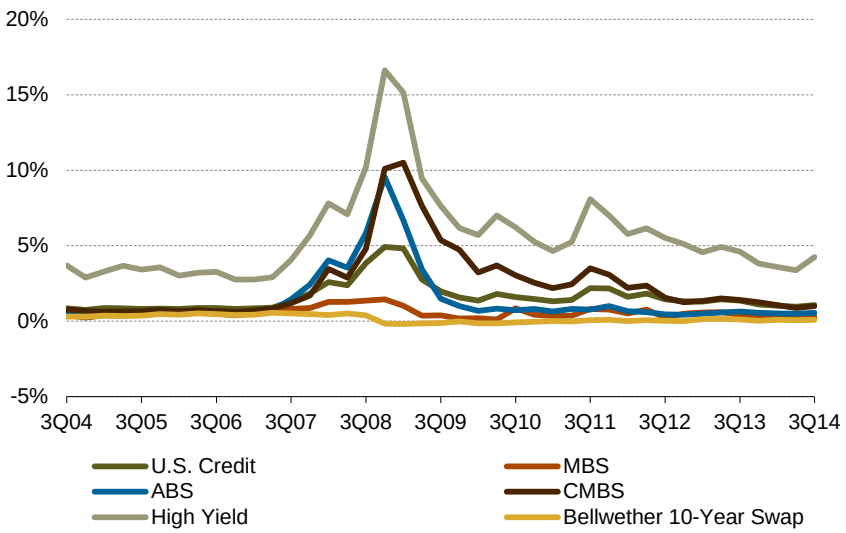


Source: Barclays

Excess Return versus Like-Duration Treasuries



Effective Yield Over Treasuries



Source: Barclays

Real Estate

Style medians and index returns as of 9/30/14

Private Real Estate	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
Real Estate Database (net of fees)	2.38	8.02	11.98	12.77	11.92	5.76	7.59
NCREIF Property**	2.63	8.51	11.26	11.08	10.99	8.55	8.88
Public Real Estate							
REIT U.S. Database	-2.58	14.79	14.26	17.16	16.70	9.40	12.95
NAREIT Equity	-3.14	13.96	13.14	16.68	15.88	8.40	11.61
Global Real Estate							
Global REIT Database	-3.78	8.16	8.50	16.46	12.29	8.74	11.30
EPRA/NAREIT Global Developed	-4.43	7.23	6.75	15.65	11.27	7.84	10.02

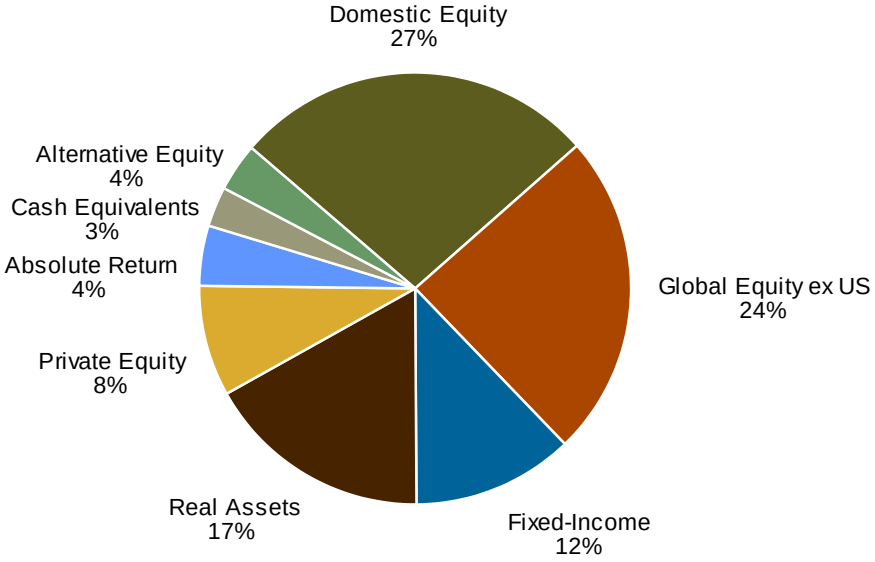
Sources: Callan, Citigroup, JPMorgan Chase & Co.

- The NCREIF Property index's 2.63% return in the third calendar quarter of 2014 was nearly evenly split between income (+1.31%) and capital appreciation (+1.32%).
- A preliminary query of NCREIF tracked 226 institutional asset trades and $8.0 billion in volume.
  - Third quarter trades since 2004 have averaged about $4.9 billion.
- Domestic REITs raised about $16.1 billion during the third quarter of 2014.

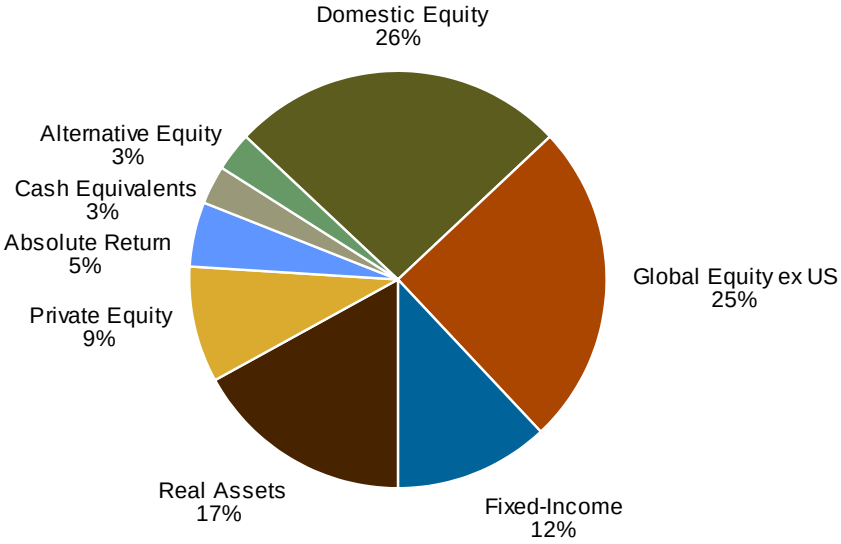
Asset Allocation – Public Employees' Retirement System

Quarter Ending September 30, 2014

Actual Asset Allocation



Target Asset Allocation



Asset Class	$000s Actual	Weight Actual	Target	Percent Difference	$000s Difference
Domestic Equity	2,146,414	27.2%	26.0%	1.2%	96,844
Global Equity ex US	1,914,629	24.3%	25.0%	(0.7%)	(56,113)
Fixed-Income	953,035	12.1%	12.0%	0.1%	7,080
Real Assets	1,343,581	17.0%	17.0%	0.0%	3,477
Private Equity	655,990	8.3%	9.0%	(0.7%)	(53,476)
Absolute Return	352,864	4.5%	5.0%	(0.5%)	(41,284)
Cash Equivalents	235,232	3.0%	3.0%	0.0%	(1,257)
Alternative Equity	281,220	3.6%	3.0%	0.6%	44,731
Total	7,882,965	100.0%	100.0%		

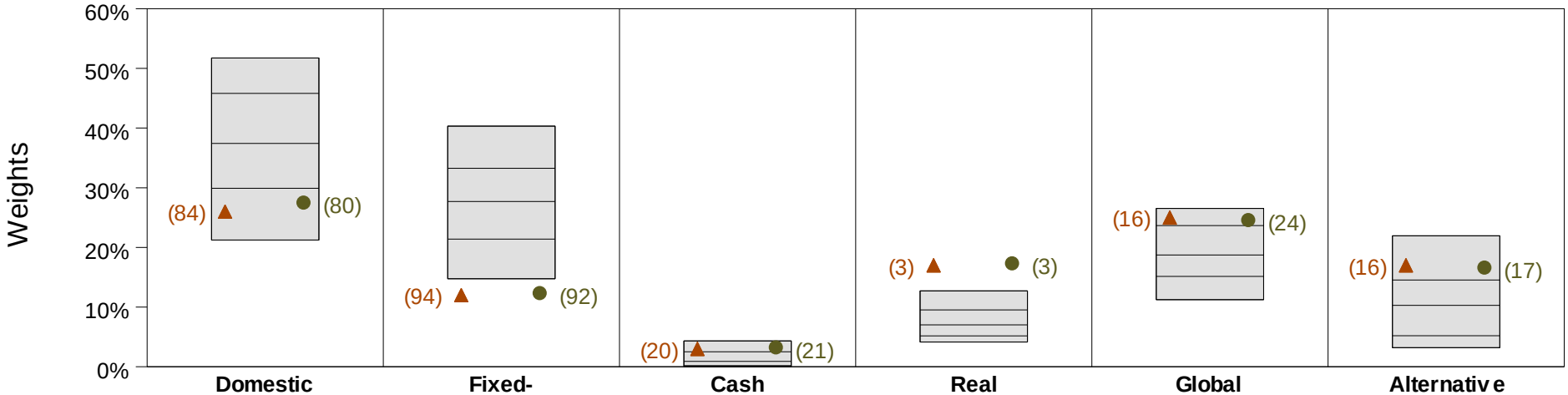
PERS is used as illustrative throughout the presentation.

The other plans exhibit similar results with modest and understandable variations based on strategic target allocations.

Asset Allocation vs. Public Funds (PERS)

Callan Public Fund Database

Asset Class Weights vs Public Fund Sponsor Database



	Domestic Equity	Fixed-Income	Cash Equivalents	Real Assets	Global Equity ex US	Alternative
10th Percentile	51.74	40.34	4.33	12.72	26.53	21.94
25th Percentile	45.82	33.25	2.51	9.52	23.66	14.53
Median	37.44	27.70	0.90	7.03	18.72	10.28
75th Percentile	29.90	21.40	0.19	5.18	15.15	5.21
90th Percentile	21.22	14.75	0.06	4.16	11.25	3.20
Fund ●	27.23	12.09	2.98	17.04	24.29	16.37
Target ▲	26.00	12.00	3.00	17.00	25.00	17.00
% Group Invested	98.19%	97.59%	66.27%	60.84%	95.18%	52.41%

- Total domestic equity is above target while international equity is marginally below target. Real assets and alternatives are high when compared to other public funds. Policy is “growth” oriented as opposed to “income” oriented.

*Note that “Alternative” includes private equity and absolute return

PERS Performance – 3rd Quarter 2014 & Fiscal Year

Relative Attribution Effects for Quarter ended September 30, 2014

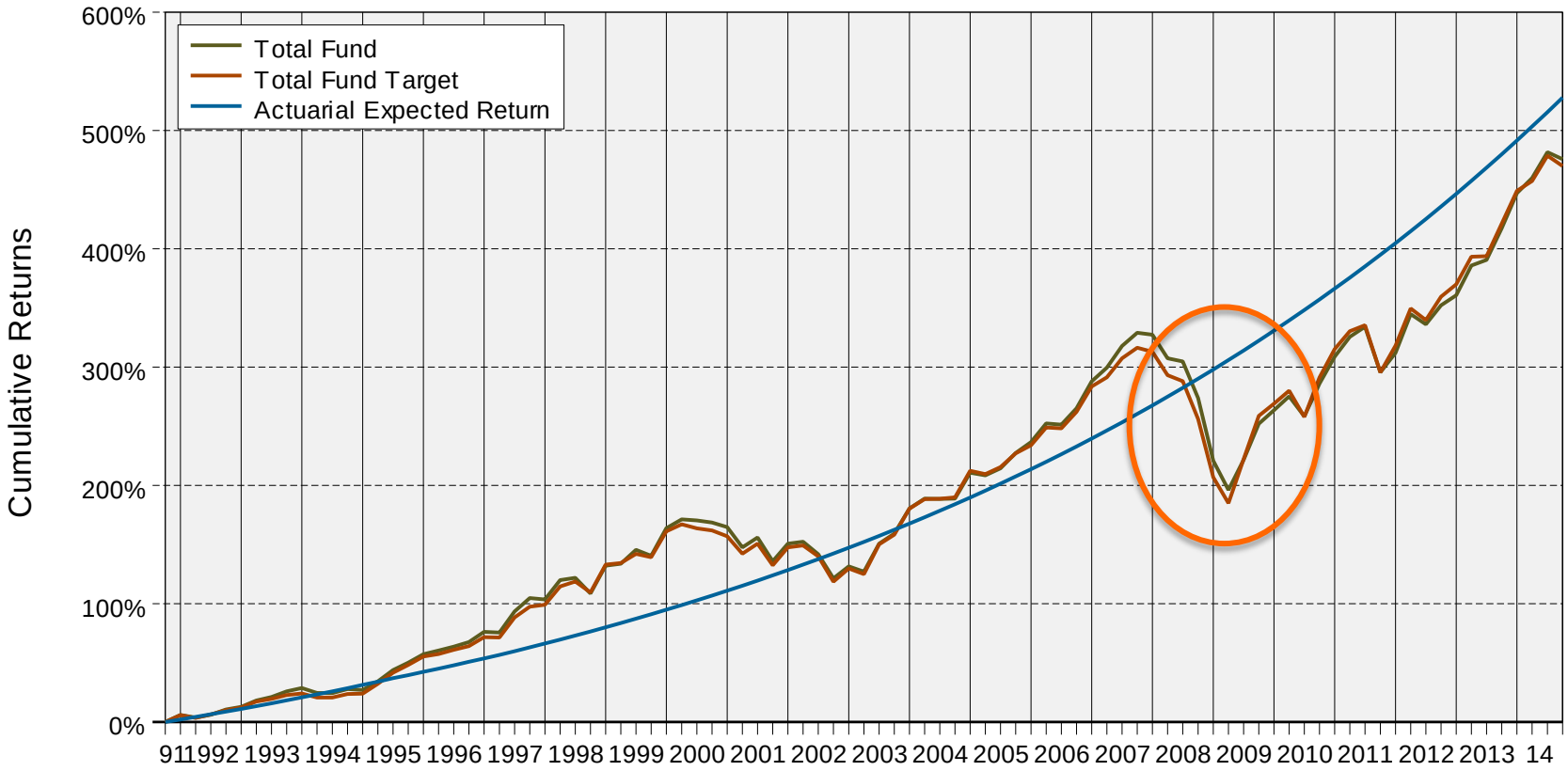
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	27%	26%	(0.69%)	0.01%	(0.19%)	0.02%	(0.17%)
Fixed-Income	12%	12%	(1.15%)	(0.57%)	(0.07%)	0.00%	(0.07%)
Real Assets	17%	17%	0.78%	0.80%	(0.00%)	(0.01%)	(0.01%)
Global Equity ex US	26%	25%	(5.45%)	(5.19%)	(0.07%)	(0.02%)	(0.09%)
Private Equity	8%	9%	5.73%	(4.04%)	0.77%	0.03%	0.80%
Absolute Return	4%	5%	3.96%	1.24%	0.12%	(0.02%)	0.10%
Alternative Equity	4%	3%	(1.99%)	0.50%	(0.09%)	0.01%	(0.08%)
Cash Equivalents	3%	3%	0.06%	0.01%	0.00%	(0.00%)	0.00%
Total			**(1.04%)**	**= (1.51%)**	**+ 0.46%**	**+ 0.01%**	**0.48%**

One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	28%	26%	16.19%	17.76%	(0.41%)	0.19%	(0.22%)
Fixed-Income	12%	12%	2.83%	1.84%	0.12%	(0.03%)	0.10%
Real Assets	17%	17%	12.42%	9.86%	0.42%	0.00%	0.42%
Global Equity ex US	24%	25%	5.69%	5.22%	0.11%	(0.03%)	0.08%
Private Equity	8%	9%	25.22%	9.17%	1.21%	0.01%	1.22%
Absolute Return	4%	5%	11.34%	5.05%	0.27%	0.04%	0.30%
Other Alternatives	4%	3%	15.65%	15.43%	0.01%	0.04%	0.05%
Cash Equiv	3%	3%	0.24%	0.05%	0.01%	0.00%	0.01%
Total			**11.27%**	**= 9.32%**	**+ 1.74%**	**+ 0.21%**	**1.95%**

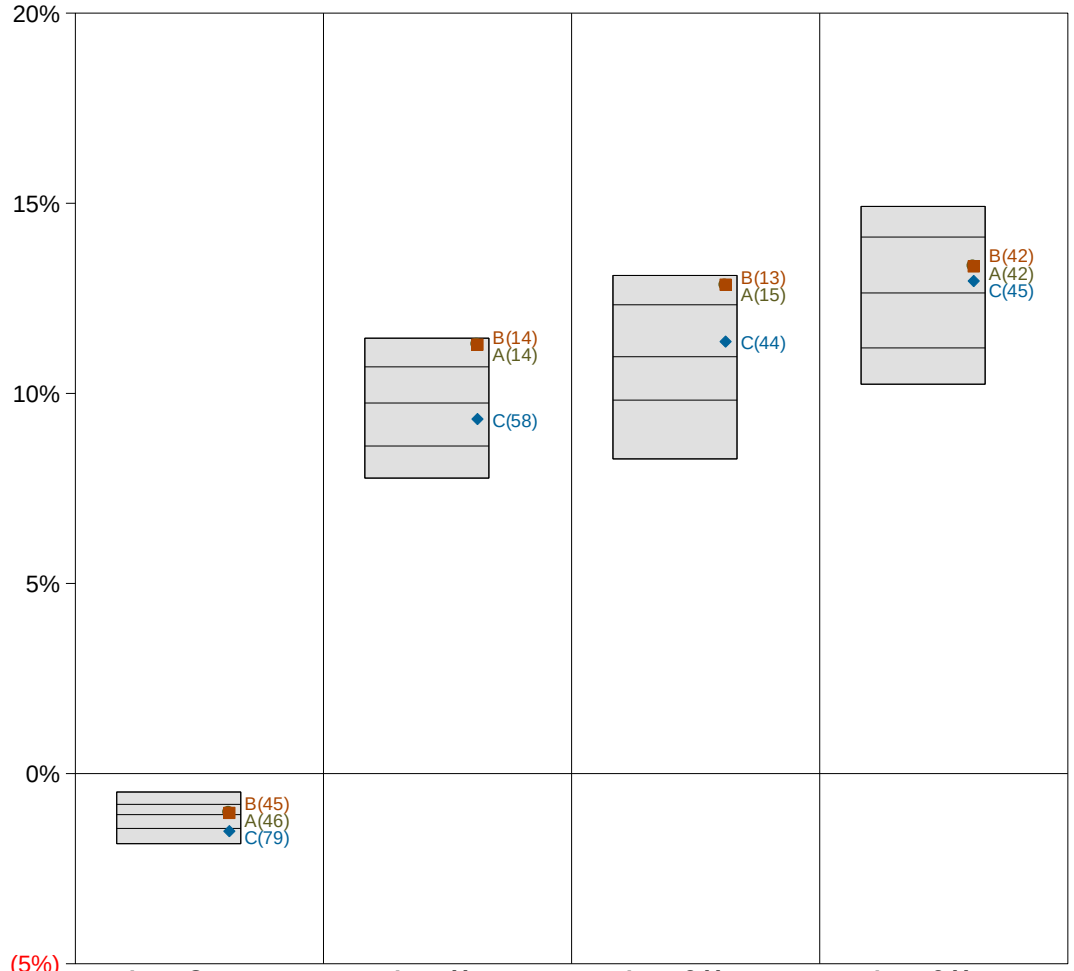
PERS Long-Term Performance as of 9/30/14

Cumulative Returns Actual vs Target



- Prior to the Global Financial Crisis (GFC) which similarly affected all institutional investors, ARMB's investment returns were above the actuarial expected return.
- Subsequently, ARMB investment program has made a significant recovery.
- PERS's five-year annualized return through 9/30/14 is 10.2% vs a target of 9.7%

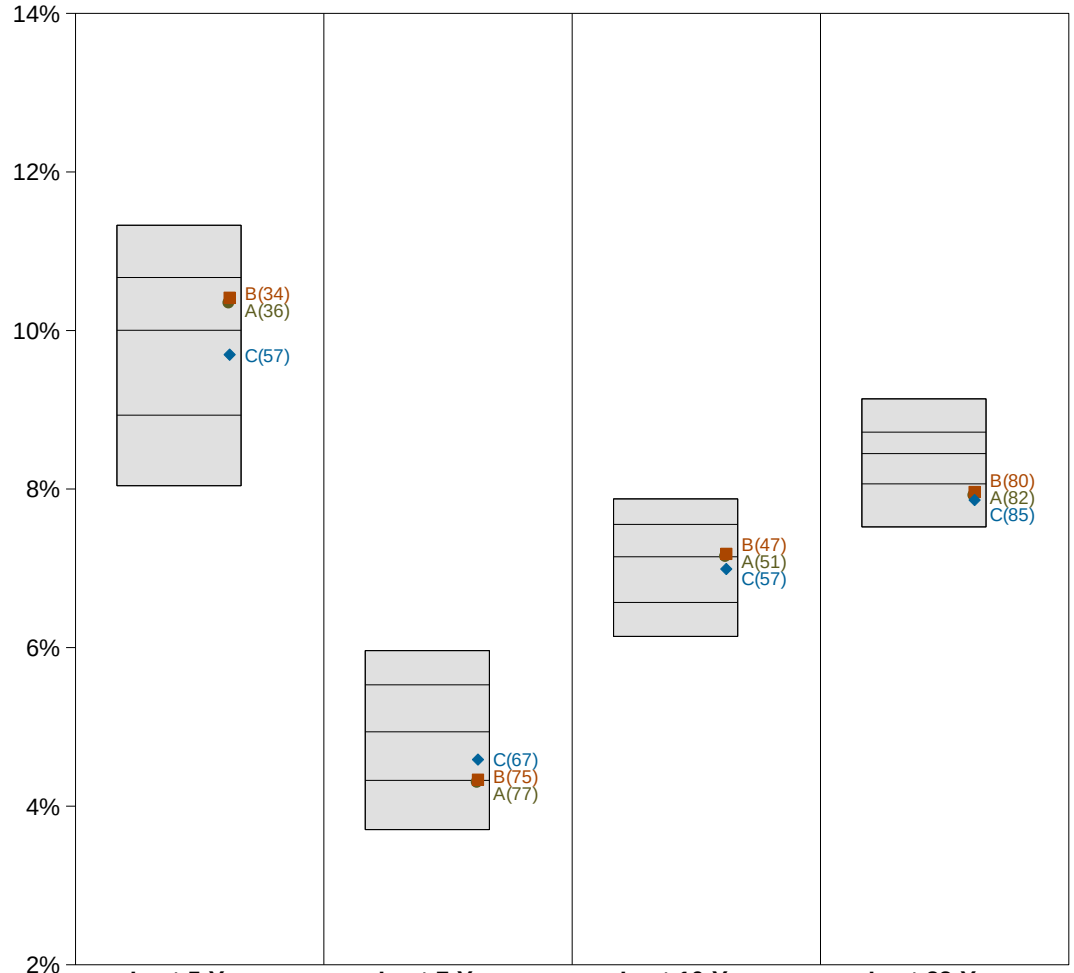
Cumulative Total Fund Returns as of 9/30/14



	Last Quarter	Last Year	Last 2 Years	Last 3 Years
10th Percentile	(0.48)	11.45	13.10	14.91
25th Percentile	(0.81)	10.70	12.33	14.11
Median	(1.08)	9.75	10.96	12.64
75th Percentile	(1.44)	8.61	9.82	11.19
90th Percentile	(1.84)	7.77	8.28	10.24
PERS Total Plan ● A	(1.04)	11.27	12.83	13.33
TRS Total Plan ■ B	(1.03)	11.28	12.86	13.34
Target Index ◆ C	(1.51)	9.32	11.36	12.95

PERS and TRS have outperformed their peer group median for all cumulative periods over the last three (3) years ended September 30, 2014.

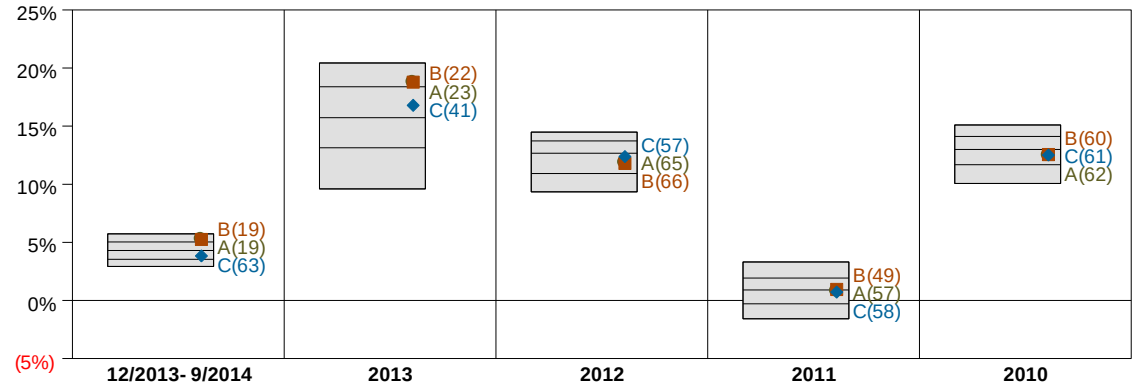
Longer-Term Returns as of 9/30/14



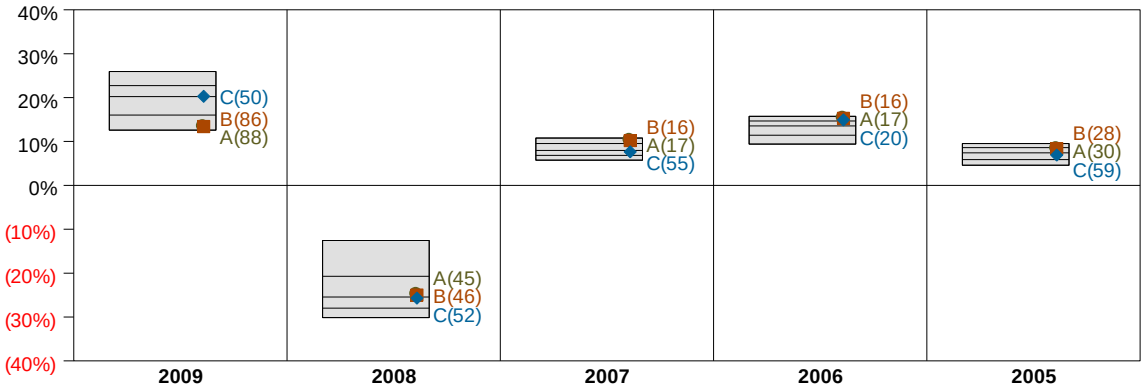
	Last 5 Years	Last 7 Years	Last 10 Years	Last 23 Years
10th Percentile	11.33	5.96	7.88	9.14
25th Percentile	10.67	5.53	7.55	8.72
Median	10.00	4.94	7.15	8.45
75th Percentile	8.93	4.33	6.57	8.07
90th Percentile	8.04	3.70	6.14	7.52
PERS Total Plan ● A	10.34	4.29	7.14	7.91
TRS Total Plan ■ B	10.41	4.33	7.18	7.96
Target Index ◆ C	9.69	4.59	6.99	7.86

- With the exception of the 7-year return (which was affected by 2008-09 market decline), PERS and TRS have exceed their Target Index over all other longer-term periods.

Calendar Period Performance



	12/2013- 9/2014	2013	2012	2011	2010
10th Percentile	5.73	20.44	14.49	3.31	15.10
25th Percentile	5.03	18.39	13.73	1.92	14.11
Median	4.30	15.73	12.67	0.91	13.00
75th Percentile	3.54	13.14	10.92	(0.29)	11.68
90th Percentile	2.93	9.59	9.34	(1.58)	10.06
PERS Total Plan ● A	5.24	18.74	11.81	0.77	12.45
TRS Total Plan ■ B	5.25	18.79	11.79	0.95	12.55
Target Index ◆ C	3.83	16.79	12.38	0.72	12.51

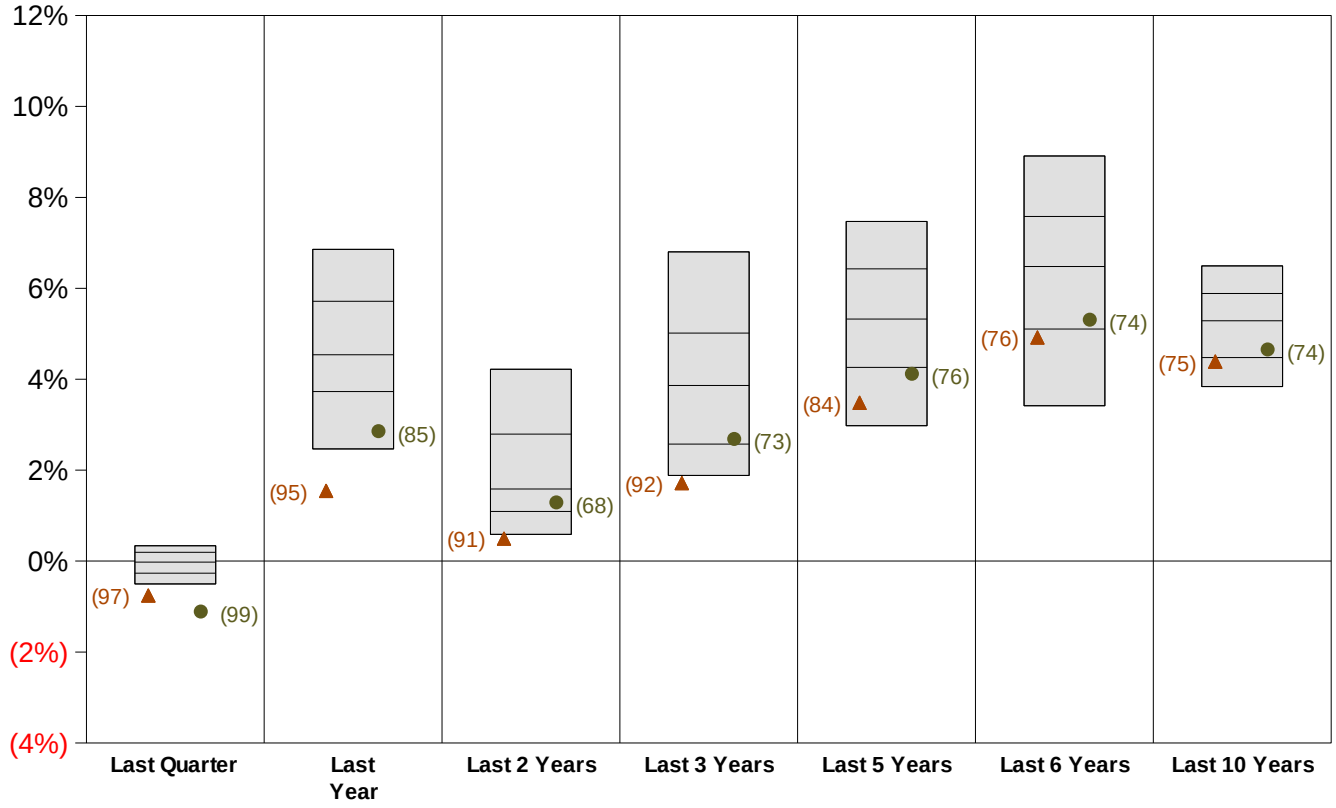


	2009	2008	2007	2006	2005
10th Percentile	25.93	(12.58)	10.77	15.73	9.55
25th Percentile	22.73	(20.71)	9.53	14.67	8.60
Median	20.23	(25.43)	7.97	13.54	7.40
75th Percentile	16.02	(27.97)	6.84	11.42	5.86
90th Percentile	12.57	(30.14)	5.75	9.41	4.59
PERS Total Plan ● A	13.31	(24.91)	10.17	15.24	8.31
TRS Total Plan ■ B	13.40	(24.98)	10.20	15.26	8.38
Target Index ◆ C	20.28	(25.71)	7.64	14.91	6.89

- Very tight range of returns during the three quarters of 2014.
- Wide range of returns during calendar 2013 due to varying fixed-income allocations within the Public Fund universe.
- PERS and TRS have ranked above median in six of the last ten calendar-year periods.

Total Fixed-Income Pool as of 9/30/14

Performance vs Pub Pln- Domestic Fixed (Gross)



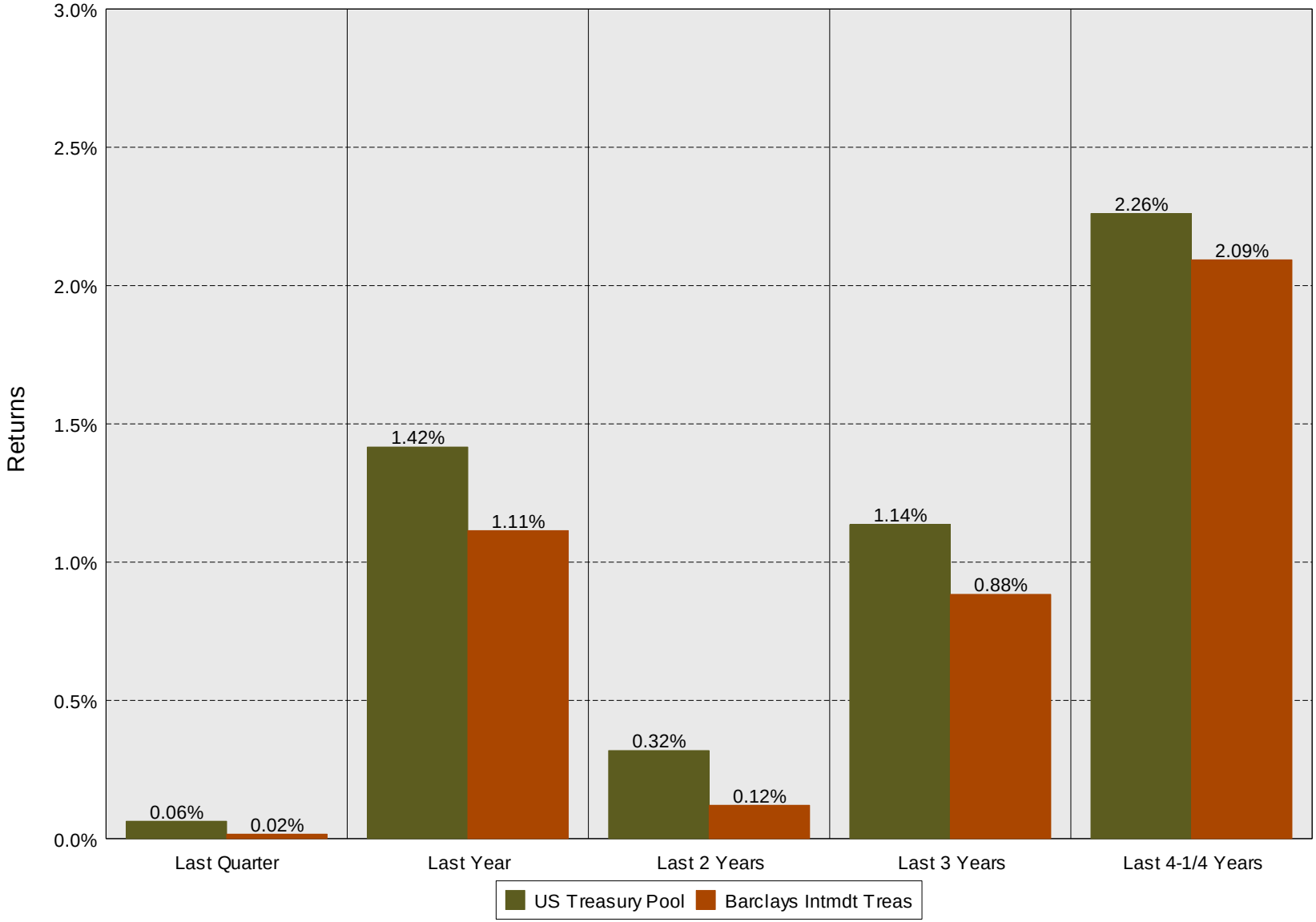
	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	0.34	6.86	4.22	6.80	7.47	8.91	6.49
25th Percentile	0.19	5.71	2.79	5.02	6.43	7.58	5.89
Median	(0.02)	4.54	1.59	3.86	5.32	6.48	5.28
75th Percentile	(0.27)	3.73	1.09	2.57	4.26	5.10	4.48
90th Percentile	(0.50)	2.47	0.59	1.88	2.98	3.42	3.84
Total Fixed-Income Pool ●	(1.14)	2.82	1.25	2.65	4.08	5.28	4.62
Fixed-Income Target ▲	(0.76)	1.55	0.50	1.72	3.48	4.92	4.39

Includes In-House and External Portfolios

- The strategy's returns have exceeded its benchmark over all cumulative periods one year and longer.

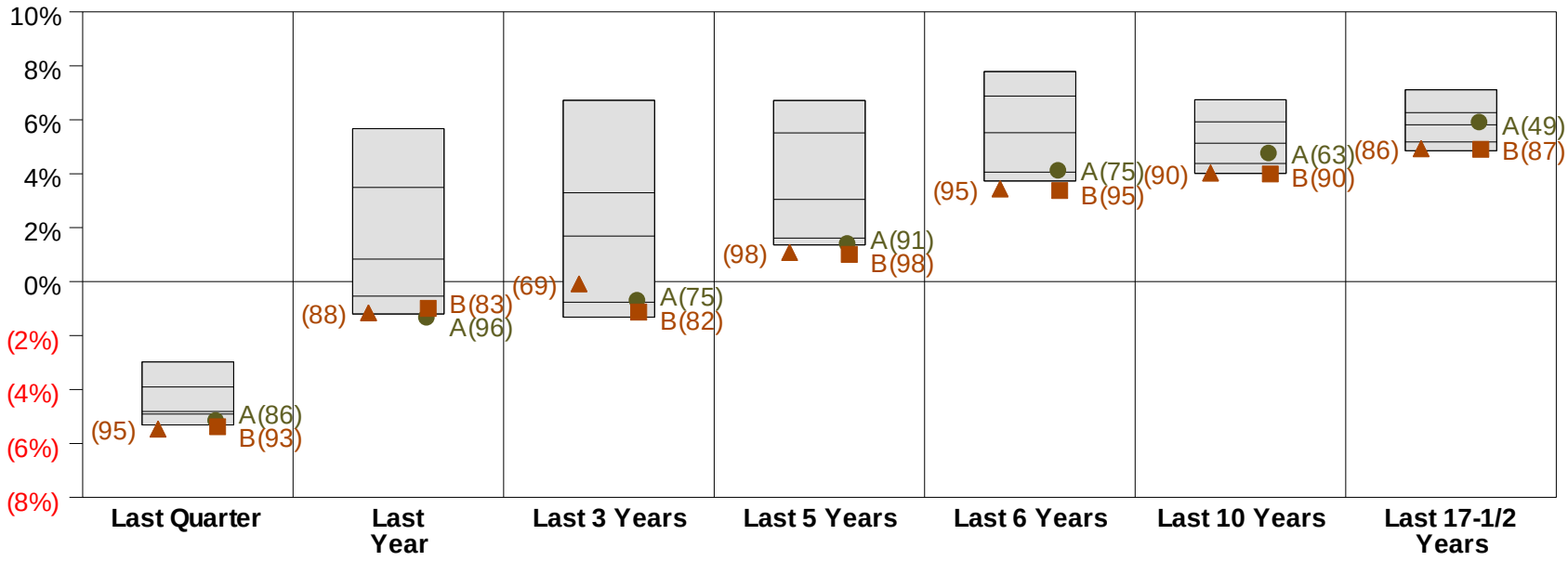
In-House Portfolio as of 9/30/14

Compared to BC Intermediate Treasury Index



Non-U.S. Fixed Income through 9/30/14 – Mondrian

Performance vs CAI Non-U.S. Fixed-Inc Style (Gross)



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years	Last 17-1/2 Years
10th Percentile	(2.97)	5.67	6.72	6.72	7.79	6.74	7.11
25th Percentile	(3.90)	3.49	3.29	5.51	6.88	5.92	6.26
Median	(4.82)	0.84	1.69	3.05	5.52	5.13	5.82
75th Percentile	(4.91)	(0.54)	(0.76)	1.61	4.06	4.38	5.18
90th Percentile	(5.31)	(1.20)	(1.32)	1.36	3.73	4.01	4.85
Mondrian Investment Partners (A)	(5.21)	(1.39)	(0.75)	1.35	4.06	4.71	5.85
Citi WGBI Non-US Idx (B)	(5.38)	(0.99)	(1.13)	1.01	3.38	3.99	4.91
Mondrian Benchmark	(5.47)	(1.15)	(0.08)	1.09	3.44	4.03	4.93

- Returns have lagged the custom benchmark in 9 of 15 quarters since 2011.
- Results are better than benchmark for cumulative periods five years and longer.

High Yield Bonds through 9/30/14 – MacKay Shields

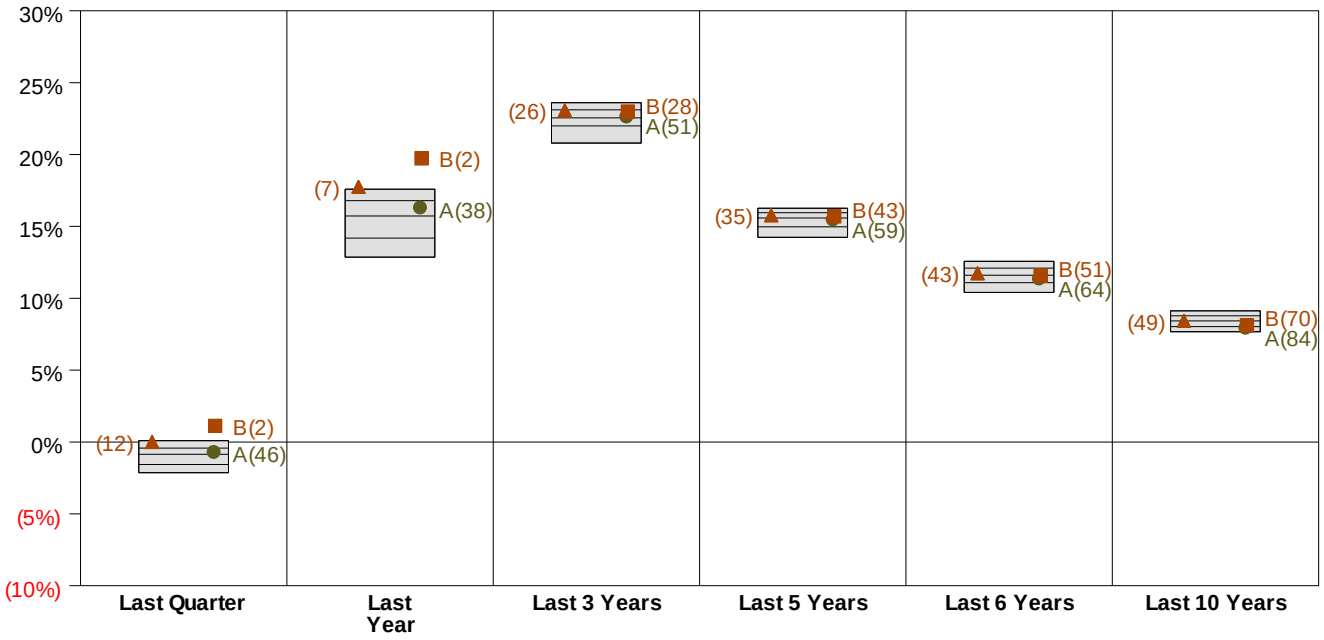
Performance vs CAI High Yield Fixed-Inc Style (Gross)

		Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 9-1/4 Years
10th Percentile		(1.37)	8.52	8.77	12.50	11.84	12.94	9.43
25th Percentile		(1.60)	7.81	7.75	11.51	10.95	12.28	8.87
Median		(1.83)	7.36	7.31	11.12	10.61	11.44	8.26
75th Percentile		(2.00)	6.90	6.63	10.19	9.88	10.68	7.71
90th Percentile		(2.38)	6.42	5.93	9.64	9.27	9.88	7.44
MacKay Shields	A	(1.65)	6.58	6.85	10.40	9.92	10.70	8.05
BC Aggregate Index	B	0.17	3.96	1.10	2.43	4.12	5.17	4.62
High Yield Target	▲	(1.92)	7.23	7.16	10.95	10.40	12.31	8.23

- Benchmark-like returns over last two years and longer cumulative periods.
- Higher yielding strategies have produced better returns than the Barclays Aggregate Index over last year and longer.

Domestic Equity Pool as of 9/30/14

Performance vs Pub Pln- Domestic Equity (Gross)



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	0.10	17.59	23.61	16.26	12.57	9.13
25th Percentile	(0.42)	16.79	23.11	15.95	12.10	8.78
Median	(0.86)	15.72	22.56	15.58	11.60	8.43
75th Percentile	(1.57)	14.18	21.99	14.98	11.09	8.03
90th Percentile	(2.14)	12.86	20.80	14.23	10.41	7.68
Domestic Equity Pool ● A	(0.79)	16.21	22.54	15.38	11.28	7.84
Standard & Poor's 500 ■ B	1.13	19.73	22.99	15.70	11.58	8.11
Russell 3000 Index ▲	0.01	17.76	23.08	15.78	11.74	8.44

- Performance relative to peers has improved over the last five years.
- The “Alternative Equity” pool s designed to dampen downside risk so has not fully participated in the recent equity bull market. We believe it is performing as expected and should be maintained.

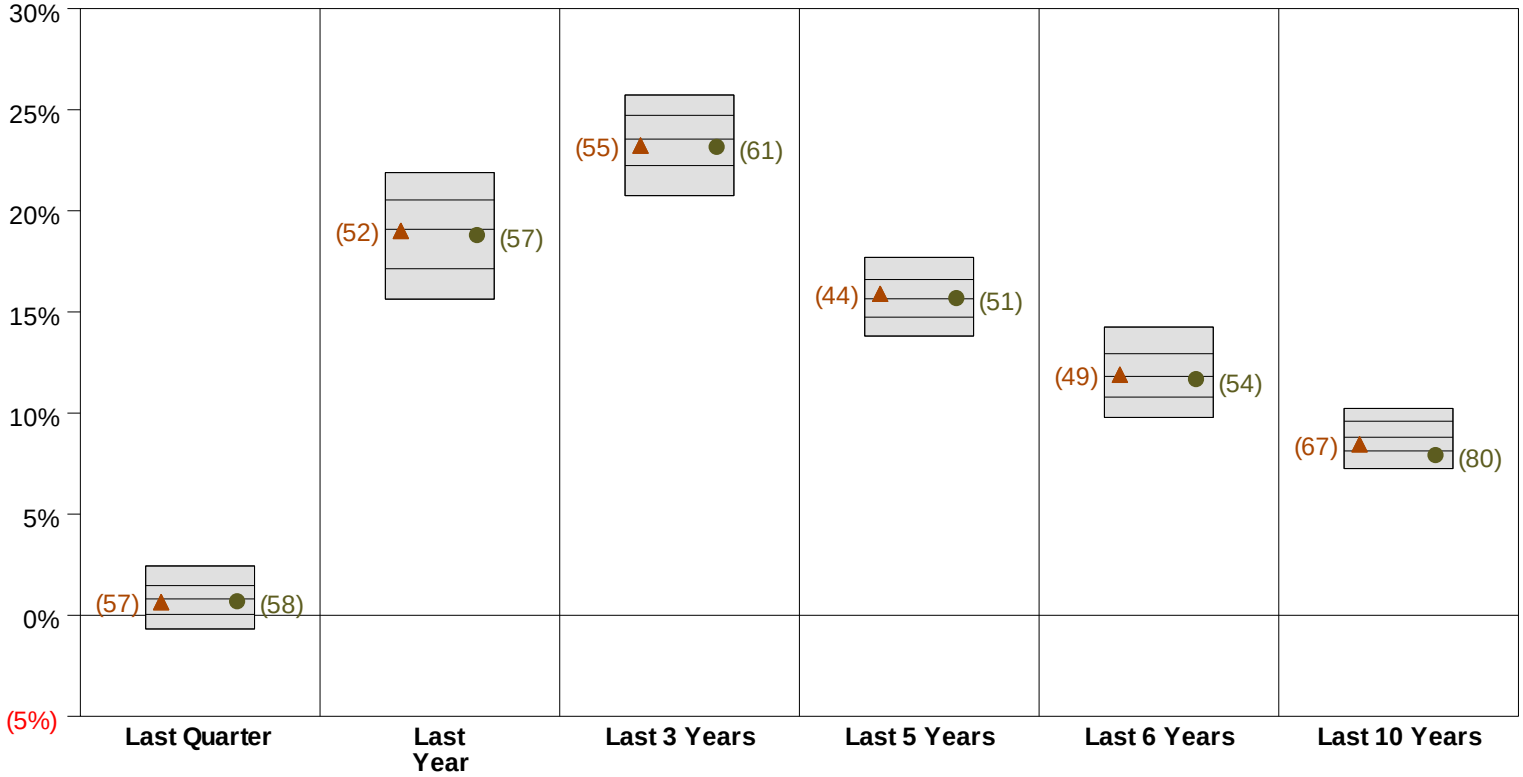
Domestic Equity Component Returns

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6 Years
Total Dom Equity Pool	(0.79%)	16.21%	22.54%	15.38%	11.28%
Russell 3000 Index	0.01%	17.76%	23.08%	15.78%	11.74%
Large Cap Managers	0.61%	18.71%	23.07%	15.59%	11.58%
Large Cap Active	0.07%	17.67%	22.81%	15.42%	11.72%
Large Cap Passive	0.91%	19.30%	23.27%	15.69%	11.43%
Russell 1000 Index	0.65%	19.01%	23.23%	15.90%	11.90%
Small Cap Managers	(6.74%)	4.66%	22.35%	14.98%	10.12%
Small Cap Active	(6.63%)	4.68%	22.54%	15.91%	11.00%
Small Cap Passive	(8.00%)	4.20%	20.79%	12.92%	8.29%
Russell 2000 Index	(7.36%)	3.93%	21.26%	14.29%	9.92%
Alternative Equity	(1.90%)	15.69%	14.87%	-	-

- Newly adopted policy (effective 7-1-13) alters cosmetics of “true” traditional active & passive returns
  - *Alternative Equity* category includes defensive equity oriented portfolios
  - Now includes the Relational portfolio & in-house equity yield portfolio

Large Cap Domestic Equity Pool through 9/30/14

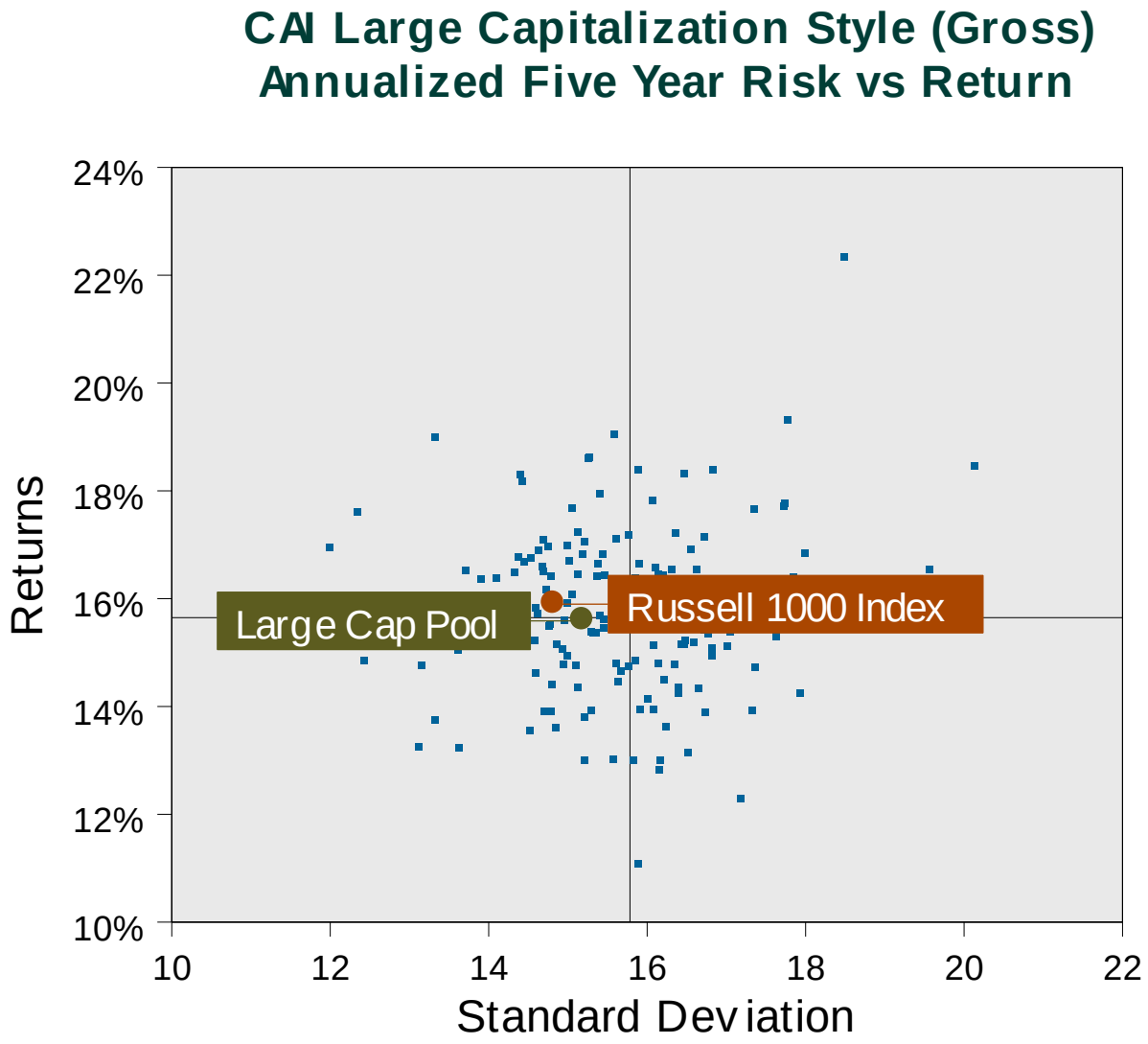
Performance vs CAI Large Capitalization Style (Gross)



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	2.44	21.89	25.73	17.70	14.25	10.23
25th Percentile	1.47	20.54	24.72	16.60	12.93	9.59
Median	0.81	19.09	23.55	15.65	11.82	8.80
75th Percentile	0.05	17.14	22.24	14.74	10.79	8.13
90th Percentile	(0.68)	15.63	20.76	13.81	9.78	7.25
Large Cap Pool ●	0.61	18.71	23.07	15.59	11.58	7.83
Russell 1000 Index ▲	0.65	19.01	23.23	15.90	11.90	8.46

- Performance relative to peers has improved over the last five (5) years.

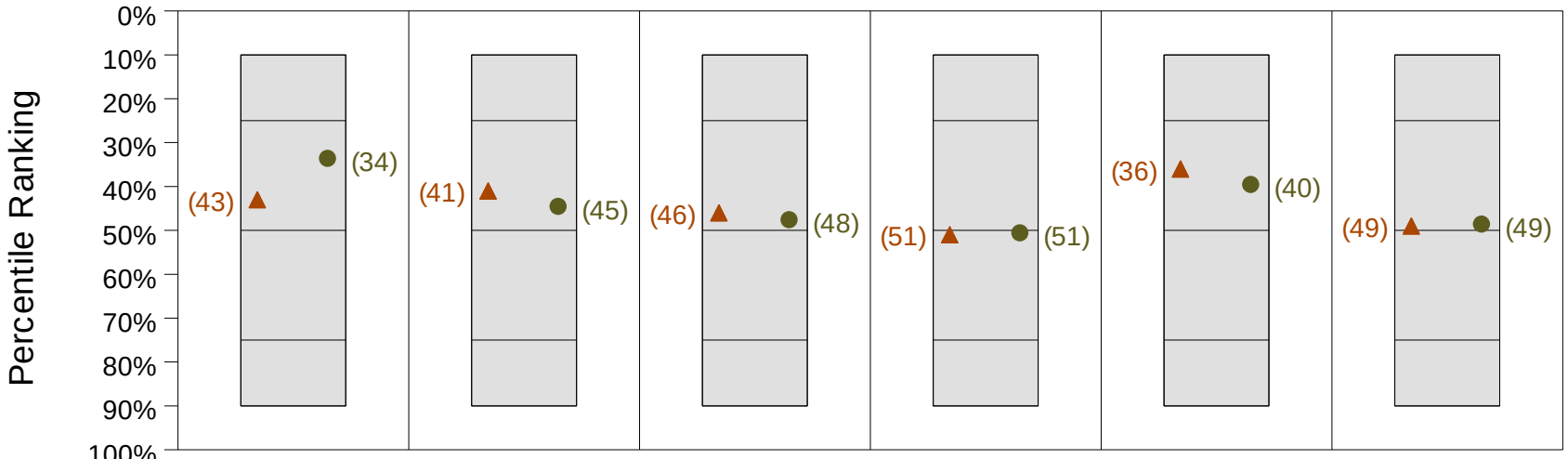
Large Cap Domestic Equity Pool as of 9/30/14



- Nearly 2/3 of large cap allocation is passive, yet market-like returns achieved with similar risk.

Large Cap Total Equity Characteristics as of 9/30/14

Portfolio Characteristics Percentile Rankings
Rankings Against CAI Large Capitalization Style
as of September 30, 2014

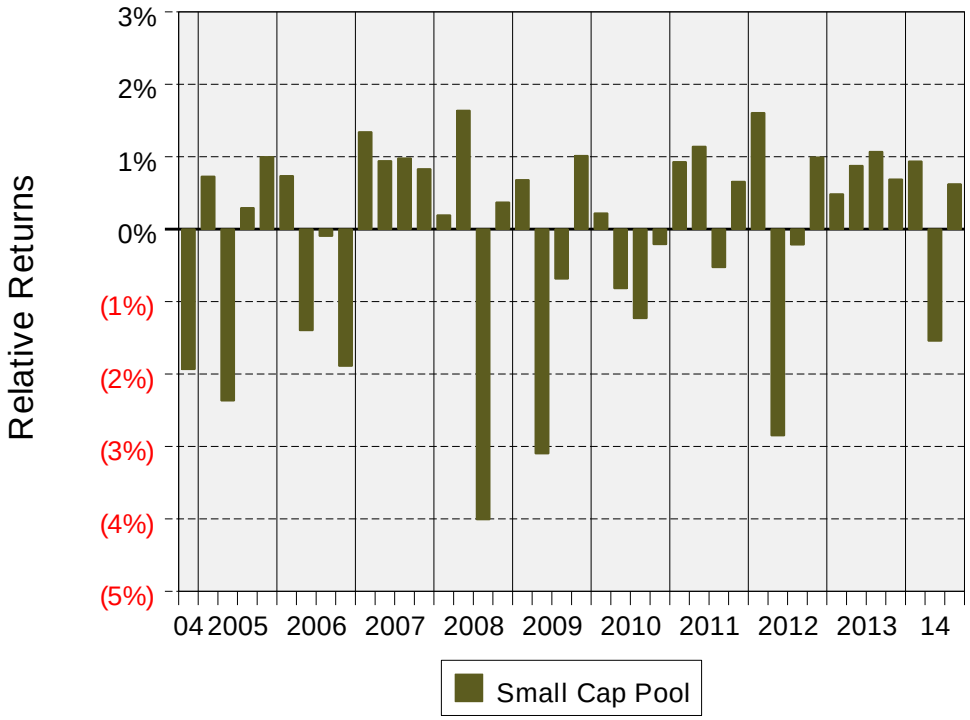


	Weighted Median Market Cap	Price/Fore-casted Earnings	Price/Book	Forecasted Earnings Growth	Dividend Yield	MSCI Combined Z-Score
10th Percentile	76.08	20.18	4.88	19.05	2.38	1.43
25th Percentile	64.84	17.37	4.12	15.22	2.13	0.98
Median	54.46	14.86	2.58	11.92	1.77	(0.04)
75th Percentile	43.17	13.70	1.98	9.94	1.16	(0.57)
90th Percentile	29.07	13.04	1.76	8.91	0.77	(0.77)
Large Cap Pool ●	60.57	15.36	2.60	11.87	1.89	0.01
Russell 1000 Index ▲	56.69	15.83	2.62	11.86	1.95	(0.01)

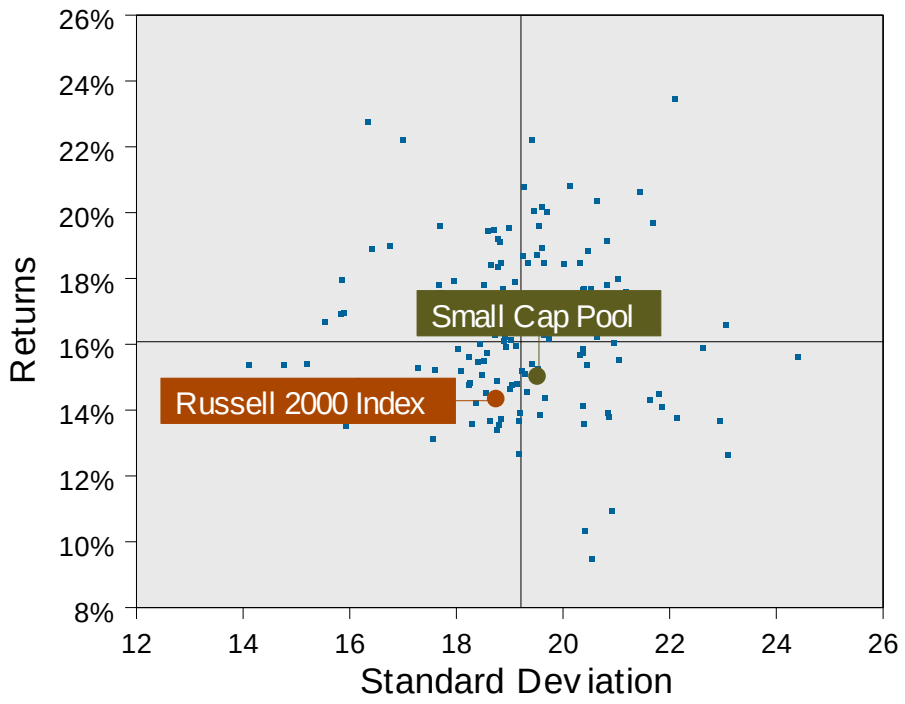
- Characteristics are very similar to the large cap benchmark, the Russell 1000 Index.
- No style bias in the large cap portfolio, as reflected by the Combined Z-Score.

Small Cap Pool through 9/30/14

Relative Return vs Russell 2000 Index



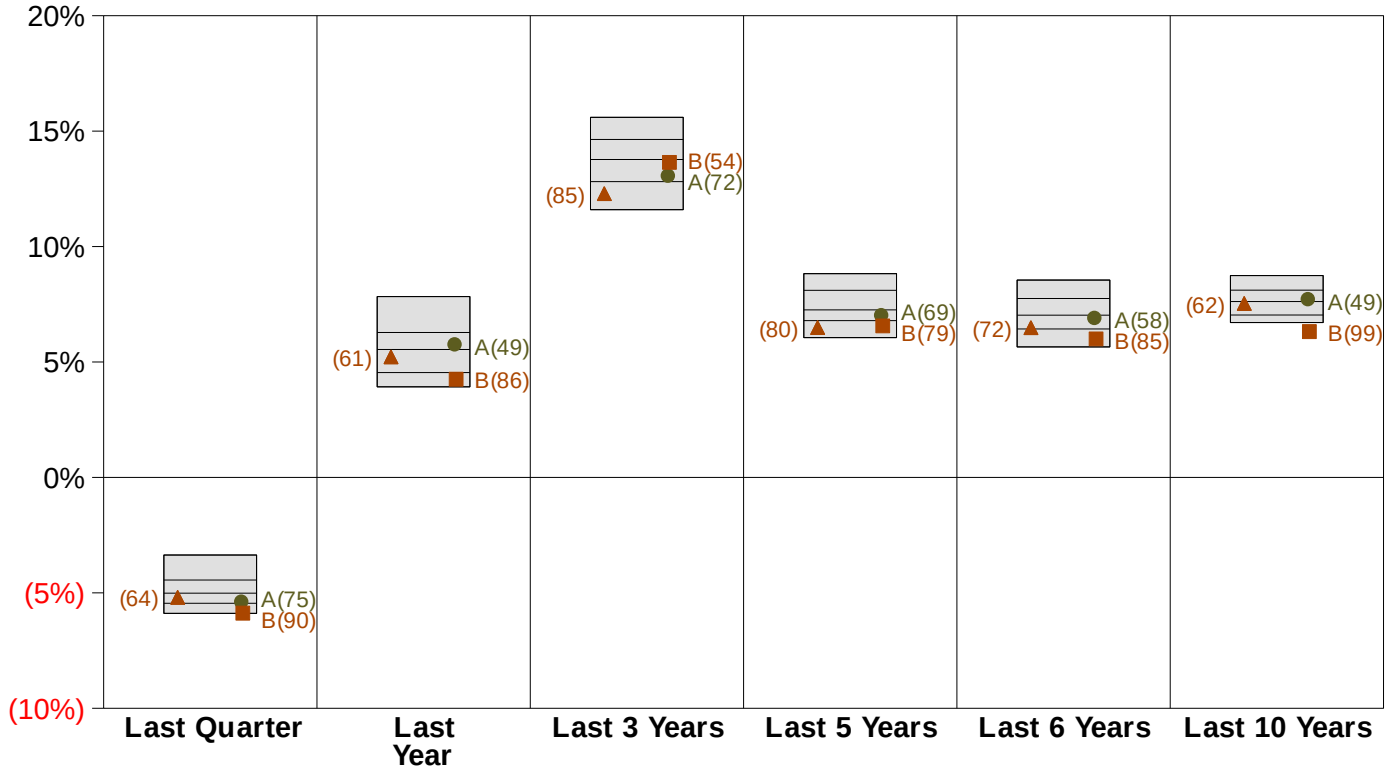
CAI Small Capitalization Style (Gross)
Annualized Five Year Risk vs Return



- Cumulative returns are above benchmark for 1-, 2-, 3- and 5-year periods.
- Quarterly returns have been above benchmark in seven of the last eight quarters.
- Five-year cumulative return volatility is in line with the peer group of small cap managers.

International Equity through 9/30/14

Performance vs Pub Pln- International Equity (Gross)

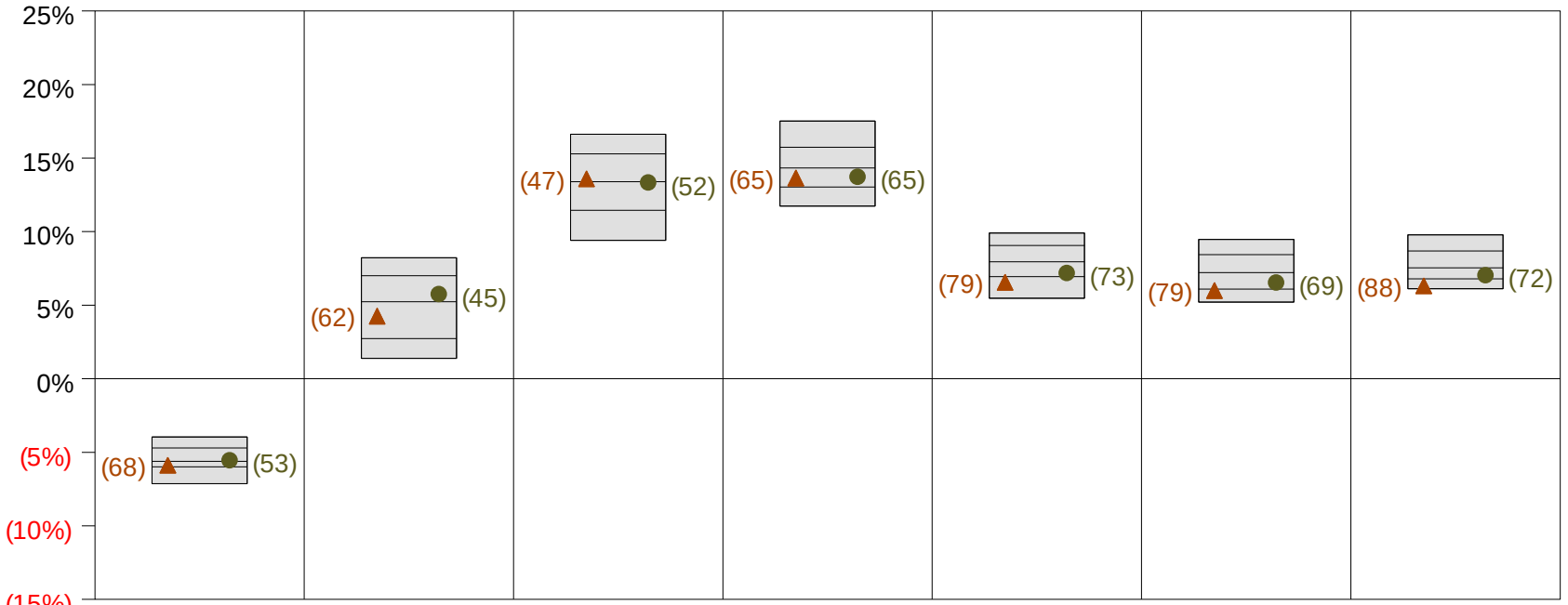


- Relative returns are improving.
- Risk-adjusted returns are in line with median.

		Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile		(3.36)	7.84	15.60	8.83	8.55	8.74
25th Percentile		(4.44)	6.28	14.64	8.11	7.75	8.11
Median		(5.01)	5.55	13.77	7.26	7.03	7.62
75th Percentile		(5.45)	4.55	12.81	6.79	6.43	7.03
90th Percentile		(5.88)	3.92	11.60	6.06	5.66	6.71
Employees' Total Int'l Equity	A	(5.45)	5.69	13.00	6.96	6.84	7.64
MSCI EAFE Index	B	(5.88)	4.25	13.65	6.56	6.00	6.32
MSCI ACWI ex US Index	▲	(5.19)	5.22	12.29	6.50	6.49	7.54

International Equity ex Emerging Markets through 9/30/14

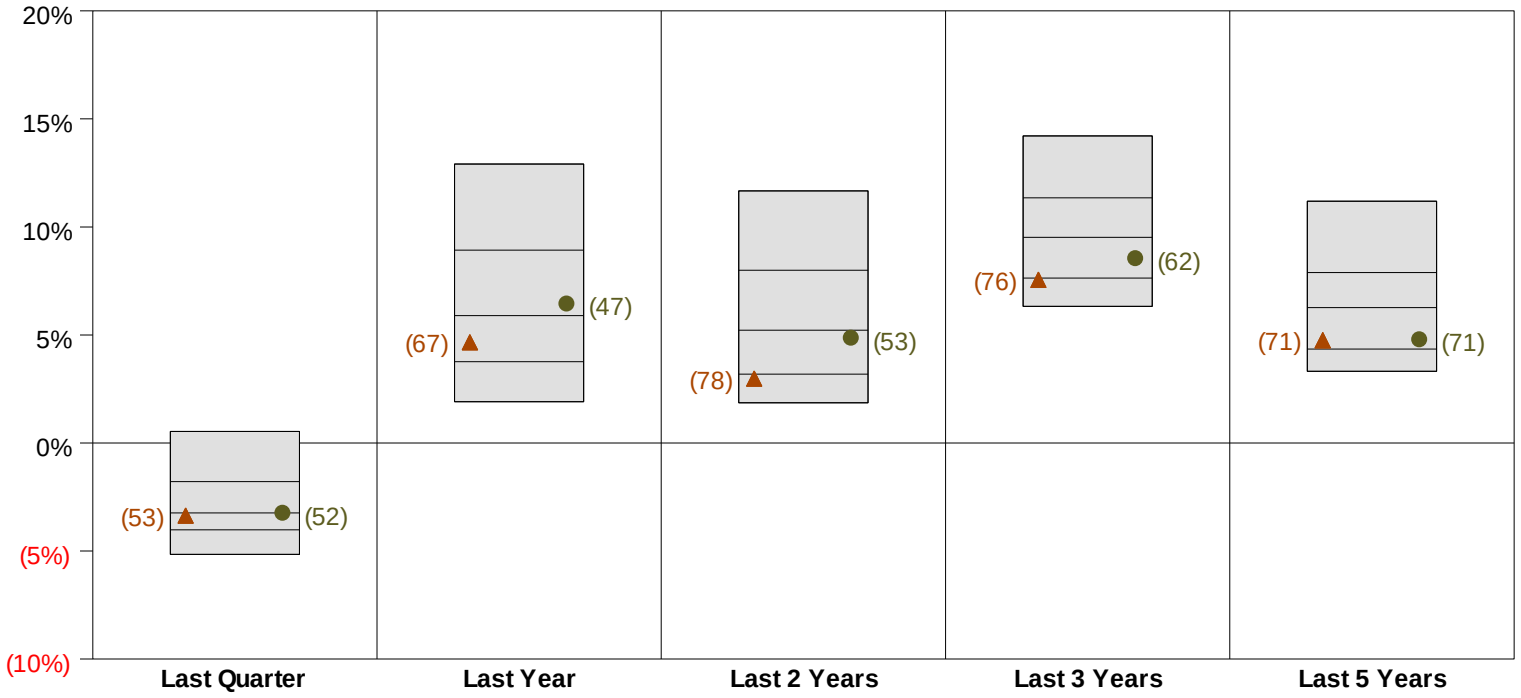
Performance vs CAI Non-U.S. Equity Style (Gross)



	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	(3.96)	8.23	16.61	17.52	9.91	9.48	9.78
25th Percentile	(4.71)	7.01	15.29	15.74	9.06	8.44	8.69
Median	(5.61)	5.23	13.40	14.33	7.95	7.21	7.54
75th Percentile	(5.99)	2.73	11.45	13.04	6.94	6.09	6.80
90th Percentile	(7.13)	1.38	9.41	11.74	5.47	5.21	6.12
Int'l Equity Pool (ex Emerging. Mkt) ●	(5.67)	5.63	13.22	13.61	7.07	6.41	6.92
MSCI EAFE Index ▲	(5.88)	4.25	13.60	13.65	6.56	6.00	6.32

Emerging Markets Pool through 9/30/14

Performance vs CAI Emerging Markets Equity DB (Gross)



	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years
10th Percentile	0.53	12.91	11.66	14.22	11.19
25th Percentile	(1.79)	8.93	8.00	11.35	7.89
Median	(3.24)	5.89	5.22	9.52	6.27
75th Percentile	(4.02)	3.77	3.18	7.63	4.35
90th Percentile	(5.16)	1.91	1.86	6.33	3.32
Emerging Markets Pool ●	(3.31)	6.37	4.79	8.47	4.72
MSCI Emerging Mkts Idx ▲	(3.36)	4.66	2.98	7.56	4.76

- The Emerging Markets Pool has exceeded benchmark in each of last seven quarters.
- Returns in 2011 and 2012 were below median but have improved since then.

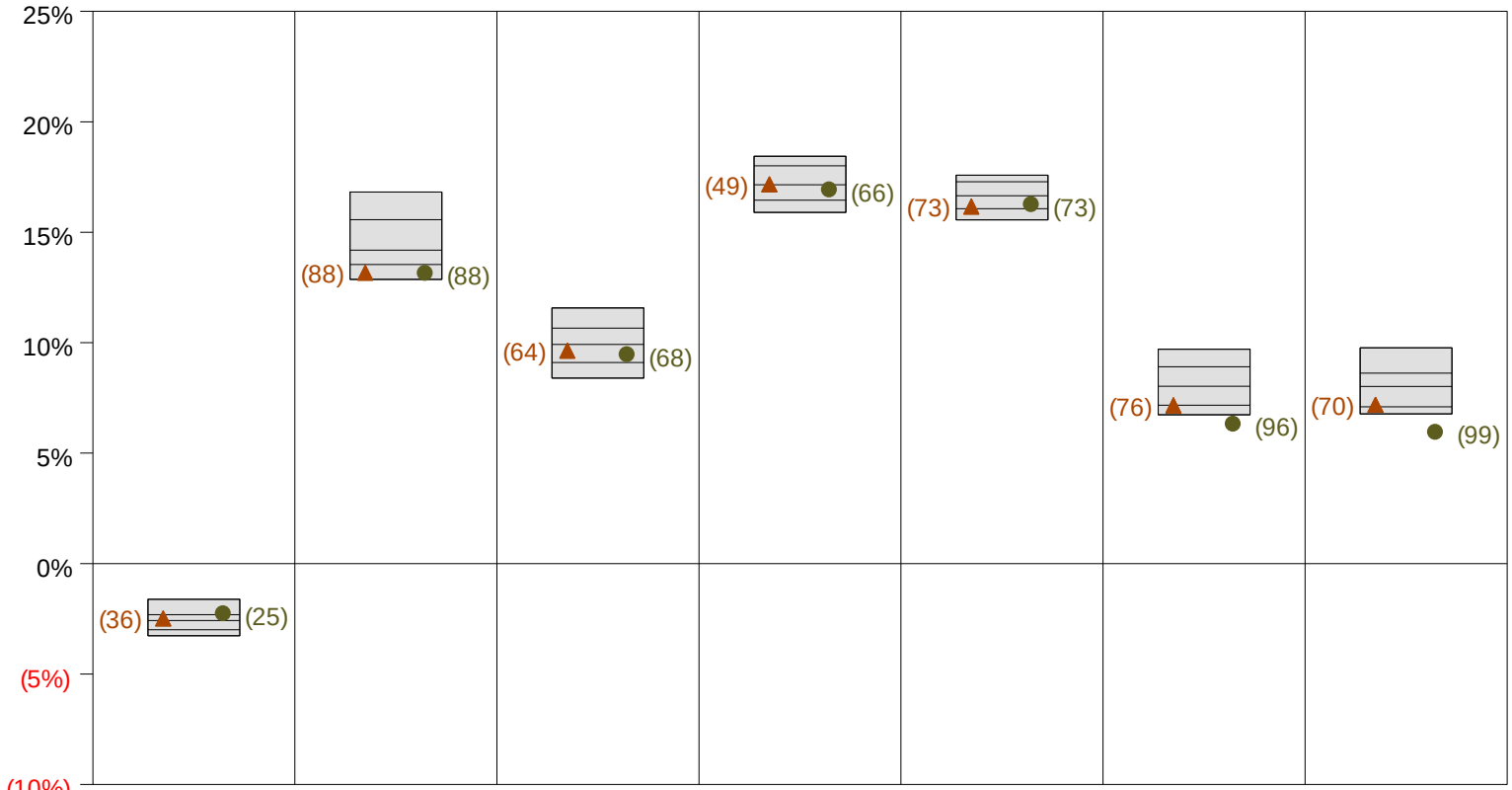
Preliminary Real Assets through 9/30/14

	Last Quarter	Last Year	Last 3 Years	Last 5 Years
Real Assets(Prelim)	**0.75%**	**12.36%**	**11.44%**	**10.36%**
Real Assets Target (1)	0.80%	9.86%	9.43%	9.28%
Real Estate Pool(Prelim)	0.89%	10.91%	10.58%	10.48%
Real Estate Target (2)	2.12%	11.49%	11.74%	11.60%
Private Real Estate	1.88%	10.55%	9.91%	10.20%
NCREIF Total Index	2.63%	11.26%	11.08%	10.99%
REIT Internal Portfolio	(2.33%)	13.08%	16.86%	16.20%
NAREIT Equity Index	(2.48%)	13.17%	17.17%	16.17%
Total Farmland	1.52%	8.52%	13.39%	11.02%
UBS Agrivest	1.83%	9.43%	15.23%	12.02%
Hancock Agricultural	0.81%	6.67%	10.26%	9.37%
ARMB Farmland Target (3)	1.36%	11.42%	15.49%	12.56%
Total Timber	0.56%	10.52%	7.55%	4.46%
Timberland Investment Resources	0.78%	8.19%	5.65%	2.83%
Hancock Timber	(0.06%)	14.95%	11.01%	7.55%
NCREIF Timberland Index	1.47%	10.38%	7.37%	3.58%
TIPS Internal Portfolio	(2.01%)	1.50%	1.41%	4.73%
BC US TIPS Index	(2.04%)	1.59%	1.34%	4.48%
Total Energy Funds *	3.33%	(1.09%)	2.46%	5.27%
CPI + 5%	1.01%	6.58%	6.54%	7.08%
MLP Composite	(0.19%)	34.14%	-	-
Alerian MLP Index	2.73%	25.79%	22.95%	23.58%
Infrastructure	(3.37%)	-	-	-
Brookfield	(0.94%)	-	-	-
Lazard	(5.87%)	-	-	-
Global Infrastructure Idx	(3.78%)	16.70%	14.93%	9.93%

Real estate returns have been provided to Callan by ARMB's real estate consultant.

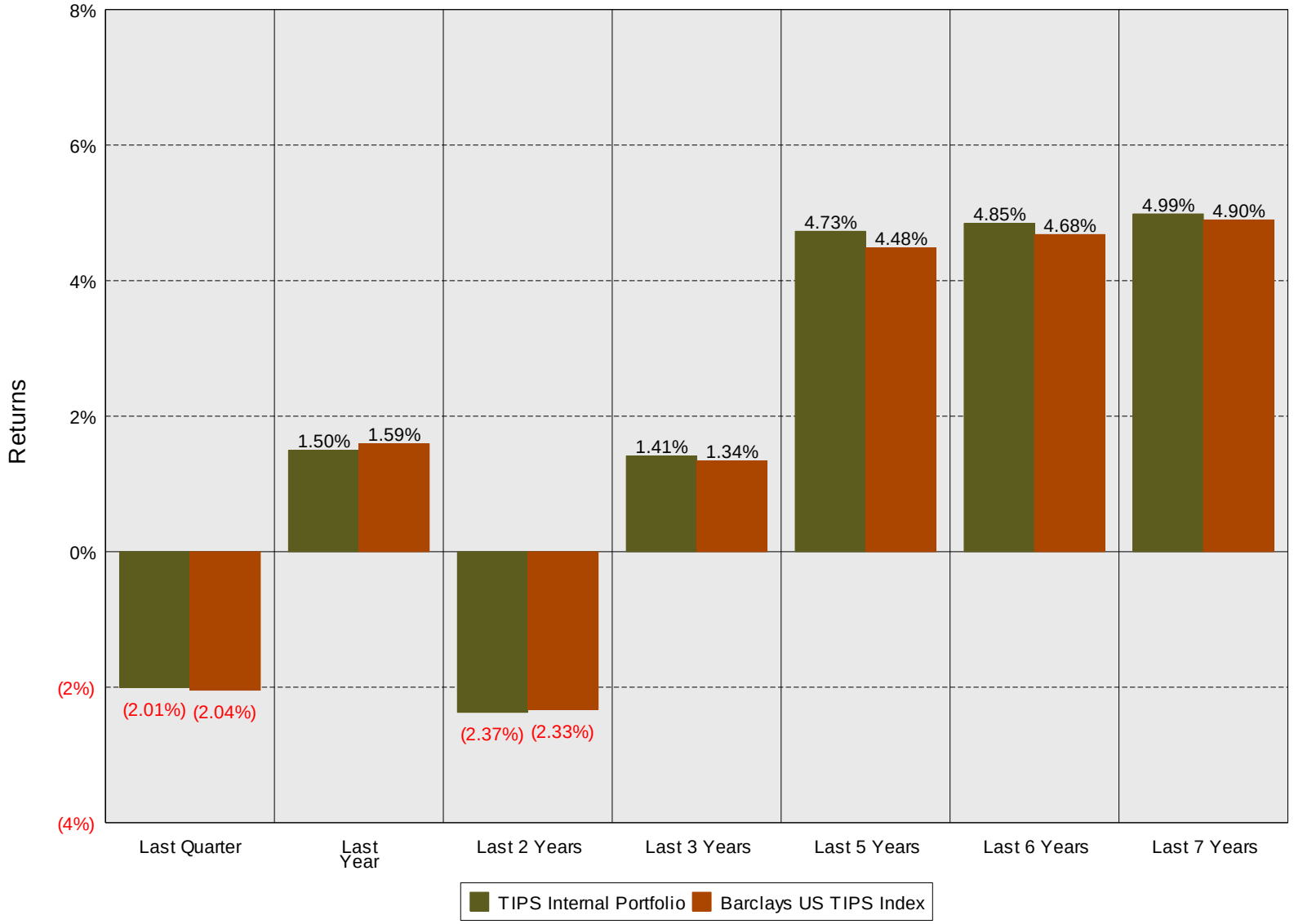
REIT Portfolio through 9/30/14

Performance vs CAI Real Estate-REIT DB (Gross)



	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 9-3/4 Years
10th Percentile	(1.62)	16.82	11.58	18.44	17.58	9.70	9.77
25th Percentile	(2.32)	15.57	10.66	18.00	17.28	8.91	8.62
Median	(2.58)	14.19	9.92	17.15	16.65	8.03	8.02
75th Percentile	(2.99)	13.54	9.10	16.45	16.06	7.17	7.10
90th Percentile	(3.26)	12.86	8.40	15.90	15.56	6.74	6.78
REIT Holdings ●	(2.33)	13.08	9.41	16.86	16.20	6.26	5.89
NAREIT All Equity Index ▲	(2.48)	13.17	9.65	17.17	16.17	7.16	7.19

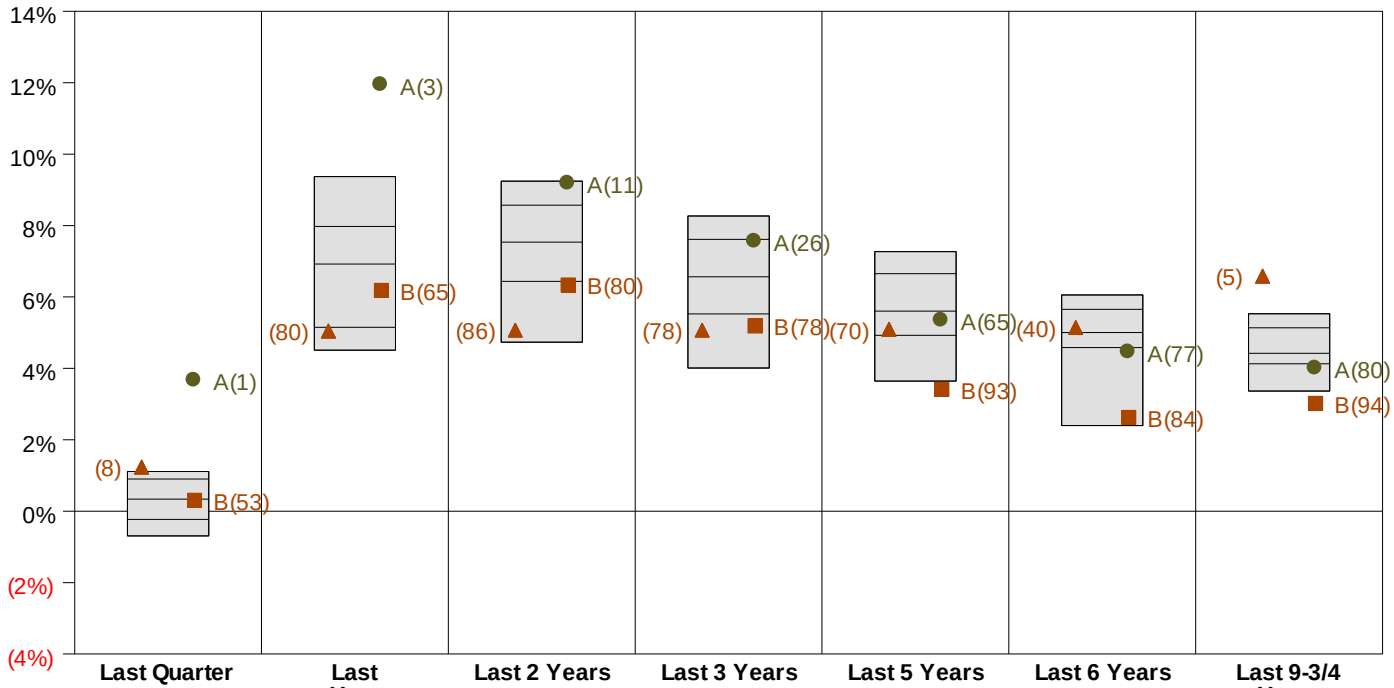
Internally Managed TIPS Portfolio through 9/30/14



- Results have been consistently above benchmark through challenging market environments.

Absolute Return Composite through 9/30/14

Performance vs Absolute Return Hedge FoFs Style (Net)



		Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 9-3/4 Years
10th Percentile		1.11	9.37	9.24	8.27	7.27	6.06	5.53
25th Percentile		0.90	7.97	8.57	7.62	6.65	5.65	5.14
Median		0.34	6.92	7.53	6.56	5.60	5.00	4.42
75th Percentile		(0.23)	5.15	6.44	5.53	4.93	4.58	4.13
90th Percentile		(0.69)	4.51	4.73	4.01	3.64	2.40	3.36
Absolute Return Composite	A	3.66	11.93	9.17	7.55	5.34	4.45	4.00
HFRI Fund of Funds Compos	B	0.30	6.19	6.33	5.19	3.41	2.63	3.02
T-Bills + 5%		1.24	5.05	5.07	5.07	5.10	5.15	6.59

- It has exceeded the absolute return target (Treasury Bills plus 5%) over the last six years.
- Absolute return allocation has exceeded HFRI FoF Index over all cumulative periods.

Individual Account Option Performance: 9/30/14

Balanced & Target Date Funds

Investment Manager	Market Value ($mm)	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Balanced & Target Date Funds											
Alaska Balanced Fund	$1,196	**-0.5** 9	**7.5** 26	**9.1** 26	**7.8** 25	**5.5** 17	**4.9** 74		**0.3** 15	**0.3** 100	**1.6** 7
Lipper: Mixed-Asset Target Alloc Cons											
Passive Target		-0.5 9	7.5 25	8.7 35	7.6 28	5.4 20	4.6 79				1.6 4
Long Term Balanced Fund	$609	**-0.9** 27	**10.2** 26	**13.8** 21	**10.2** 16	**5.5** 11	**8.8** 55		**0.1** 14	**0.3** 100	**1.2** 20
Lipper: Mixed-Asset Target Alloc Mod											
Passive Target		-0.9 26	10.3 24	13.5 25	10.2 17	5.5 11	8.6 63				1.2 18
Target 2010 Trust	$13	**-0.7** 14	**8.5** 8	**11.4** 8	**8.8** 13		**7.6** 38		**-0.1** 30	**0.1** 99	**1.2** 50
CAI Tgt Date 2010											
Custom Index		-0.7 14	8.6 7	11.4 8	8.9 12		7.7 36				1.1 52
Target 2015 Trust	$121	**-0.8** 14	**9.8** 3	**13.4** 5	**9.9** 6	**6.6** 1	**9.0** 20		**0.1** 9	**0.1** 99	**1.1** 40
CAI Tgt Date 2015											
Custom Index		-0.9 15	9.9 1	13.4 5	9.8 6	6.4 1	9.1 20				1.1 46
Target 2020 Trust	$97	**-1.0** 15	**10.8** 1	**15.0** 4	**10.9** 4	**4.9** 3	**10.3** 22		**-0.3** 30	**0.2** 99	**1.0** 34
CAI Tgt Date 2020											
Custom Index		-1.0 15	10.9 1	15.1 4	11.0 4	4.8 4	10.4 21				1.0 35
Target 2025 Trust	$72	**-1.1** 14	**11.8** 2	**16.5** 12	**11.7** 8	**4.4** 27	**11.4** 38		**-0.4** 26	**0.3** 99	**1.0** 8
CAI Tgt Date 2025											
Custom Index		-1.1 15	11.9 2	16.6 12	11.9 4	4.4 27	11.6 21				1.0 12
Target 2030 Trust	$61	**-1.2** 18	**12.5** 2	**17.8** 11	**12.3** 5		**12.4** 37		**-0.2** 24	**0.3** 100	**1.0** 16
CAI Tgt Date 2030											
Custom Index		-1.2 20	12.7 1	17.8 10	12.4 3		12.5 27				1.0 16
Target 2035 Trust	$61	**-1.3** 8	**13.1** 1	**18.7** 2	**12.8** 1		**13.1** 46		**-0.2** 16	**0.3** 100	**1.0** 8
CAI Tgt Date 2035											
Custom Index		-1.3 8	13.3 1	18.8 2	12.8 1		13.3 43				1.0 8
Target 2040 Trust	$68	**-1.4** 13	**13.4** 2	**19.2** 1	**13.0** 1		**13.3** 73		**-0.3** 22	**0.3** 99	**1.0** 8
CAI Tgt Date 2040											
Custom Index		-1.4 13	13.6 2	19.2 1	13.1 1		13.5 68				1.0 9
Target 2045 Trust	$83	**-1.4** 7	**13.4** 4	**19.2** 1	**13.0** 2		**13.3** 75		**-0.2** 15	**0.3** 99	**1.0** 5
CAI Tgt Date 2045											
Custom Index		-1.4 7	13.6 3	19.2 1	13.1 1		13.5 74				1.0 7

Investment Manager	Market Value ($mm)	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Target 2050 Trust	$97	**-1.4** 11	**13.5** 3	**19.2** 5	**13.0** 1		**13.3** 76		**-0.2** 23	**0.3** 99	**1.0** 9
CAI Tgt Date 2050											
Custom Index		-1.4 11	13.6 3	19.2 4	13.1 1		13.5 76				1.0 9
Target 2055 Trust	$48	**-1.4** 8	**13.4** 5	**19.2** 8	**13.0** 11		**13.3** 100		**-0.3** 58	**0.2** 99	**1.0** 2
CAI Tgt Date 2055											
Custom Index		-1.4 8	13.6 4	19.2 7	13.1 9		13.5 100				1.0 2

Returns:
- above median
- third quartile
- fourth quartile

Risk:
- below median
- second quartile
- first quartile

Risk Quadrant:

Excess Return Ratio:
- above median
- third quartile
- fourth quartile

Tracking Error:
- below median
- second quartile
- first quartile

Sharpe Ratio:
- above median
- third quartile
- fourth quartile

Other Options: 9/30/14

Active Equity, Stable Value, and Interest Income

Investment Manager	Market Value ($mm)	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Active and Other Funds											
Brandes Int'l Fund	$81	**-5.9** 59	**6.0** 19	**13.5** 55						**2.8** 78	
CAI Mut Fd: Non-U.S. Equity Style											
MSCI EAFE Index		-5.9 59	4.3 55	13.6 54	6.6 59	-0.2 63	16.7 81				0.4 48
RCM Soc Resp	$41	**1.0** 30	**16.6** 59	**20.3** 70	**13.1** 72		**16.3** 23		**-0.5** 83	**3.0** 63	**0.8** 76
CAI Mut Fd: Core Equity Style											
KLD 400 Social Idx		0.7 46	18.4 26	22.6 37	15.2 31	6.6 15	14.3 82				1.1 14
T. Rowe Price Small Cap	$124	**-6.0** 49	**6.9** 32	**23.9** 10	**17.7** 8	**9.5** 5	**19.0** 54		**2.5** 1	**1.2** 99	**0.9** 12
CAI Mut Fd: Sm Cap Broad Style											
Russell 2000 Index		-7.4 73	3.9 54	21.3 46	14.3 51	6.0 48	18.8 56				0.8 46
T. Rowe Price Stable Value Fd	$337	**0.6** 3	**2.5** 3	**2.7** 1	**3.1** 6	**3.5** 16	**0.3** 56		**6.0** 9	**0.1** 42	**10.4** 30
CAI Stable Value Database											
5 Yr U.S. Treas Rolling		0.4 69	1.5 59	1.8 51	2.4 43	2.8 47	0.4 33				5.8 65
Def Comp Interest Income Fund	$183	**0.7** 1	**2.9** 1	**3.2** 1	**3.6** 1	**3.9** 1	**0.3** 59		**9.0** 2	**0.1** 67	**12.7** 18
CAI Stable Value Database											
5 Yr U.S. Treas Rolling		0.4 69	1.5 59	1.8 51	2.4 43	2.8 47	0.4 33				5.8 65

Returns: above median; third quartile; fourth quartile

Risk: below median; second quartile; first quartile

Risk Quadrant:

Excess Return Ratio: above median; third quartile; fourth quartile

Tracking Error: below median; second quartile; first quartile

Sharpe Ratio: above median; third quartile; fourth quartile

- The SSgA Treasury Money Market Fund (MMF) is not shown in the "Stop Light" chart because the range of returns from 10th percentile to 90th percentile within the Treasury Money Market Fund peer group is only four one-hundredths of a percent (0.04%) over the last six years.
- The SSgA Treasury MMF has competitive returns within its peer group over all periods.

Passive Options: 9/30/14

Investment Manager	Market Value ($mm)	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Index Funds											
State Street S&P Index Fund (i)	$335	**1.1** 39	**19.7** 50	**23.0** 69	**15.7** 54	**6.1** 72	**14.4** 84		**0.3** 42	**0.0** 100	**1.1** 42
CAI Large Cap Core Style											
S&P 500 Index		1.1 39	19.7 49	23.0 69	15.7 55	6.0 74	14.4 84				1.1 42
BlackRock S&P 500 Index Fund (i)	$175	**1.1** 34	**19.7** 27	**23.0** 46	**15.7** 39	**6.1** 41	**14.4** 81		**1.1** 1	**0.0** 98	**1.1** 28
CAI Mut Fd: Core Equity Style (Gross)											
S&P 500 Index		1.1 34	19.7 27	23.0 47	15.7 40	6.0 47	14.4 81				1.1 28
SSgA Russell 3000 Index (i)	$57	**0.1** 66	**17.8** 45	**23.1** 31	**15.8** 24		**15.0** 69		**0.2** 9	**0.1** 100	**1.0** 13
CAI Mut Fd: Large Cap Broad Style (Net)											
Russell 3000 Index		0.0 69	17.8 46	23.1 30	15.8 24	6.2 35	15.1 68				1.0 16
SSgA World Equity ex-U.S. Index (i)	$25	**-5.3** 46	**4.8** 38	**12.2** 74	**5.9** 70		**16.8** 79		**-0.1** 74	**1.1** 100	**0.3** 61
CAI MF: Non-U.S. Equity Style (Net)											
MSCI ACWI x U.S. Index (Net)		-5.3 45	4.8 38	11.8 83	6.0 69	-0.2 62	16.7 82				0.4 57
SSgA Global Balanced Index (i)	$56	**-1.8** 42	**8.1** 38	**10.9** 36	**7.9** 52		**9.1** 49		**0.7** 14	**0.3** 100	**0.9** 54
CAI Int'l/Global Balanced Database											
Global Balanced Custom Benchmark		-1.9 43	7.9 38	10.5 42	7.7 53		9.0 50				0.8 55
SSgA Long U.S. Treasury Index (i)	$11	**2.6** 16	**11.6** 28	**2.0** 37	**6.9** 37		**15.2** 14		**-0.4** 64	**0.1** 97	**0.4** 56
CAI Mut Fd: Extended Mat Fixed Income											
Barclays Long Treasury Index		2.7 14	11.6 28	2.0 37	7.0 36	7.8 37	15.2 14				0.5 55
SSgA U.S. TIPS Index (i)	$16	**-2.1** 37	**1.5** 28	**1.2** 36	**4.3** 19		**5.4** 56		**-4.0** 94	**0.0** 100	**0.8** 20
Lipper: TIPS Funds											
Barclays U.S. TIPS Index		-2.0 34	1.6 19	1.3 31	4.5 10	4.9 12	5.4 56				0.8 10
SSgA World Gov't Bond Ex-U.S. Index (i)	$10	**-5.4** 98	**-1.2** 94	**-1.2** 99	**1.0** 97		**7.2** 14		**-0.4** 98	**0.1** 99	**0.1** 95
CAI Mut Fd: Global Fixed Income Style											
Citi WGBI Non-U.S. Index		-5.4 97	-1.0 94	-1.1 99	1.0 96	3.6 72	7.2 14				0.1 94
U.S. Real Estate Invesment Trust (i)	$29	**-3.0** 46	**13.2** 42	**15.8** 46	**15.1** 50		**14.2** 72		**-0.7** 70	**0.1** 99	**1.1** 46
CAI Mut Fd: Real Estate Database											
U.S. Select REIT Index		-3.0 43	13.4 29	16.2 28	15.8 22	3.7 48	14.4 48				1.1 26

Investment Manager	Market Value ($mm)	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
BlackRock Govt/Credit Bond Fund (i)	$45	**0.2** 29	**4.0** 68	**2.4** 81	**4.1** 74	**4.8** 61	**3.6** 7		**-2.6** 97	**0.0** 99	**1.1** 90
CAI Mut Fd: Core Bond Style											
Barclays Govt/Credit Bd		0.2 28	4.1 66	2.5 80	4.3 68	5.0 57	3.7 7				1.1 89
BlackRock Int. Govt Bond Fund (i)	$14	**-0.0** 31	**1.0** 81	**0.7** 76	**2.3** 69	**3.6** 71	**2.6** 31		**-4.4** 100	**0.0** 98	**0.9** 85
CAI MF: Intermediate Fixed Income Style											
Barclays Gov Inter		0.0 28	1.1 80	0.9 73	2.5 65	3.7 66	2.6 31				0.9 82

Returns:
- above median
- third quartile
- fourth quartile

Risk:
- below median
- second quartile
- first quartile

Risk Quadrant:

Excess Return Ratio:
- above median
- third quartile
- fourth quartile

Tracking Error:
- below median
- second quartile
- first quartile

Sharpe Ratio:
- above median
- third quartile
- fourth quartile

(i) – Indexed scoring method used. Green: manager & index differ by less than +/- 10 percentiles; Yellow: manager and index differ by +/- 20 percentiles; Red: manager & index differ by more than 20 percentiles.

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State of Alaska
Division of Retirement and Benefits
Audit Results
June 30, 2014

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December 4, 2014

Agenda

Audit Status

Areas of Interest

Regulatory and Accounting Update

Appendix

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Audit Status

Audit Status

Unqualified opinion on the financial statements for:

- Invested Assets of the Retirement Systems
- Treasury Division Invested Assets Under the Investment Authority of the Commissioner of Revenue

Unqualified opinion on the financial statements and supplement schedules for:

- Public Employees' Retirement System
- Teachers' Retirement System
- Judicial Retirement System
- National Guard and Naval Militia Retirement System
- Supplemental Benefits System
- Deferred Compensation Plan

Significant Changes to our Audit Plan

- Accelerated census testing over FY13 actuarial valuation

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Audit Status

Corrected Misstatements

None identified during our audit

Uncorrected Misstatements

Difference in valuation of alternative investments between year end and lag period used to record investments

Internal Control Deficiencies

None identified during our audit

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Other Matters

Going Concern	None noted
Related Party Transactions	None noted
Litigations, Claims, and Assessments	None noted
Illegal Acts or Fraud	None noted
Non-compliance with Laws and Regulations	None noted
Other Information in Documents Containing Audited Financial Statements	KPMG will review the draft CAFR when it is provided to us
Significant Difficulties Encountered During the Audit	No matters to report
Disagreements with Management	No matters to report
Management's Consultation with Other Accountants	No matters to report
Significant Issues Discussed, or Subject to Correspondence, with Management	No matters to report
Alternative Accounting Treatments Discussed with Management	No matters to report
Other Findings or Issues Relevant Regarding Oversight of the Financial Reporting Process	No matters to report
Communications with the Firm's National Office	Consultation related to implementation of GASB 67

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Audit Team

Core Audit Team:

Michael Hayhurst, Engagement Audit Partner, Anchorage Managing Partner

Anthony Berrett, Engagement Quality Concurring Review Partner, Salt Lake City

Melissa Beedle, Audit Senior Manager, Juneau

Specialists:

Nick Katsanos, Financial Risk Management Specialist, New York

Jon Keithley, IT Attestation Advisory Manager, Portland

Dennis Polisner, KPMG Employee Benefit Plan Actuary, Chicago

Terri Stecher, Director, Washington National Tax, Washington DC

KPMG National Pricing Desk, Boston

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Areas of Interest

Areas of Interest – Summary of Risks

Accuracy of Contributions

- Verified accuracy of employee data including eligibility
- Recalculated a selection of contributions
- Reviewed reconciliation between AKSAS and CRS

Valuation of Alternative Investments

- Confirmed investments
- Performed Benchmark analysis
- Verified reliability of valuation estimates
- Performed a lag analysis
- Assessed underlying valuation related to Funds of One

Valuation of Benefit Plan Obligations including IBNR

- Obtain Actuarial determined liabilities
- Tested completeness and accuracy of data sent to actuary
- Consulted with KPMG actuary on reasonableness of assumptions and calculations

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Employer Census Testing

Tested 19 PERS employers 580 employees

Tested 16 TRS employers 410 employees

Issue encountered:

- **Original Date of Hire**
- **5 Date of Birth**
- **92 Marital Status**
- **$15,207 recalculated pensionable wage difference**

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Regulatory and Accounting Update

Regulatory and Accounting Update

New or Proposed Pronouncement	Comments
Fair Value Measurement Exposure Draft	No significant impact anticipated
Financial Reporting for Postemployment Benefit Plans Other than Pension Plans	Similar to accounting for pensions under GASB 67 & 68
Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions	Similar to accounting for pensions under GASB 67 & 68
Accounting and Financial Reporting for Pensions and Financial Reporting for Pension Plans That are Not Administered through Trusts That Meet Specified Criteria, and Amendments to Certain Provisions of GASB Statements 67 and 68.	No significant impact anticipated

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Appendix

- Responsibilities
- Audit Committee Institute

Responsibilities

Management is responsible for:

- Adopting sound accounting policies
- Fairly presenting the financial statements in conformity with generally accepted accounting principles
- Establishing and maintaining effective ICFR
- Identifying and confirming that the System complies with laws and regulations applicable to its activities
- Making all financial records and related information available to the auditor
- Providing the auditor with a letter confirming certain representations made during the audit that includes, but are not limited to management's:
  - disclosure of all significant deficiencies, including material weaknesses, in the design or operation of internal controls that could adversely affect the System's ability to record, process, summarize, and report financial data; and
  - acknowledgement of their responsibility for the design and implementation of programs and controls to prevent and detect fraud

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Responsibilities (continued)

The Audit Committee is responsible for:

- Oversight of the financial reporting process and ICFR

Management and the Audit Committee are responsible for:

- Establishing and maintaining internal controls to prevent, deter, and detect fraud
- Setting the proper tone and creating and maintaining a culture of honesty and high ethical standards

The audit of the financial statements does not relieve management or the Audit Committee of their responsibilities.

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Responsibilities (continued)

KPMG is responsible for:

- Forming and expressing an opinion about whether the financial statements that have been prepared by management with the oversight of the Audit Committee are presented fairly, in all material respects, in conformity with generally accepted accounting principles
- Planning and performing the audit to obtain reasonable – not absolute – assurance about whether the financial statements are free of material misstatement, whether caused by fraud or error. Because of the nature of audit evidence and the characteristics of fraud, we are able to obtain reasonable, but not absolute, assurance that material misstatements will be detected.
- Evaluating:

  (a) whether the System's controls sufficiently address identified risks of material misstatement due to fraud; and

  (b) controls intended to address the risk of management override of other controls
- Communicating to you in writing all significant deficiencies and material weaknesses in internal control identified in the audit and reporting to management all deficiencies noted during our audit that are of sufficient importance to merit management's attention
- Conducting our audit in accordance with professional standards
- Complying with the rules and regulations of the Code of Professional Conduct of the American Institute of Certified Public Accountants, and the ethical standards of relevant CPA societies and relevant state boards of accountancy
- Planning and performing our audit with an attitude of professional skepticism
- Communicating all required information, including significant matters, to management and the Audit Committee

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Responsibilities (continued)

Other Information in Documents Containing Audited Financial Statements

- The auditors' report on the financial statements does not extend to other information in documents containing audited financial statements, excluding required supplementary information.
- We are required to read the other information to identify material inconsistencies or misstatement of facts, if any, with the audited financial statements and make appropriate arrangements with management or the Audit Committee to obtain the other information prior to the date of the auditors' report.
- Any material inconsistencies or misstatement of facts that are not resolved prior to the report release date, and that require revision of the other information, may result in a modification or withdrawal of the auditors' report.

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Resources

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- ACI Website: www.auditcommitteeinstitute.com
- ACI mailbox: auditcommittee@kpmg.com
- ACI hotline: 1-877-KPMG-ACI

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KKR Credit
KKR Lending Partners II L.P.

December 4, 2014

Prepared at the Request of Alaska Retirement Management Board

Presented by: Chris Sheldon & Dan McLaughlin

KKR Kohlberg Kravis Roberts

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Important Information

Regulatory risk – The Fund is not registered under the Investment Company Act of 1940. As a result, investors will not receive the protections of the Investment Company Act afforded to investors in registered investment companies (i.e. "mutual funds"). The Fund's offering documents are not reviewed or approved by federal or state regulators and its privately placed interests are not federally or state registered. In addition, the Fund may engage in trading on non- U. S. exchanges and markets. These markets and exchanges may exercise less regulatory oversight and supervision over transactions and participants in transactions.

Valuations – The net asset value of the Fund may be determined by its administrator in consultation with its manager or advisor, or based on information from the manager(s) of the underlying Fund. Certain portfolio assets may be illiquid and without a readily ascertainable market value and accuracy of valuations of other managers may be difficult to verify. Since the value assigned to portfolio securities affects a manager's or advisor's compensation, the manager's or advisor's involvement in the valuation process creates a potential conflict of interest. The value assigned to such securities may differ substantially from the value the Fund is able to realize. Instances of mispriced portfolios, due to fraud or negligence, have occurred in the industry.

Fees and expenses – The Fund may be subject to substantial charges for management, advisory and brokerage fees. It may be necessary for those pools that are subject to these charges to make substantial trading profits to avoid depletion or exhaustion of their assets. Please refer to the Fund's Confidential Placement Memorandum for a more complete description of risks and a comprehensive description of each expense to be charged the Fund.

Limited operating history – The Fund may have little or no operating history or performance and may use performance which may not reflect actual trading of the Fund and should be reviewed carefully. Investors should not place undue reliance on hypothetical, pro forma or predecessor performance. The Fund's actual performance may differ substantially and may be volatile.

Reliance on key persons – The Fund's manager or advisor has total trading authority over the Fund and may be subject to various conflicts of interest. The death, disability or departure of the manager or advisor may have a material effect on the Fund.

Concentration – The Fund may use a single advisor or employ a single strategy, which could mean a lack of diversification and higher risk.

Counterparty and bankruptcy risk – Although KKR will attempt to limit its transactions to counterparties which are established, well-capitalized and creditworthy, the Funds will be subject to the risk of the inability of counterparties to perform with respect to transactions, whether due to insolvency, bankruptcy or other causes, which could subject the Funds to substantial losses.

Limited liquidity – Your ability to redeem Interests will be limited and subject to certain restrictions and conditions under the Limited Partner Agreement of the Fund. No secondary public market for the sale of the Interests exists, nor is one likely to develop. In addition, your Interests will not be freely transferable.

Tax risks – Investors in private equity funds such as the Fund are subject to pass-through tax treatment of their investment. Since profits generally will be reinvested in the Fund rather than distributed to investors, investors may incur tax liabilities during a year in which they have not received a distribution of any cash from the Fund. In addition, it is likely that the general partner will not be able to prepare its tax returns in time for investors to file their returns without requesting an extension of time to file.

Volatile markets – Market prices are difficult to predict and are influenced by many factors, including: changes in interest rates, weather conditions, government intervention and changes in national and international political and economic events. Please refer to the Fund's Confidential Private Placement Memorandum for a more comprehensive description of volatility factors.

The above summary is not a complete list of the risks, tax considerations and other important disclosures involved in investing in the Fund and is subject to the more complete disclosures in the Fund's offering documents, which must be reviewed carefully prior to making an investment.

In the United States and Canada, this presentation is being distributed by KKR Capital Markets LLC ("KCM"), a broker-dealer registered with the U.S. Securities and Exchange Commission ("SEC") and a member of FINRA and SIPC.

Table of Contents

I. Executive Summary

KKR

KKR Lending Partners II L.P. ("KKRLP II" or the "Fund")
The Case for Direct Lending

- **We have established KKRLP II as a successor fund to KKR Lending Partners L.P. ("KKRLP"), our first dedicated direct lending vehicle launched in 2011. Within KKRLP, we have deployed a substantial portion of that fund's capital and already generated attractive returns for our investors**

- **Given the current opportunities we see in the direct lending market, we are excited to discuss the KKRLP II's opportunity set for the following reasons:**

  - Direct Lending seeks to generate attractive risk-adjusted returns by lending to middle-market companies, particularly those at the larger end of the middle-market ($25mm+ EBITDA) which often offer a better and more transparent underlying credit profile

  - We believe the financing market for mid-size companies is underserved, as traditional financing sources have dramatically diminished following the global credit crisis of 2008

  - The size of mid-market companies and the relative illiquidity of direct lending investments to them, requires skilled investment managers such as KKR Credit

  - Through KKR Credit's experience in this space, our origination, execution, investment analyst and portfolio management teams have developed strong skills in sourcing, diligencing, negotiating, executing and managing direct lending investments

We believe that KKR is well-suited to capitalize on the continued investment opportunity in Direct Lending

Note: See Appendix B beginning on page 31 for a discussion of the risks of investing in direct lending funds.

II. KKR Overview

KKR

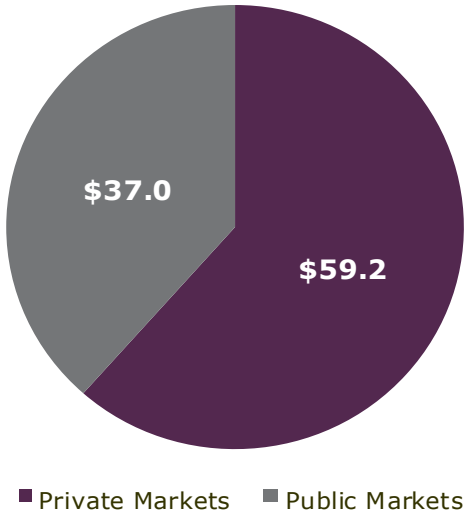
Who Are We?

Established in 1976, Kohlberg Kravis Roberts & Co. L.P. ("KKR") is a leading global investment firm with industry-leading investment experience, in-depth industry knowledge, sophisticated processes for growing and improving businesses, and a strong culture committed to teamwork

- Leading investment firm
  - *Private Equity, Infrastructure, Energy, Real Estate, Leveraged Credit, Alternative Credit, Hedge Funds*
- Global presence
  - *Offices in 21 cities in 15 countries across 5 continents*
- "One-firm" culture that evolves, learns, and innovates
  - *Adaptive to change*
- Relationship-driven approach
  - *Sourcing investment opportunities*
  - *Partnering with clients*
- Aligned with our partners
  - *"Eat our own cooking"*
  - *Economic incentives driven by results*
  - *Focused on managing stakeholder interests*

Assets Under Management

As of September 30, 2014
($ in billions)



Note: Please see "Important Information" for a description of Assets Under Management calculation.

KKR Overview

Kohlberg Kravis Roberts & Co. L.P. ("KKR") is a global investment firm with a 38-year history. We have experience in adapting investment strategies to market conditions, allowing us to invest at every level of a company's capital structure.

1976
- KKR Founded

1980s - 1990s
- North American private equity firm

2000 - 2004
- KKR Capstone
- Industry group focus
- European private equity business

2004 - 2009
- KKR Credit
- KKR Private Equity Investors (KPE)
- KKR Capital Markets (KCM)
- Client & Partner Group
- Global expansion into Asia, Australia and Middle East

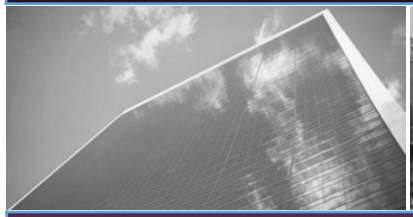
10.01.09
- Business combination with KPE
- Publicly-traded on Euronext Amsterdam

07.15.10
- Publicly-traded on NYSE

10.01.12
- Acquisition of Prisma Capital Partners

2.19.14
- Acquisition of Avoca Capital

1976 1978 1980 1982 1984 1986 1988 1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2013 2014

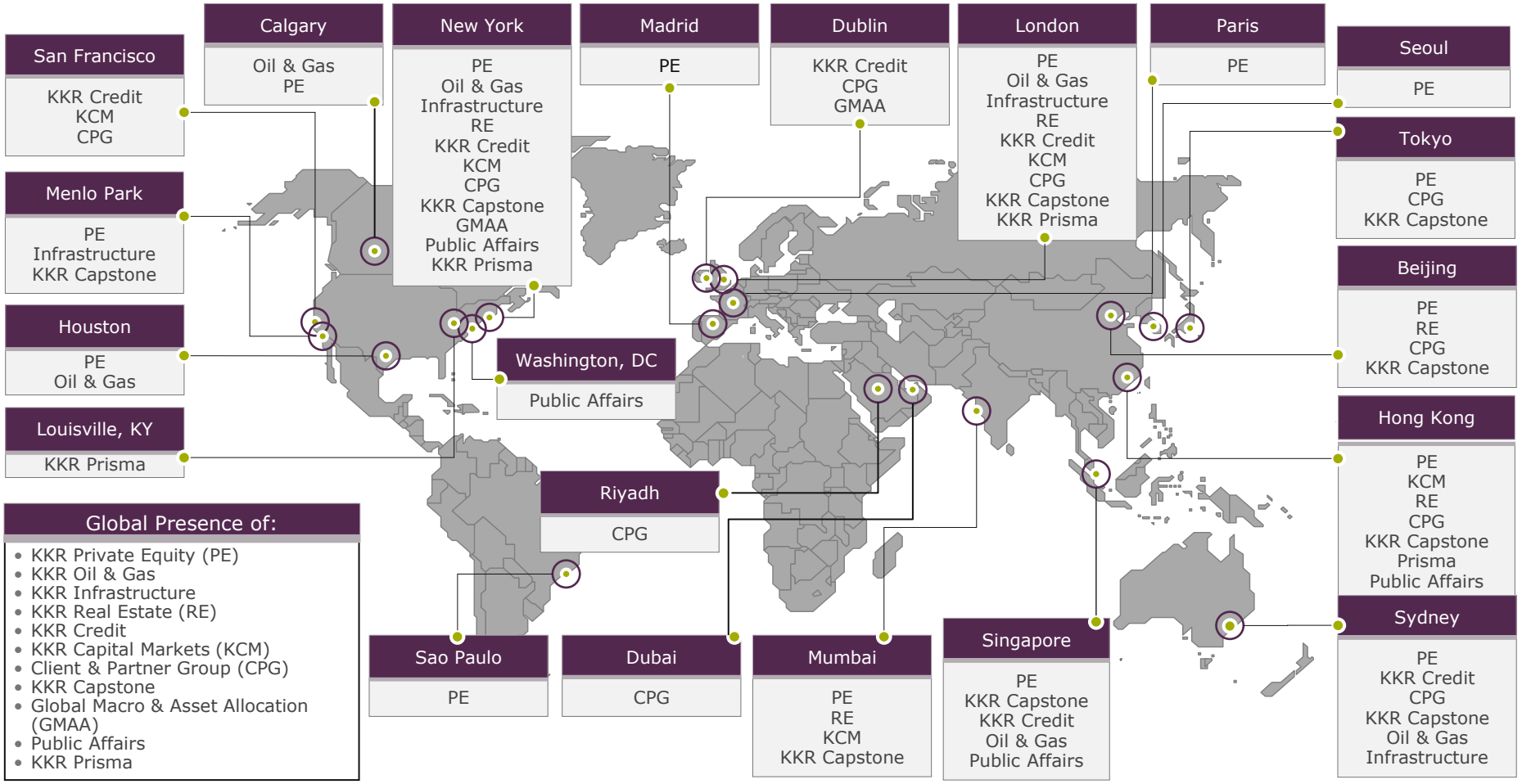



Note: KKR Capstone is not a subsidiary or affiliate of KKR. Please see "Important Information" at the beginning of this presentation for additional disclosure regarding KKR Capstone.

A Global Investment Firm

With a long-standing reputation for strong and innovative investing, KKR employs an experienced team of approximately 600 executives(1) around the globe

- KKR Private Markets and Public Markets currently manage $96.2 billion in assets
- Leveraged proprietary network including KKR Capstone and KKR Capital Markets



Note: As of September 30, 2014.

(1) Includes certain other KKR executives working in legal, compliance, IT, IR, financial, tax and accounting functions, who are not represented on the above map.

III. Direct Lending Team

KKR

Our Direct Lending Strategy Team Leverages the Broader Platform

Direct Lending Leadership

Erik Falk
Member, Portfolio Manager
Co-Head of Leveraged Credit
(New York)

Chris Sheldon
Member, Portfolio Manager
Co-Head of Leveraged Credit
(San Francisco)

Global Private Credit Investment Committee

- **Alan Burke,** Co-Head of Credit, Head of European Leveraged Credit
- **Nat Zilkha**, Co-Head of Credit and Co-Head of Special Situations
- **Erik Falk**, Co-Head of Leveraged Credit
- **Chris Sheldon**, Co-Head of Leveraged Credit
- **Marc Ciancimino**, Head of European Private Credit

Senior US KKR Credit Industry Research Analysts – (21 Total Investment Professionals)

Jeremiah Lane
Director
(San Francisco)

Blaine MacDougald
Director
(New York)

Dev Gopalan**
Director, Head of US Private Credit
(New York)

Harlan Cherniak
Director
(New York)

Sharath Reddy
Director
(San Francisco)

Jamie Ely
Principal
(San Francisco)

Zachary Jarvis
Principal
(San Francisco)

Mayo Shattuck**
Principal
(San Francisco)

Michelle Domanico
Principal
(San Francisco)

Portfolio Management Committee Working Group

- **Alan Burke,** Co-Head of Credit, Head of European Leveraged Credit
- **Nat Zilkha**, Co-Head of Credit and Co-Head of Special Situations
- **Erik Falk**, Co-Head of Leveraged Credit
- **Chris Sheldon**, Co-Head of Leveraged Credit
- **Jeremiah Lane**, Co-Head of US Credit Research
- **Blaine MacDougald,** Co-Head of US Credit Research
- **Jamie Weinstein,** Co-Head of Special Situations
- **John Reed,** Head of Credit Trading
- **Marc Ciancimino**, Head of European Private Credit*

Trading Team

John Reed
Head of Credit Trading
(San Francisco)

James Newman
Director (London)

Michael Russell
Principal
(San Francisco)

Jason Muenzen
Principal
(New York)

Irene Chen
Analyst
(San Francisco)

Credit Specialist Team

Lynette Vanderwarker
Managing Director
(New York)

Christina Fang
Principal
(San Francisco)

Additional KKR Credit Resources

14 European private credit and special situations investment professionals

13 European leveraged credit investment professionals(1)

7 Asia Pacific private credit investment professionals

Senior Capital Solutions Group / KKR Credit (Origination / Sourcing) – (18 Total Investment Professionals)

Peter Glaser
(New York)

Mark Basile
(New York)

Scott Cullerton
(San Francisco)

J. Douglas Tapley
(San Francisco)

Sean Stevens
(New York)

Dev Gopalan**
Head of US Private Credit
(New York)

Mayo Shattuck**
(San Francisco)

David Jar
(New York)

Additional KKR Resources

~15 KKR Global Institute (Global Macro & Public Affairs)

~50 KKR Capstone Professionals

~30 KKR Senior Advisors

~200 KKR Private Market Investment Professionals

~125 in Capital Markets and Client Service

KKR

As of September 30, 2014. Note: Please refer to "Important Information" for further information on KKR's inside information barrier policies and procedures, which may limit the involvement of personnel in certain investment processes and discussions. Please see Important Information at the beginning of this presentation for additional disclosure regarding KKR Capstone. (1) European leveraged credit investment professionals represent current Avoca Capital investment professionals. The KKR-Avoca acquisition closed in Q1 2014. *Note: Marc Ciancimino is a member of the Mezzanine Portfolio Management Committee. **Note: Represents shared origination resource

Global Private Credit Investment Committee

Global Private Credit Investment Committee*

Alan Burke

- Managing Director, Co-Head of Credit and Head of European Leveraged Credit
- Joined KKR in 2014 as part of Avoca Capital, which he co-founded in 2002
- Former Director of Acquisition Finance at Allied Irish Banks
- Over 17 years of industry experience

Nat Zilkha

- Member of KKR, Co-Head of Credit and Co-Head of Special Situations
- Joined KKR in 2007
- Former Member of the Principal Investment Team at Goldman, Sachs & Co.
- Over 15 years of industry experience

Chris Sheldon

- Member of KKR and Co-Head of Leveraged Credit
- Joined KKR in 2004
- Former Vice President, Senior Investment Analyst at Wells Fargo Bank, High Yield Securities Group
- Over 15 years of experience in leveraged credit

Erik Falk

- Member of KKR and Co-Head of Leveraged Credit
- Joined KKR in 2008
- Former Managing Director at Deutsche Bank Securities Inc.; Global Co-Head of the Securitized Products Group
- Over 22 years of industry experience

Marc Ciancimino

- Member of KKR and Head of European Private Credit
- Joined KKR in 2008
- Former Managing Director with GSC Group in the European Mezzanine business
- Over 17 years of industry experience

Approximately 85 Dedicated KKR Credit Investment Professionals(1)

~50 KKR Capstone Professionals(1)	~30 KKR Senior Advisors(1)	~200 KKR Private Market Investment Professionals(1)	~125 in Capital Markets and Client Service(1)

Note: As of September 30, 2014 and inclusive of Avoca capital's investment professionals.

*Inclusive the mezzanine strategy.
(1) Please refer to "Important Information" on page 2-4 for further information on KKR's inside information barrier policies and procedures, which may limit the involvement of personnel in certain investment processes and discussions.

IV. Why Direct Lending?

KKR

Direct Lending Market Opportunity

- **We believe the dislocation in financing channels provides an opportunity for sophisticated investors to provide capital to segments of the debt market**
- **In particular, we believe that Direct Lending offers attractive current income and structural protections**

Attractive Market Environment

Traditional Sources of Capital are Impaired; Financing Markets Remain Closed for Storied Credits

- We believe opportunities are arising from:
  - Banks retrenching due to new regulatory requirements
  - Finance companies that have withdrawn substantially from the marketplace
  - Alternative providers of capital such as hedge funds have exited given mismatched structures
  - Out-of-favour industries that provide attractive opportunities
  - Rising trend of corporate issuers that are migrating back to traditional "relationship" lending

Demand Remains Robust

- Companies continue to need capital
- Sponsors are substantially increasing activity

Primary Sourcing Channels

Sponsors	Companies	Banks	Intermediaries

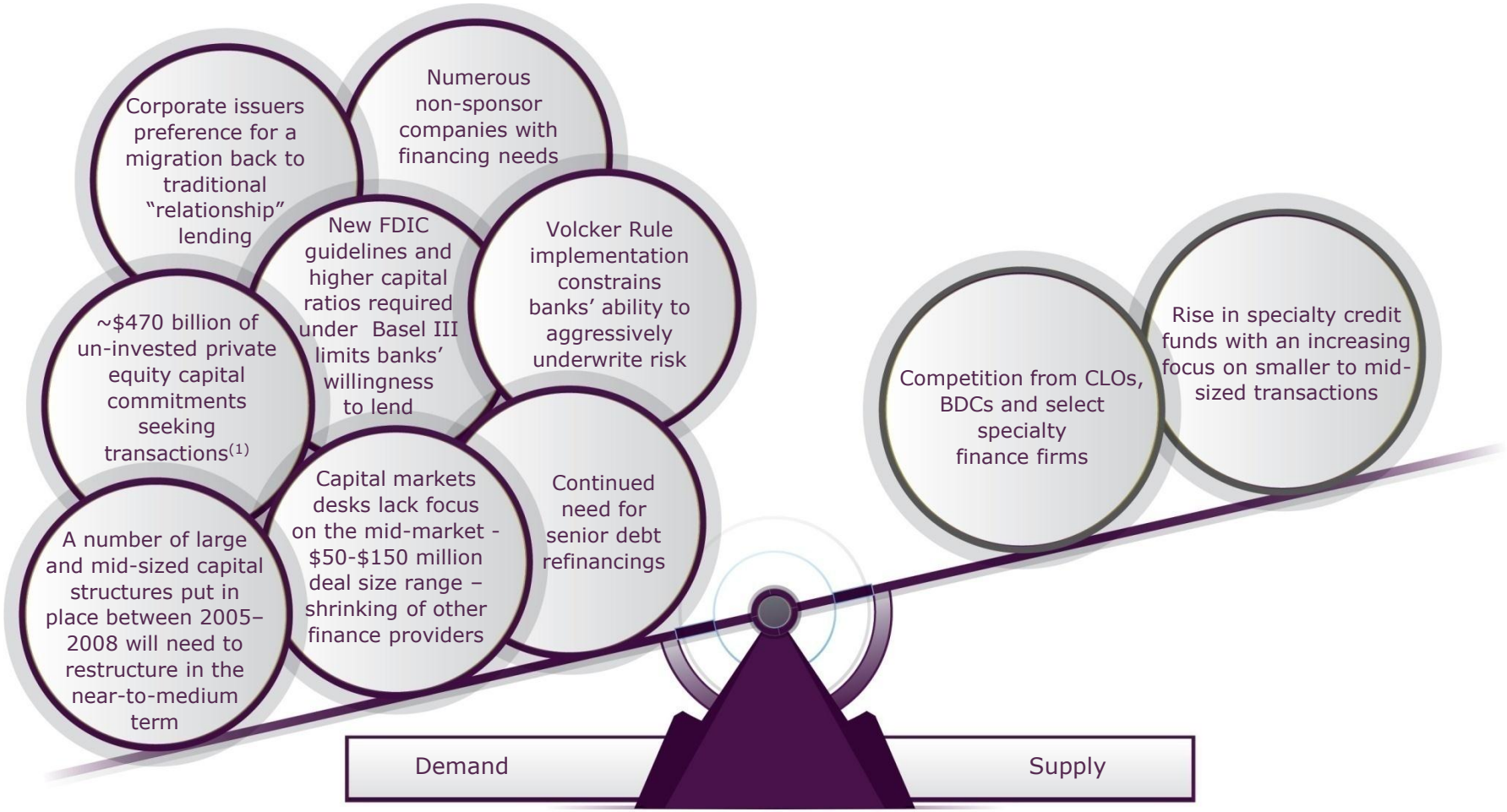
We Believe KKR is Well-Suited to Capitalize on this Opportunity

KKR can provide a one-stop lending solution across the capital structure for our various counterparties

We believe a cohesive, client / borrower approach can monetize the private credit opportunity on behalf of our clients

Note: See Appendix B beginning on page 31 for a discussion of the risks of investing in direct lending funds. This presentation reflects the current market views, opinions and expectations of KKR Credit based on its historic experience. Historic market trends are not reliable indicators of actual future market behavior or future performance of any particular investment or any KKR Credit fund, vehicle or account which, may differ materially, and are not to be relied upon as such. There can be no assurance that investors in any KKR Credit fund, vehicle or account will receive a return of capital. Please refer to "Important Information" at the beginning of this presentation for further information on KKR's inside information barrier policies and procedures, which may limit the involvement of personnel in certain investment processes and discussions.

The Need for Middle Market Financing Providers
A Closer Look at the Key Drivers of Supply-Demand



(1) Preqin, data based on global fundraising as of September 30, 2014.

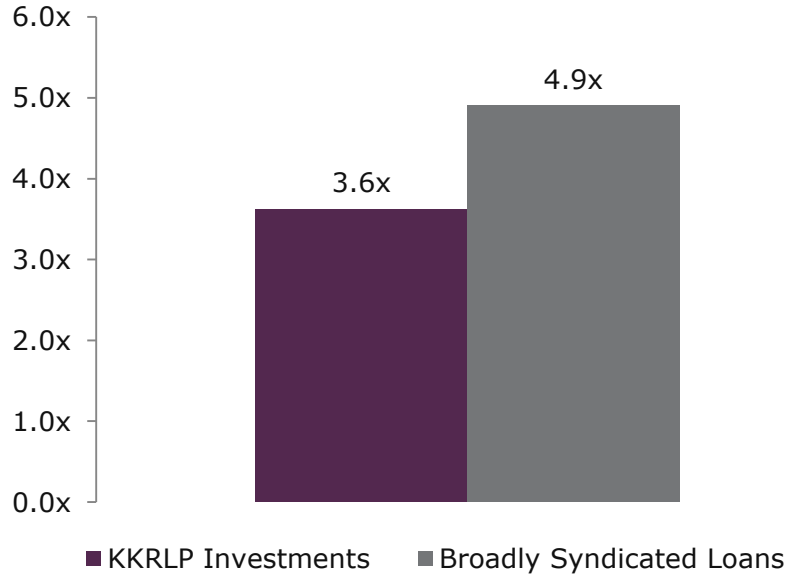
Note: See Appendix B beginning on page 31 for a discussion of the risks of investing in direct lending funds. Unless indicated, the above reflects the current market views, opinions and expectations of KKR Credit based on its historic experience and proprietary research. Historic market trends are not reliable indicators of actual future market behavior or future performance of any particular investment or any KKR Credit fund, vehicle or account which may differ materially, and are not to be relied upon as such. There can be no assurance that investors in any KKR Credit fund, vehicle or account will receive a return of capital.

Our Past Experiences in Direct Lending Have Achieved Lender Friendly Terms with Conservative Leverage

- Since launching our current dedicated direct lending fund, KKRLP, in late 2011 we have seen attractive compensation for middle market transactions relative to broadly syndicated financings through structure and pricing:
  - Leverage levels are lower
  - Spreads are wider
  - Interest coverage ratios are higher
  - Direct lending loans often come with deal arrangement fees and / or original issue discounts ("OID")
- We are pleased with our current, strong performing direct lending portfolio and we continue to seek attractive opportunities for KKRLP II, with focus on the below attributes:

Attractive Pricing and Terms[1]	
Nominal Spread	L + 425 - 1075bps
Call Protection	Hard or soft call
Fee / OID	Typically significant fees or OID; Achieved up to 4.0% (OID), 5.6% (fees)
Amortization	Defined mandatory amortization schedules
Covenants / Structure	Tailored for the situation / risk; may include leverage ratio limits, free cash flow sweeps and fixed charge coverage
Co-Investors	Typically limited to 2-3 partners; preference for relationship investors with a similar long-term investment horizon

Conservative Deal Leverage Profile Comparison[2]



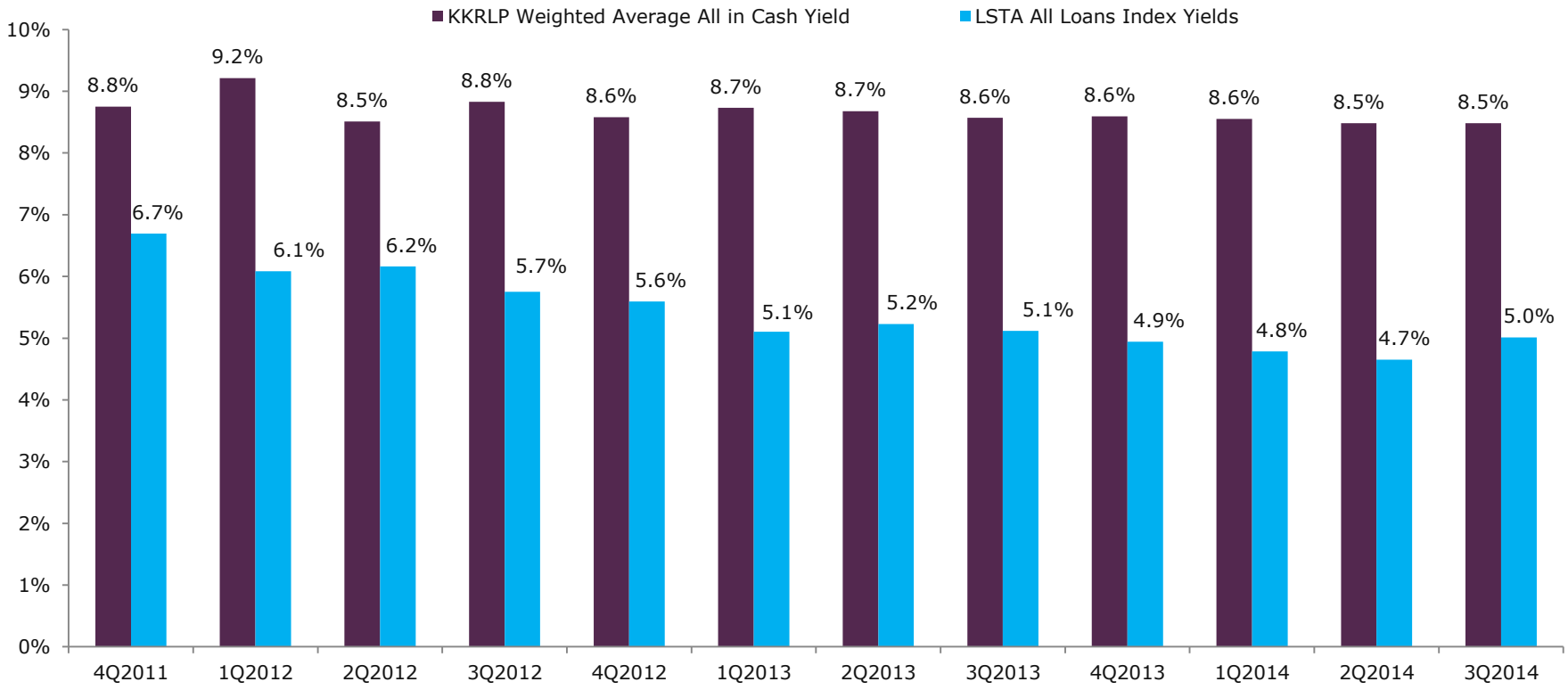
Note: See Appendix B beginning on page 31 for a discussion of the risks of investing in direct lending funds. Past performance and characteristics of KKRLP may be different from that of the Fund, and are not indicative of how the Fund would have performed in the past or will perform in the future.

(1) Based on representative transactions and deal experience achieved in KKRLP.
(2) Sources: KKR Credit for KKRLP as of September 30, 2014 and S&P LSTA 3Q2014 Quarterly Commentary for Broadly Syndicated Loans, "Average Debt Multiples of Large Corporate Loans."

Illiquidity Premium Remains Compelling

- The direct lending market opportunity continues to be attractive
- We continue to see a significant premium in originated financings

Yield Comparisons – KKRLP Weighted Average All-In Cash Yields v. LSTA All Loans Index Yields



Source: Cumulative weighted average all-in cash yield for all transactions completed in KKRLP as of September 30, 2014. S&P LSTA, All Loans Index Quarterly Yields as of September 30, 2014.
Note: See Appendix B beginning on page 31 for a discussion of the risks of investing in direct lending funds. Past performance and characteristics of KKRLP may be different from that of the Fund, and are not indicative of how the Fund would have performed in the past or will perform in the future.

Note: Weighted Average All in Cash Yield represents the weighted average of the yields of all loans included in KKRLP's portfolio. Weighted Average All in Cash Yield does not represent realized or unrealized performance of KKRLP or of the Fund, and is not an indication of how KKRLP or the Fund would have performed in the past or will perform in the future. It is presented to demonstrate the illiquidity premiums available on originated financings and is not meant to predict or project performance of any investment strategy or fund. Yield information does not reflect the deduction of management fees, carried interest, custody charges, withholding taxes, and other indirect expenses which would reduce performance.

V. Our Current Portfolio and Results

KKR

KKRLP II Investment Highlights

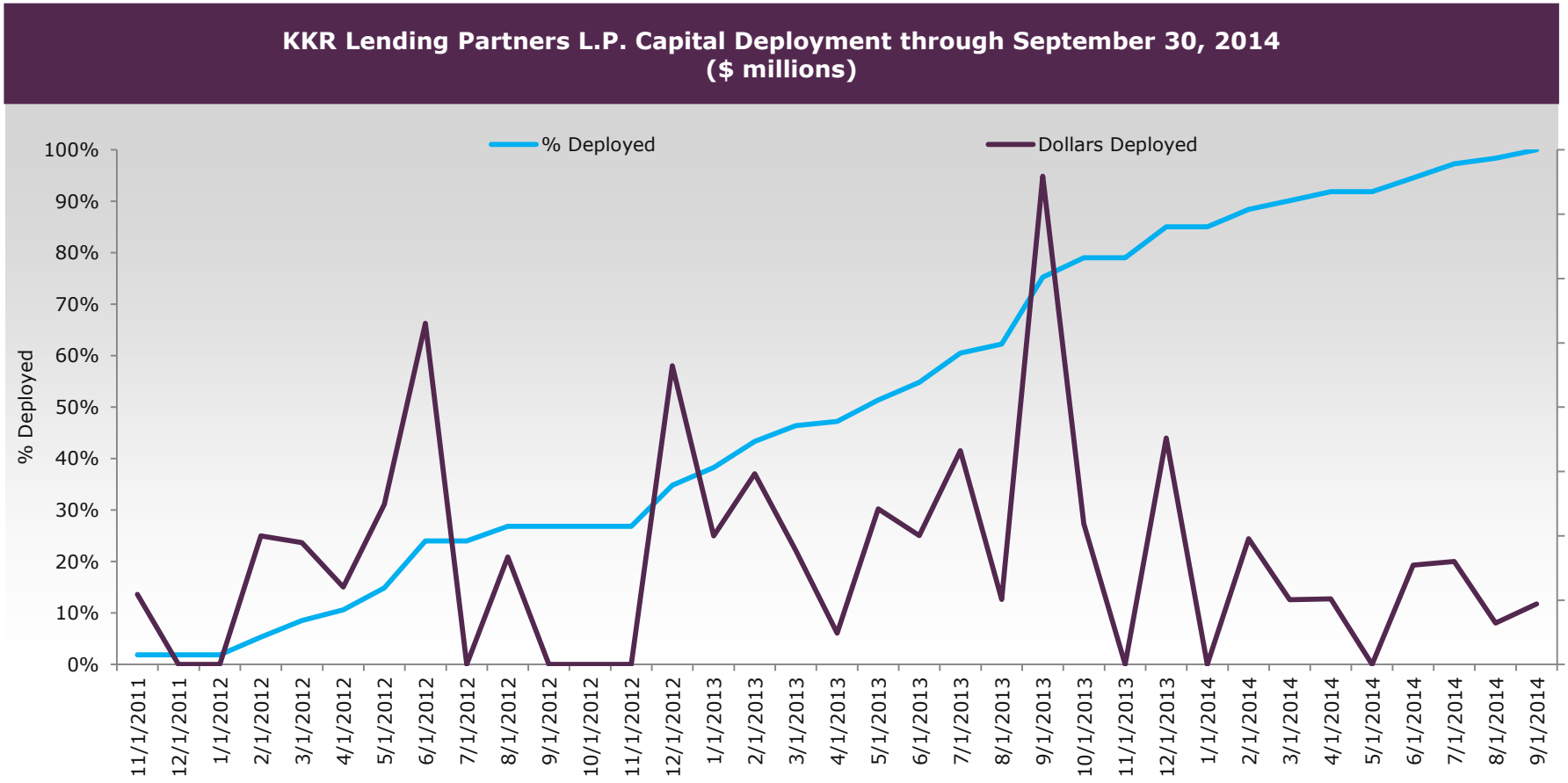
We believe KKR, through KKRLP II, is well-positioned to capitalize on attractive direct lending credit investment opportunities by focusing on highly-negotiated, well-structured investments which offer the following investment attributes:

Inflation Hedge	• Floating Rate Loans serve as an inflation hedge in an uncertain near-to-medium term interest rate environment
Current Income Opportunity	• Attractive interest income in the form of cash distributions generated from coupon payments; KKRLP investments have a weighted average coupon of L + 725bps
Attractive Relative Pricing	• A significant illiquidity 'premium' exists for privately-originated negotiated loans relative to broadly syndicated financings, achieved through wider spreads and higher yields than traded bank loans
Strong Diversification	• We anticipate the investments in the fund will be diversified across 30+ transactions in multiple industries
Lower Relative Default Risk	• Structural seniority in secured loans • Often robust and highly customized covenant packages • No defaults to-date in the predecessor fund, KKRLP and only one default in our historic direct lending strategy since inception in 2005(1)

Note: As of September 30, 2014. See Appendix B beginning on page 31 for a discussion of the risks of investing in direct lending funds. Past performance and characteristics of KKRLP may be different from that of the Fund, and aren't indicative of how the Fund would have performed in the past or will perform in the future.
(1) Legacy default was in Bi-Lo a 2007 vintage investment in which we recovered par. KKR Credit's track record of defaults in direct lending demonstrates a lower default rate relative to that of subordinated bank loans and high yield bond investments with similar return profiles. Source: KKR Credit.

KKR Lending Partners L.P. ("KKRLP")

Since launching KKRLP in late 2011 through September 30, 2014, KKRLP has successfully deployed the fund capital



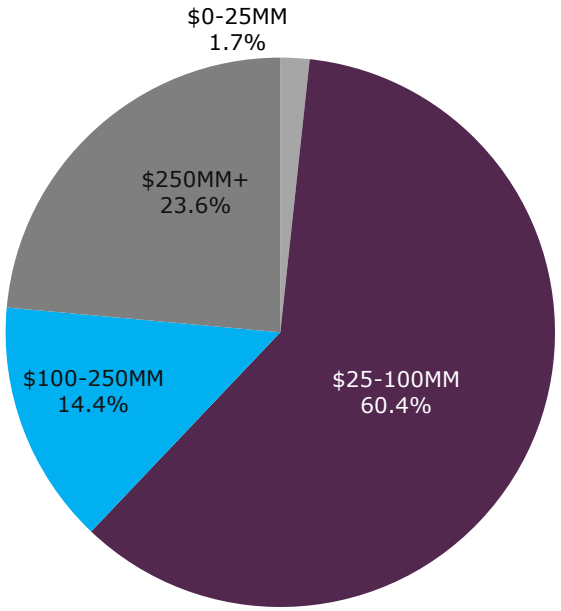
Note: See pages 2-4 for "Important Information" relating to the information presented herein. Past performance and characteristics of KKRLP may be different from that of the Fund, and are not indicative of how the Fund would have performed in the past or will perform in the future.

KKR Lending Partners L.P. – Summary

- Since launching the Fund, we have been focused on lending to high-quality businesses across a number of sectors
- We believe that we have built a diverse portfolio with an attractive profile
- We continue to target the larger end of the middle market, lending to established companies with EBITDA of over $25 million

KKRLP Portfolio Statistics (As of September 30, 2014)(1)	
Key Metric	**KKRLP**
Weighted Average LIBOR Floor	1.2%
Weighted Average Coupon	7.3%
Weighted Average All-In Yield	8.5%
Weighted Average Purchase Discount / Upfront Fees	2.4%
Weighted Average Maturity (from September 30, 2014 until final legal maturity)	4.1 years
Weighted Average Leverage Through the KKRLP Investment	3.6x

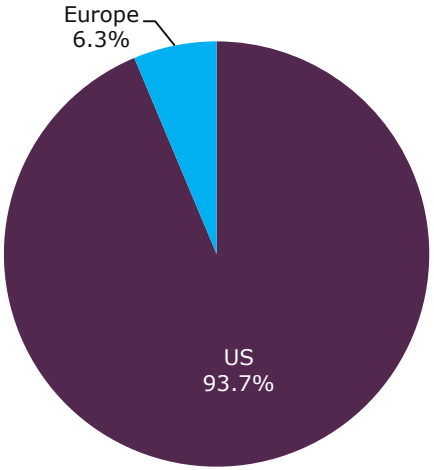
Range of LTM EBITDA (at time of transaction)



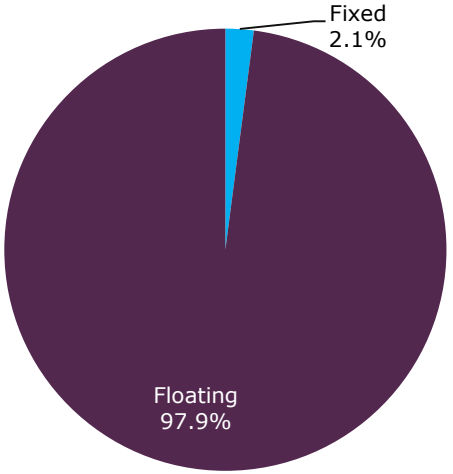
(1) Note: Based on Invested Amount as of September 30, 2014.
Note: Past performance is no guarantee of future results.

KKR Lending Partners L.P. – Portfolio Construction

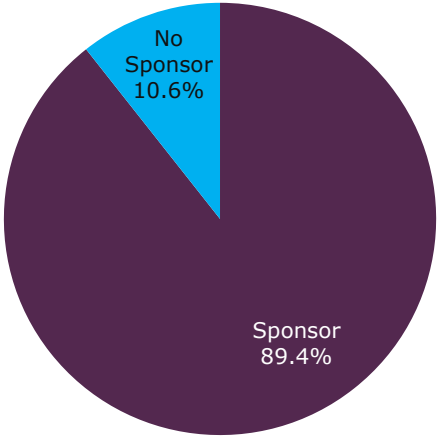
Geographic Diversification(1)



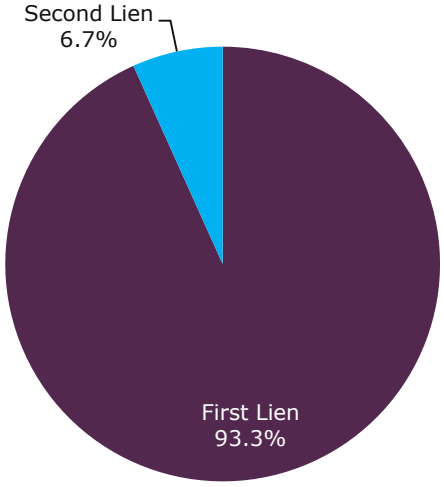
Fixed vs. Floating Rate(1)



Sponsor vs. Non-Sponsor(1)



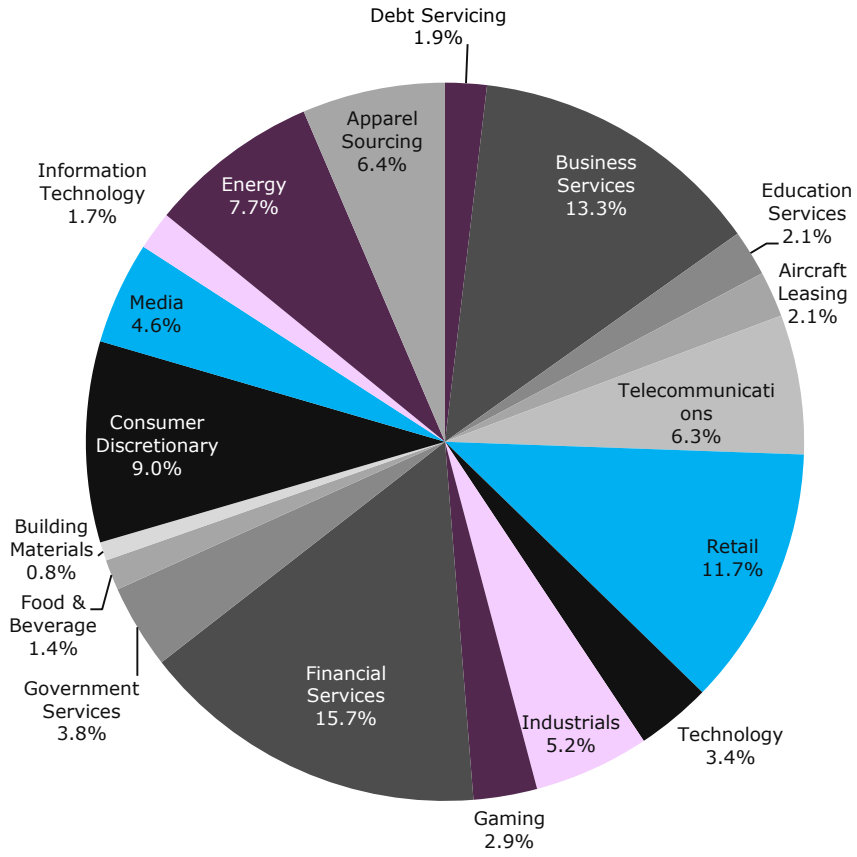
First vs. Second Lien(1)



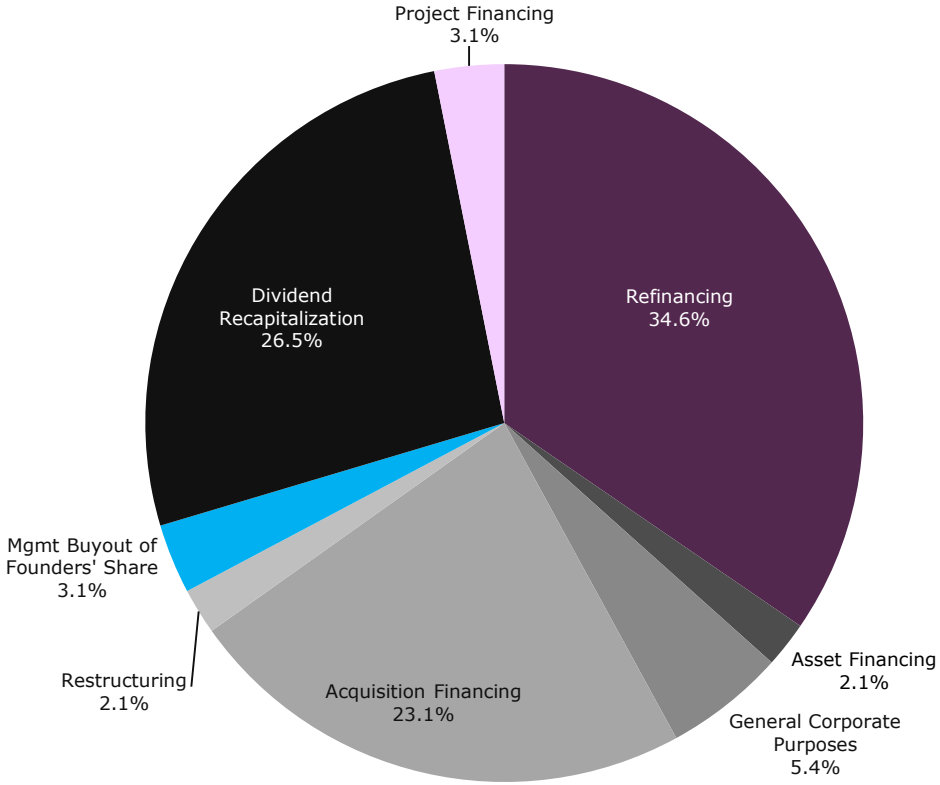
(1) As of September 30, 2014.
Note: Past performance and characteristics of KKRLP may be different from that of the Fund, and are not indicative of how the Fund would have performed in the past or will perform in the future.

KKR Lending Partners L.P. – Portfolio Construction (Continued)

Industry Diversification(1)



Use of Proceeds(1)

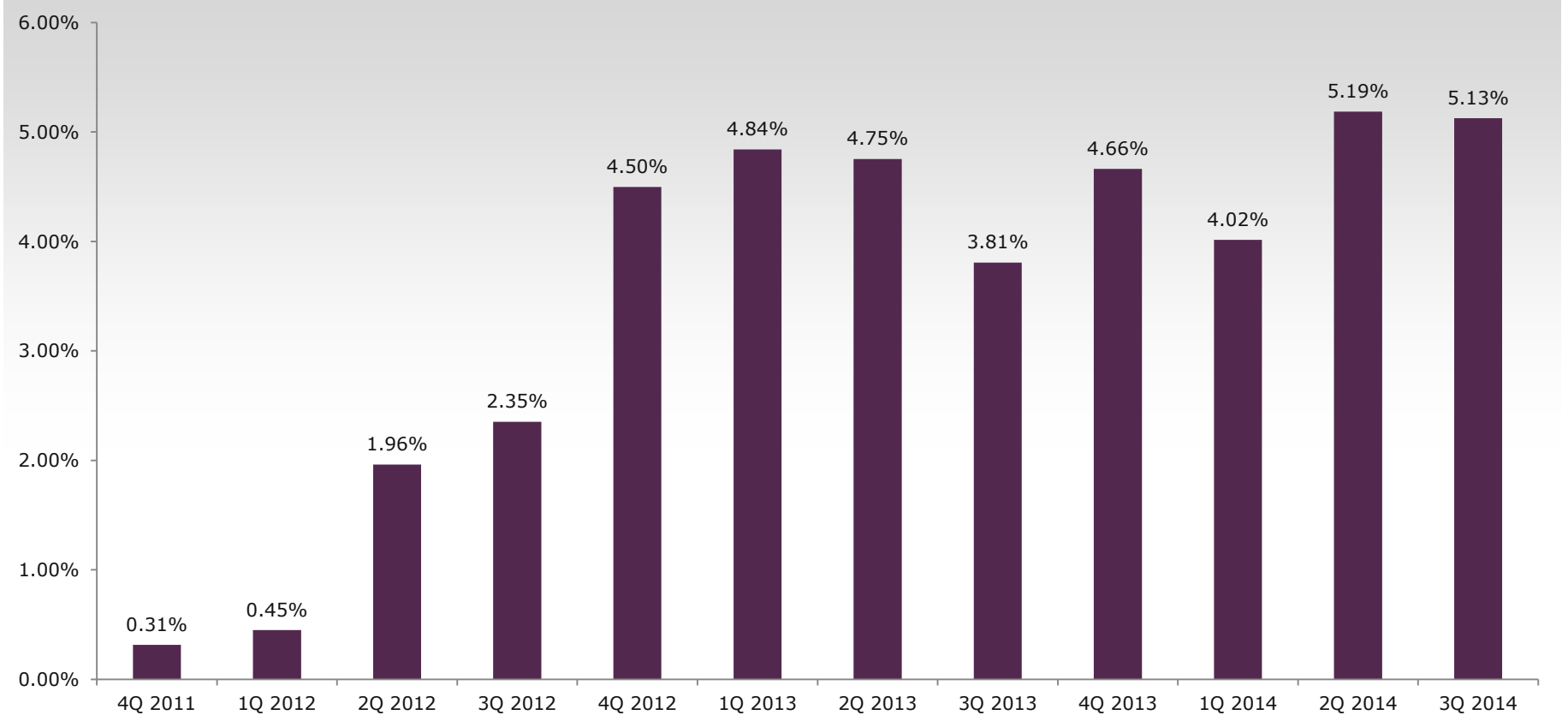


KKR

(1) As of September 30, 2014.
Note: Past performance and characteristics of KKRLP may be different from that of the Fund, and are not indicative of how the Fund would have performed in the past or will perform in the future.

KKR Lending Partners L.P. – Distribution Profile

KKRLP Quarterly Distribution Profile
(Gains and Current Income vs. Total Contributed Capital)



Note: See pages 2-4 for "Important Information" relating to the information presented herein. Past performance is not indicative of future results and there can be no assurance that comparable results will be achieved in respect of such strategies going forward or that investors in any KKR Credit fund, vehicle or account will receive a return of capital. All data is as of September 30, 2014.

KKR Lending Partners L.P. – Performance

KKR Lending Partners L.P. Performance Since Inception (as of September 30, 2014)	
Gross Hedged Unlevered Asset IRR [1]	**10.0%**
Leveraged Gross Asset IRR [2]	**18.4%**
Gross Fund Level IRR [3]	**14.1%**
Net Fund Level IRR [4]	**11.4%**

Please refer to the notes below for additional important information regarding the investments included in the KKR Lending Partners L.P. performance.

1. "Gross Hedged Unlevered Asset IRR" means the aggregate, annual, compound, gross internal rate of return on investments. Internal rates of return are computed on a dollar-weighted basis, which takes into account the timing of cash flows, the amounts invested at any given time and unrealized values as of the relevant Reporting Date. Gross Hedged Unlevered Asset IRR includes the effect of all foreign exchange derivative contracts. Gross Hedged Unlevered Asset IRR excludes the effect of leverage and interest expense (including accrued but unpaid interest) in connection with borrowings outstanding under the revolving credit facility. Gross Hedged Unlevered Asset IRR does not reflect management fees, carried interest, taxes, and transaction costs in connection with the disposition of unrealized investments, organizational expenses and other expenses to be borne by investors, which will reduce returns and in the aggregate are expected to be substantial.

Values shown for non-U.S. dollar investments are derived using foreign and U.S. currency spot rates at the time of valuation. Foreign exchange conversions are embedded within the calculations.

2. "Leveraged Gross Asset IRR" is consistent with the definition of "Gross Hedged Unlevered Asset IRR" above, but is inclusive of amounts borrowed under the revolving credit facility to finance investments, and interest expense (including accrued but unpaid interest) in connection with borrowings outstanding under the revolving credit facility.

3. "Gross Fund-level IRR" is consistent with the definition of Leveraged Gross Asset IRR, but is also inclusive of the timing of capital transactions, upfront credit facility fees, miscellaneous Fund expenses and other working capital requirements including restricted cash.

4. "Net Fund-level IRR" is consistent with the definition of Gross Fund-level IRR, but is also inclusive of management fees, organizational expenses, and carried interest. Management fees have been offset by transaction fees received by KKR Credit or its subsidiaries from portfolio companies.

Limitations of Related Performance. The performance shown is not the performance of the Fund and is not an indication of how the Fund would have performed in the past or will perform in the future. The Fund's performance in the future will be different from the performance shown due to factors including, but not limited to, differences in cash flows, fees, expenses, performance calculation methods, and portfolio sizes and composition. The performance presented reflects the performance of all investments made or committed to by KKR Lending Partners L.P. as of the Reporting Date utilizing a strategy substantially similar to that which will be utilized for the Fund.

Appendices

KKR

A. Presenter Biographies

KKR

Presenter Biographies & Contact Information

Chris Sheldon, Member, Co-Portfolio Manager, Direct Lending

Christopher A. Sheldon joined KKR in 2004 and is co-head of Leveraged Credit. Mr. Sheldon is also a member of Credit's Leveraged Credit Investment Committee, Private Credit Investment Committee and Portfolio Management Committee. Prior to his current role at KKR, Mr. Sheldon was responsible for opening Credit's London office in 2007 and investing across a number of sectors within its credit businesses. Before joining KKR, Mr. Sheldon was a Vice President and Senior Investment Analyst with Wells Fargo's High Yield Securities Group; and previously worked at Young & Rubicam Advertising and at SFM Media Corporation in their media-planning department. He received a B.A. from Denison University. Mr. Sheldon currently serves as a member of the board of directors of SquashDrive, a member of the National Urban Squash and Education Association.

Email: chris.sheldon@kkr.com

Phone: (415) 315-3632

Daniel McLaughlin, Director, Client & Partner Group

Daniel McLaughlin joined KKR in 2009 and is a member of the Client and Partner Group. Prior to joining KKR, Mr. McLaughlin spent more than eight years at BlackRock where he was involved in a broad range of activities including client management, fundraising, and consultant relations within the institutional investment community. Prior to that, he worked at Declaration Management and Research as a marketing officer and product specialist for fixed income. Mr. McLaughlin earned a B.S. from the Pennsylvania State University. He holds the CFA Charterholder designation.

Email: dan.mclaughlin@kkr.com

Phone: (415) 315-6573

B. Risks of Investing in Direct Lending Funds

KKR

Risks of Investing in Direct Lending Funds

Potential investors should be aware that an investment in private funds, such as the Fund, involves a high degree of risk and, therefore, should be undertaken only by investors capable of evaluating the risks of the Fund and bearing the risks it represents. The following is a summary of only certain risks and potential conflicts of interest associated with an investment in the Fund and is qualified in its entirety by the more detailed considerations in the "Risk Factors and Potential Conflicts of Interest" section of the Fund's Confidential Private Placement Memorandum, which must be reviewed carefully prior to an investment.

No Assurance of Investment Return. There is no assurance that the Fund will be able to generate returns for its investors, that the Fund will achieve its investment objective or that investors in the Fund will not lose some or all of their invested capital.

Highly Competitive Market for Investment Opportunities. The activity of identifying, completing and realizing attractive investment opportunities is highly competitive and involves a significant degree of uncertainty. The Fund competes for investment opportunities with other private investment vehicles, as well as the public debt markets, individuals and financial institutions, including investment banks, commercial banks and insurance companies, business development companies, strategic industry acquirers, hedge funds and other institutional investors. It is possible that competition for appropriate investment opportunities may increase and such supply-side competition may adversely affect the terms upon which investments can be made by the Fund. There can be no assurance that the Fund's general partner will be able to locate and complete investments which satisfy the Fund's objectives or to realize upon their values.

Illiquid Investments. The Fund's assets may be invested in securities, instruments or investments that are not actively traded on any major securities market or for which no established secondary market exists. The lack of an established secondary market may have an adverse effect on market price and the Fund's ability to dispose of investments when necessary in order to meet liquidity requirements, including funding withdrawal requests or responding to specific economic events such as a deterioration in the issuer's operating fundamentals or creditworthiness. This could result in the Fund incurring capital losses on the sale of illiquid assets, making in-kind withdrawal distributions, selling liquid positions and thereby increasing the Fund's concentration in illiquid securities and/or selling liquid positions at unfavorable prices.

Risks of Investing in Direct Lending Funds. The Fund's investment in debt securities means that the Fund's performance may decline if market interest rates rise. Given the historically low level of interest rates in recent years and the likelihood that interest rates will increase when the U.S. economy strengthens, the risk of the potentially negative impact of rising interest rates on the value of the Fund's portfolio may be significant. In addition, the longer the average maturity of the Fund's portfolio of debt securities, the greater the potential impact of rising interest rates on the value of the Fund's portfolio and the less flexibility the Fund may have to respond to the decreasing spread between the yield on its portfolio securities. Interest rates are currently low relative to historical levels. A number of lenders have exited middle market direct lending. Thus, the Fund may not be able to dispose of investments in a timely manner and/or without a haircut. The Fund may invest in debt securities in below-investment grade credit markets. These markets tend to be less liquid than investment grade credit markets. The Fund may not be able to dispose of its investments in a timely manner and/or without a haircut. Fund investments may be callable, forcing the Fund to reinvest proceeds at lower returns, negatively impacting the Fund's performance. The debt securities purchased by the Fund are not insured or guaranteed. Should debtors default on obligations owed to the Fund, the Fund may lose the entire value of its investment. Because KKR concentrates the Fund's investments in the direct lending middle market, the Fund's performance is expected to be more volatile than the performance of a Fund with a diversified investment strategy. Such volatility may be amplified by the Fund's intended use of leverage, which has the potential to exacerbate losses as compared to an unlevered fund with an identical investment portfolio.

Concentration. The Fund may at times allocate a substantial portion of its capital to a limited number of securities or other investments, or concentrate its investments across a limited number of jurisdictions or industry sectors. As a consequence, the Fund's aggregate return may be substantially affected by the unfavorable performance of one or a small number of investments, issuers, securities, geographic regions or industries.

Leverage. The Fund's investments are expected to include portfolio companies whose capital structures may have significant leverage. Such investments are inherently more sensitive to declines in revenues and to increases in expenses and interest rates. A leveraged entity may be subject to restrictive covenants imposed by other lenders restricting its activity, or may be limited in making strategic acquisitions or obtaining additional financing, and may be subject to restrictions on making interest payments and other distributions, which may affect the levels and timing of the Fund's returns. The Fund may incur debt (e.g., mortgage loans) to

Risks of Investing in Direct Lending Funds

acquire real property. The Fund may obtain one or more revolving credit or repurchase facilities based on the aggregate capital commitments of the Fund as of such date. In addition, the Fund intends to obtain additional financing through term debt or other secured or unsecured borrowings, as determined by the Fund's general partner, in order to provide additional capital and enhance returns and may secure its obligations under such borrowings by pledging the Fund's subscription agreements to one or more lenders. In connection with any credit facility used by the Fund, the Fund may be required to make certain representations or warranties to one or more lenders. The Fund may also be required to indemnify lenders pursuant to any credit facility in case any such representations or warranties are inaccurate. These arrangements may create contingent liabilities, for which the Fund's general partner may establish reserves or escrow accounts.

Potential Illiquidity of Interests. Interests in the Fund are not freely transferable. A limited partner of the Fund will not be permitted to assign its interests without the prior written consent of the Fund's general partner, which may be withheld at its sole discretion. There is no active secondary market for interests in the Fund and none is expected to develop. Limited Partners will not be permitted to withdraw cash from their capital accounts at any time.

Lack of Operating History. The Fund and its general partner have yet to commence operations and neither have a substantial operating history upon which prospective investors may evaluate performance. Investors should draw no conclusions from the prior experience of KKR or its affiliates, or the performance of other KKR funds or managed accounts, and should not expect the Fund to achieve similar returns.

Indemnification. Under certain circumstances, the Fund is responsible for indemnifying its general partner and its affiliates for losses or damages.

No Right to Control Operations. The Fund's limited partners have no opportunity to control the Fund's day-to-day operations, including investment and disposition decisions. The limited partners must rely entirely on the Fund's general partner to conduct and manage the Fund's affairs.

Absence of Regulatory Oversight. The Fund is not a registered investment company under the 1940 Act, or otherwise registered under the securities laws, or with the securities regulatory authority or commission, of any other jurisdiction. Accordingly, the provisions of the 1940 Act and legislation in other jurisdictions regulating the relationship between an investment fund and its asset manager, and otherwise protecting the interests of investors in an investment fund, are generally not applicable to an investment in the Fund.

Valuation Risk. The Fund relies on its general partner for the valuation of its assets and liabilities. In certain instances the general partner may determine the fair value of certain securities and assets in its reasonable judgment based on various factors and may rely on internal pricing models. Such valuations may vary from similar valuations performed by independent third parties for similar types of securities or assets. The valuation of illiquid securities and other assets that may be held by the Fund is inherently subjective and subject to increased risk that the information utilized to value such assets or to create the price models may be inaccurate or subject to other error. There is no guarantee that the value determined by the general partner will represent the value that will be realized by the Fund on the eventual disposition of the investment or that would, in fact, be realized upon an immediate disposition of the investment.

Lack of Independent Administrator. The general partner is responsible for a range of administrative functions. Accordingly, administration services, including the calculation of the Fund's net asset value, are not performed by an independent, third-party administrator.

Risks of Investing in Direct Lending Funds

Short-Term Trading Costs. The Fund may engage in short-term trading, which may result in increased turnover and higher than normal brokerage commissions, transaction costs and related expenses.

Tax-Exempt Investors May Pay Tax Due to UBTI. Certain U.S. limited partners exempt from federal income tax generally will be subject to federal income tax on their allocable shares of the Fund's taxable income that is UBTI. The Fund expects to incur leverage to enhance financial return. The Fund thus expects that some of its taxable income will be UBTI. This UBTI may have a significant effect on the after-tax return on an investment in the Fund by a tax-exempt Investor. An investment in the Fund may not be suitable for certain tax-exempt investors.

Certain Potential Conflicts of Interest. Actual, potential or apparent conflicts of interest may arise as a result of the relationships between the Fund's general partner and its affiliates (including KKR Credit or KKR) and investment funds and accounts managed by its affiliates on the one hand and the Fund and its limited partners on the other. KKR is a global alternative asset management firm and, as such, KKR and its partners, members, managing directors, directors, officers, employees and senior advisors may have multiple advisory, transactional, financial and other interests that may conflict with those of the Fund and its limited partners. There can be no assurance that KKR will resolve all conflicts of interest in a manner that is favorable to the Fund.

KKR may, on behalf of other KKR funds or KKR itself, buy, sell, hold, or otherwise deal with securities or other investments that may be purchased, sold, or held by the Fund or issued by a portfolio company in respect of which the Fund makes an investment, or may give advice to other KKR funds with respect to such investments that may differ from advice provided to the Fund. Conflicts of interest may arise between the Fund and its limited partners, on the one hand, and KKR and other KKR funds, on the other (including but not limited to those relating to the purchase or sale of investments by KKR or other KKR funds, the structuring of, or exercise of rights with respect to investment transactions for KKR or other KKR funds and the advice KKR provides to other KKR funds). From time to time, investment opportunities may arise that are suitable for investment by the Fund, KKR and/or one or more other KKR funds. Allocation of identified investment opportunities among the Fund, KKR and other KKR funds presents inherent conflicts of interest where demand exceeds available supply. The Fund's general partner and its affiliates have sole discretion to determine the manner in which investment opportunities are allocated between the Fund, KKR and other KKR funds. There can be no assurance that the Fund will have an opportunity to participate in certain investments that fall within its investment objectives. Certain co-investors co-investing with the Fund may invest on different (and more favorable) terms to those applicable to the Fund and may have interests or requirements that conflict with and adversely impact the Fund (for example, with respect to the timing of acquisitions and dispositions or control rights).

KKR and/or other KKR investors may invest in different parts of the capital structure of a company or issuer in which the Fund invests and may have interests that conflict with the Fund particularly, but not limited to, in the case of financial distress of the company. Because of its affiliation with the KKR, the Fund's general partner may have a greater incentive to invest in KKR-sponsored transactions (as compared to transactions sponsored by other private equity firms). KKR may invest on behalf of other KKR funds or for its own account in a portfolio company (in which the Fund may have no interest) that is a competitor or a service provider, supplier, customer or other counterparty of a portfolio company of the Fund. In providing advice and recommendations to such portfolio companies, and in dealing in their securities on behalf of other KKR funds or KKR, to the extent permitted by law, KKR will not have regard to the interests of the Fund and its portfolio companies.

C. Endnotes

KKR

Endnotes

These endnotes are an integral part of this presentation. The data and information presented are for informational purposes only. By accepting this material, you agree that you will not distribute or provide this information to any other person.

KKR Credit conducts its business through KKR Credit Advisors (US) LLC, an SEC-registered investment adviser, KKR Credit Advisors (Ireland), authorized and regulated by the Central Bank of Ireland, and KKR Credit Advisors (UK) LLP which is authorized and registered by the Financial Conduct Authority in the United Kingdom. KKR Credit provides investment management and advisory services to separate accounts and pooled investment vehicles. KKR Credit Advisors (US) LLC is divided into two divisions: the Marketable Securities Division and the Alternative Investments Division. The Marketable Securities Division provides investment management services that follow a fixed-income and/or equity strategy generally investing in instruments with a readily determinable market value. The Alternative Investments Division provides investment management services that generally invest in instruments with a not readily determinable market value or vehicles that may sell securities or other assets short or enter into similar transactions (other than for the purpose of hedging). For compliance with the Global Investment Performance Standards (GIPS®) the Firm is defined and held out to the public as the Marketable Securities Division of KKR Credit Advisors (US) LLC. The Alternative Investments Division does not claim GIPS compliance. In January 2014, the Firm was redefined to exclude blended portfolios that hold over 30% of their assets in investments managed by the Alternative Investments Division, as it was determined that such portfolios are not representative of the Marketable Securities Division's investment management process. In 2014, KKR Credit Advisors (Ireland) was acquired by KKR and became a part of KKR Credit. The Marketable Securities Division of KKR Credit (the "Firm") claims compliance with Global Investment Performance Standards (GIPS). To receive a compliant presentation and/or the firm's list of composite descriptions, please contact Christina Fang at (415) 315-3708.

Unless otherwise noted, the term "assets under management" (or "AUM") represent the assets under management as to which KKR Credit is entitled to receive a fee or carried interest as well as assets to which it is not entitled to receive a fee or carried interest. KKR Credit's calculation of AUM may differ from the calculations of other asset managers and, as a result, KKR Credit's measurements of its AUM may not be comparable to similar measures presented by other asset managers.

Calculation of Gross and Net Returns. The performance shown is for the stated time period only; due to market volatility, each account's performance may be different. Returns are time-weighted and geometrically linked and unless otherwise stated, gross performance results are net of commissions and other direct expenses, but before management fees, custody charges, withholding taxes, and other indirect expenses. Net performance results are net of management fees, commissions, and other direct expenses, but before custody charges, withholding taxes, and other indirect expenses. All returns include the reinvestment of dividends. Differences in account size, timing of transactions and market conditions prevailing at the time of investment may lead to different results. Differences in the methodology used to calculate performance may also lead to different performance results than those shown. Broad-based securities indices are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. Investments cannot be made directly in a broad-based securities index.

Past performance is no guarantee of future results.

No assumption should be made that any investor will have an investment experience similar to that of any previous or existing investor or that any investor will achieve returns comparable to those shown. Further, individual investments presented herein may not be included in any future fund sponsored by KKR Credit. High short-term returns for any period may be and likely were attributable to favorable market conditions during that period, which may not be repeated. Differences in fund size, timing of transactions and market conditions prevailing at the time of investment may lead to different results. Differences in the methodology used to calculate performance might also lead to different performance results than those shown. KKR Credit believes, however, that the performance shown is reasonably representative of its management style and is sufficiently relevant for consideration.

December 4, 2014

Alaska Retirement Management Board

Market Participation Strategy (MPS)

Devang Gambhirwala
Portfolio Manager
(973) 367-9382

Stephen Brundage, CFA
Product Specialist
(973) 367-4591

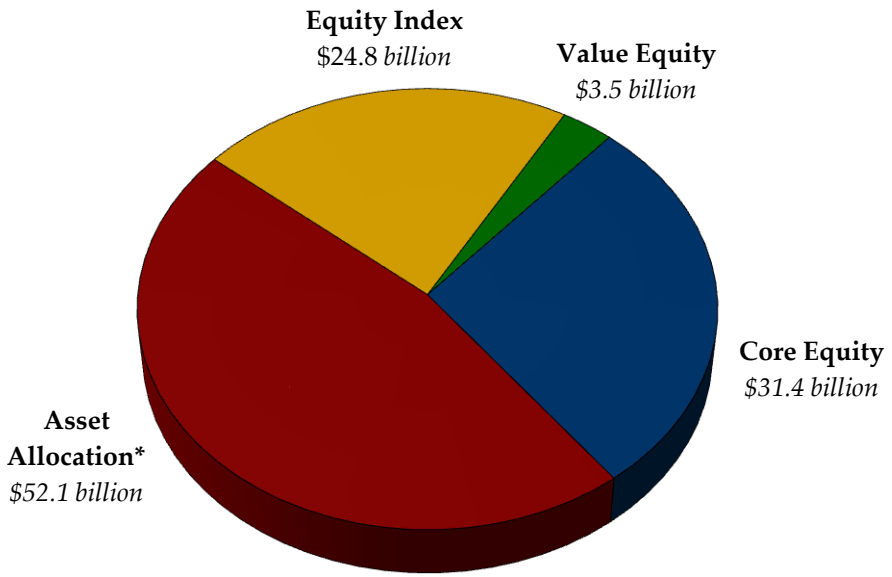
Kevin O'Rourke, CFA, CAIA
Institutional Client Relations
(973) 367-5395

Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures.

QMA
Overview

- Highly experienced and stable team
  - 53 investment professionals, including 19 PhDs, averaging 18 years of investment experience
- Worldwide institutional client base
- Wholly-owned, but independently operated subsidiary of Prudential Financial, Inc.

Assets Under Management
$111.8 Billion



As of 9/30/14.
AUM totals may not sum due to rounding.
** QMA's total Asset Allocation AUM is $65.8 billion, including $13.7 billion that QMA's Asset Allocation team directs to equity strategies advised by QMA; in this pie chart, these assets are only included in the Core Equity, Value Equity, and Equity Index AUM in order to avoid double counting.*

Market Participation Strategy (MPS)

A Defensive Approach to Equity Investing

Investment Objective*

- Seeks to provide upside participation when the U.S. market advances, while reducing downside risk

Approach

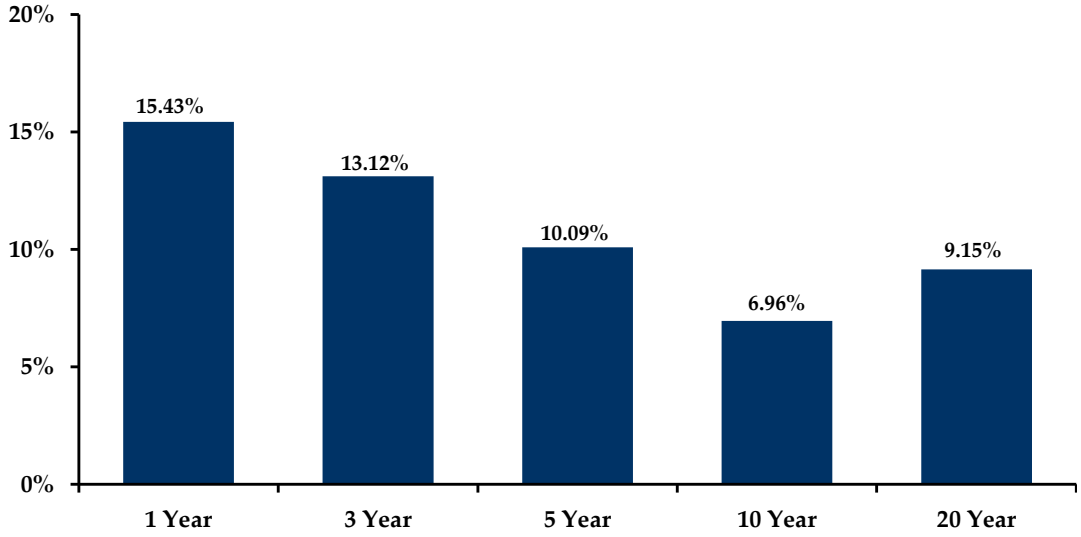
- The strategy dynamically adjusts factor exposures (market, volatility, and duration) using:
  - S&P 500 Index options and futures which can provide both equity participation and downside protection
  - US Government bonds which seek to reduce risk and preserve capital
- Exposures are actively managed in response to changing market conditions

Portfolio Highlights

- Strategy focuses on reducing portfolio drawdowns
- MPS has exhibited a low correlation to both stocks and bonds
- Utilizes highly liquid instruments to achieve targeted exposures

Annualized Gross Returns

As of 9/30/14



20 Year Ending 9/30/14	MPS
Standard Deviation	9.2%
Sharpe Ratio	0.69
Maximum Drawdown	-19.0%

**There can be no guarantee that this objective will be achieved. The 20 Year gross performance for QMA's US Market Participation Strategy as of September 30, 2014 would have been reduced from 9.15% to 8.64% if netted by the highest single client fee for this strategy. Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures, and the 'Composite Performance Returns' section in the Appendix for full disclosures and net performance through December 31, 2013. Past performance is not a guarantee or a reliable indicator of future results.*

Experienced Team Focused on Portfolio Management and Research

Investment Professionals

Roy Henriksson, PhD - *Chief Investment Officer* - 29 Years of Investment Experience

U.S. Core Equity		Years of Inv. Experience
Peter Xu, PhD	*Head of US Core Equity*	21
Dan Carlucci, MBA, CFA*	*Portfolio Manager*	27
Devang Gambhirwala, MBA	*Portfolio Manager*	27
Stacie Mintz, MBA, CFA	*Portfolio Manager*	21
Satish Sanapareddy, MBA, CFA	*Senior Quantitative Analyst*	16
Chantal Chuang, MS, MA	*Quantitative Analyst*	7
Edward Lithgow, MBA	*Quantitative Analyst*	12
Brian Reppert, MBA*	*Quantitative Analyst*	7

U.S. Value Equity		Years of Inv. Experience
John Leib, MBA, CFA	*Head of Value Equity*	33
Deborah Woods	*Portfolio Manager*	36
Stephen Courtney	*Portfolio Manager*	28
Mitchell Stern, PhD	*Portfolio Manager*	29
Robert Leung, CFA	*Portfolio Manager*	19
Kerri Quinn	*Associate*	7

Indexing		Years of Inv. Experience
John Moschberger, MBA, CFA	*Portfolio Manager*	31
Edward Louie, MBA	*Indexing Analyst*	15

**Also Dan Carlucci, Brian Reppert*

Research		Years of Inv. Experience
Margaret Stumpp, PhD	*Senior Advisor*	27
Joshua Livnat, PhD	*Senior Researcher*	21
George Sakoulis, PhD	*Senior Researcher*	15
Maxwell Smith, PhD	*Senior Researcher*	26
Martin Tarlie, PhD, CFA	*Senior Researcher*	13
Kenneth Hsu, PhD	*Researcher*	6
Eugenio Ortiz, PhD	*Researcher*	8
Patrick Pfeifer, MBA, CFA	*Researcher*	2
Gavin Smith, PhD	*Researcher*	11
Timothy Wheeler, PhD	*Researcher*	3

As of 9/30/14

Non-U.S. Core Equity		Years of Inv. Experience
Jacob Pozharny, PhD	*Head of Non-US Core Equity*	22
Wen Jin, PhD, CFA	*Portfolio Manager*	14
John Van Belle, PhD	*Portfolio Manager*	41
Ping Wang, PhD	*Portfolio Manager*	17
Pavlos Alexandrakis, MBA, CFA	*Product Specialist*	28
Vlad Shutoy, MS	*Senior Quantitative Analyst*	10
Ken D'Souza, MBA, CFA	*Quantitative Analyst*	5
Harry Hinkel	*Quantitative Analyst*	11
Sean Lu, PhD	*Quantitative Analyst*	1
Jyoti Singh, MFin	*Quantitative Analyst*	4
Madelen Tejada	*Quantitative Analyst*	13

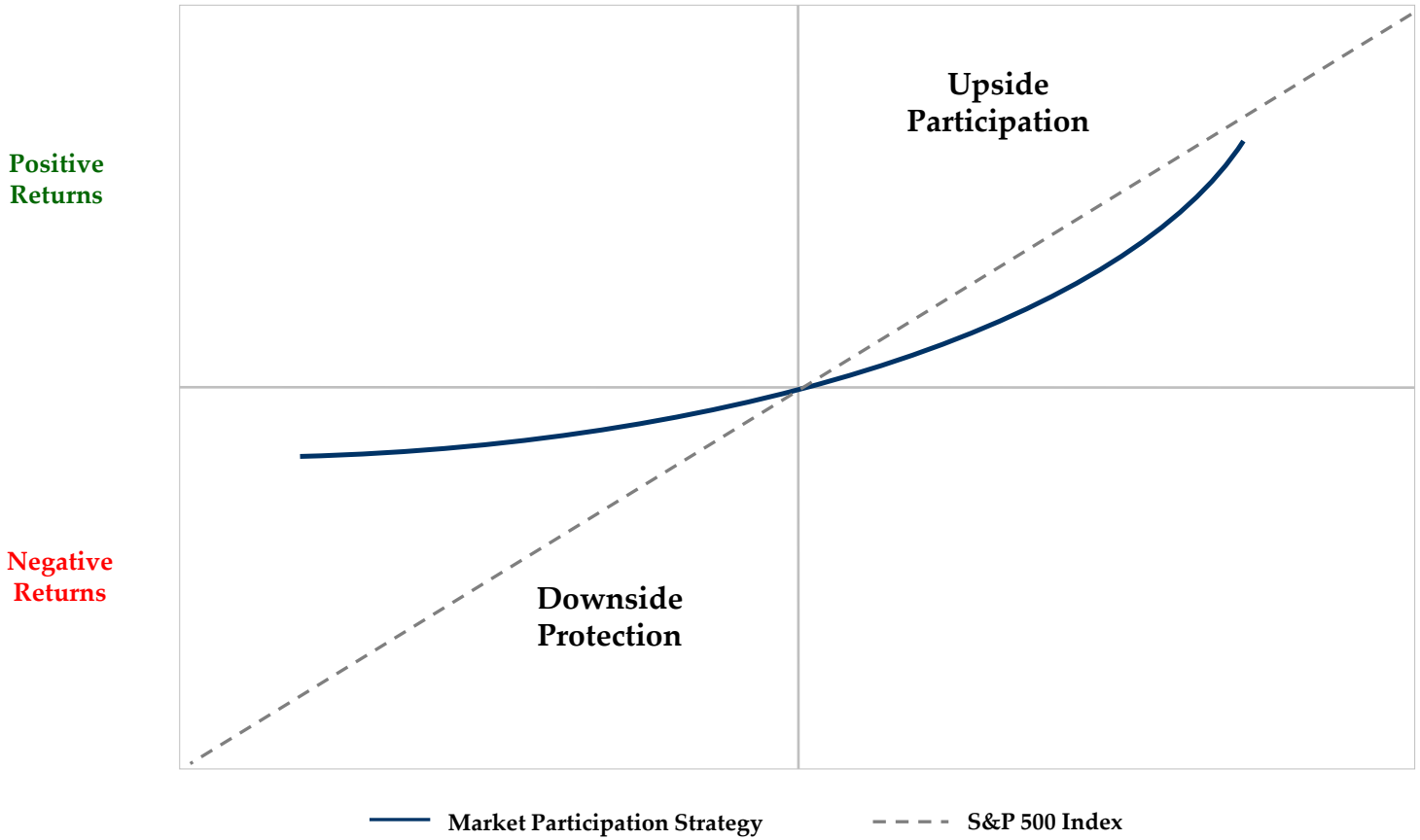
Asset Allocation		Years of Inv. Experience
Ted Lockwood, MBA, MS	*Head of Asset Allocation*	26
Marco Aiolfi, PhD	*Portfolio Manager*	9
Edward Campbell, MBA, CFA	*Portfolio Manager*	19
Rory Cummings, MBA	*Portfolio Manager*	5
John Hudock, CFA	*Portfolio Manager*	35
Joel Kallman, MBA, CFA	*Portfolio Manager*	9
Edward Keon, Jr., MBA	*Portfolio Manager*	22
Marcus Perl, MA	*Portfolio Manager*	23
Yesim Tokat-Acikel, PhD	*Portfolio Manager*	12
Stephen Brundage, MBA, CFA	*Product Specialist*	30
Pat Watral, MBA	*Product Specialist*	22
Peter Vaiciunas, MBA, CFA	*Associate*	4

Trading		Years of Inv. Experience
Richard Crist	*Head of Trading*	27
Joseph Lombardi	*Trader*	25
Wataru Yamaguchi	*Trader*	22

Market Participation Strategy

Provides Equity Market Returns While Focusing on Reducing Downside Risk

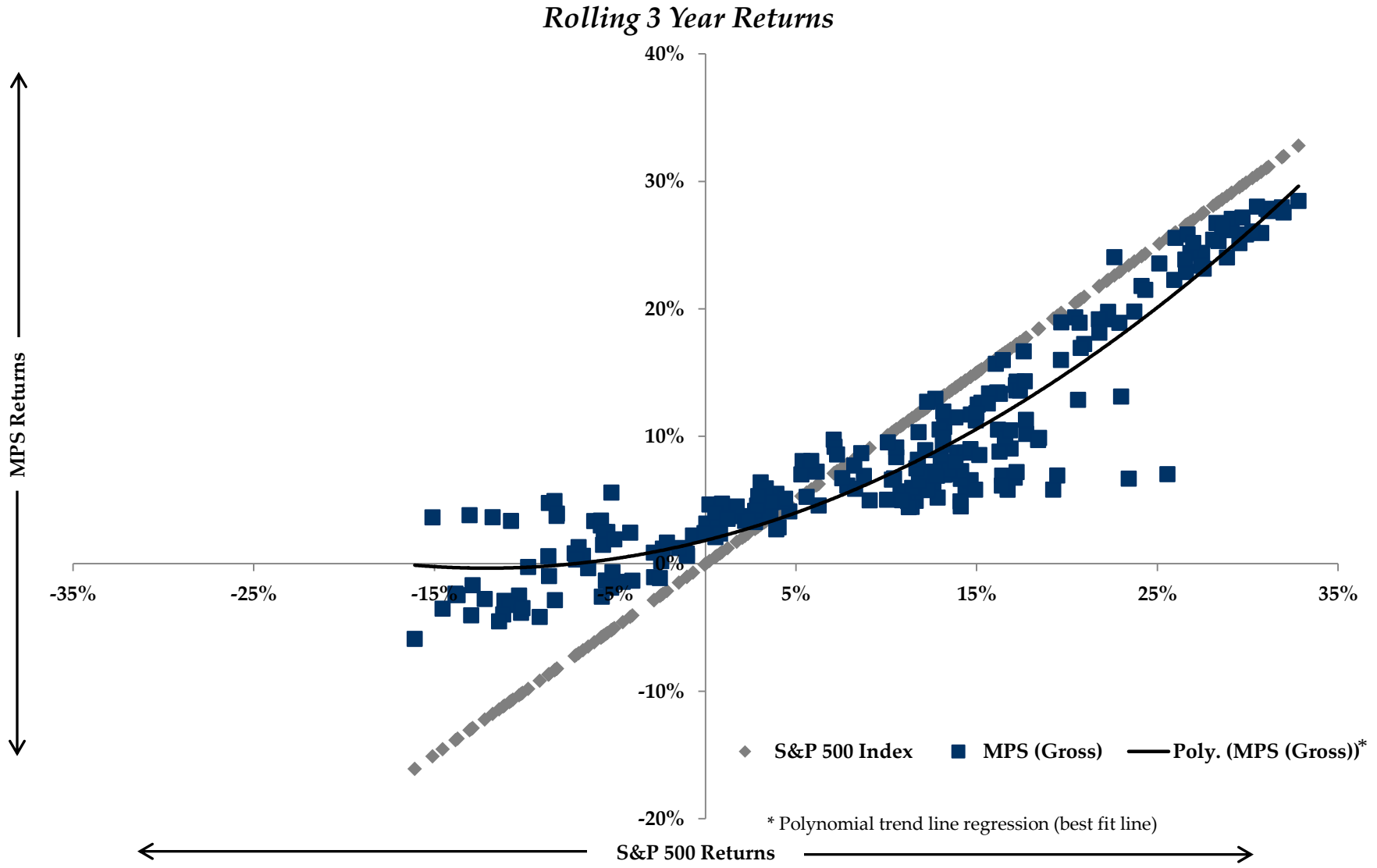
Market Participation Strategy Return Profile



Shown for illustrative purposes only.

MPS Performs as Expected

Returns Slightly Underperform in Up Markets While Limiting Losses in Down Markets



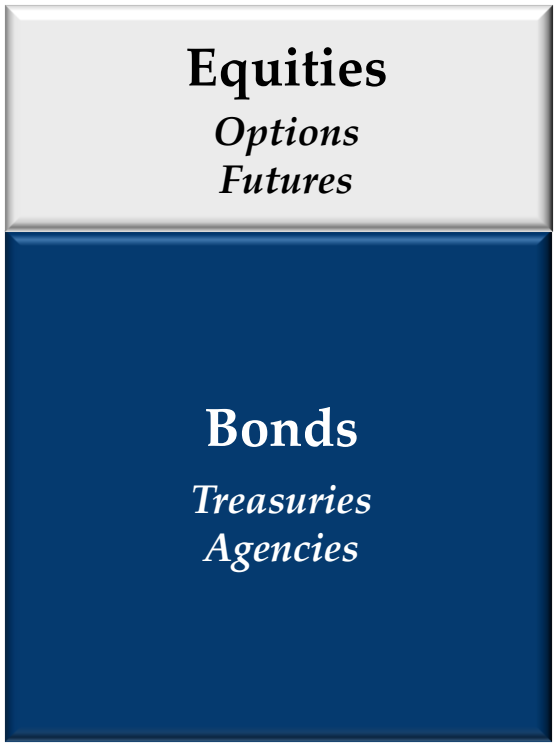
As of 9/30/14

Source: QMA, FactSet.

Inception date of QMA's US Market Participation Composite is 1/1/92. Please see 'Notes to Disclosure' page for Important Information including risk factors, disclosures, and the 'Composite Performance Returns' section in the Appendix for full disclosures and net performance. Past performance is not a guarantee or a reliable indicator of future results.

Market Participation Strategy

Portfolio Composition



Equities: Typically 10 – 30% of MPS Portfolio

Options: 3-5 year custom FLEX S&P 500 Index at or near the money listed options (15-25%)

Futures: S&P 500 Index futures (0-10%)

Replication Basket: Opportunistically complements the equity portfolio when QMA identifies mispricing in shorter dated S&P 500 listed call and puts options (3 months to 3 years)

Bonds: Typically 70 – 90% of MPS Portfolio

Bonds:

- US Treasuries
- US Government Agencies
- Intergovernmental Agencies

What is a Call Option on the S&P 500?

Buying a "long" call option on the S&P 500 gives an investor:

- The right, but not the obligation, to purchase the S&P 500
- At an agreed upon price
  - (the strike price)
- At any point within an agreed upon time frame
  - (anywhere from 1 months to 5 years)

The investor pays a premium up front for this right

Source: QMA.
Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures.

How is the Option Premium Priced?

Since:

- there is a limited time in which to exercise the option
- the premium paid is non-refundable

Call options sell at a discount to the current level of the S&P 500

Thus, the premium an investor pays is a fraction of what it would cost to buy the underlying investment (the S&P 500)

Source: QMA.
Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures.

Example

- A premium for a 5 year call option on the S&P 500 might cost about 20% of the current level of the S&P 500

- Thus, buying a $200 call option premium gives an investor the right to control about $1,000 of S&P 500 exposure at any point in the future prior until the option matures

In other words, it is possible to control a larger investment in the S&P 500 than if you purchased the S&P 500 directly

without borrowing any money

Source: QMA.
Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures.

Comparing Investment Outlay to Market Exposure

- Similar to using a mortgage to purchase a house (by making a 20% down payment you "own" the house and thus the right to participate in any gains in price), any increase in the value of the S&P will have a larger impact on the options than it will if the investor purchased the S&P 500 (or house) directly.

- Thus

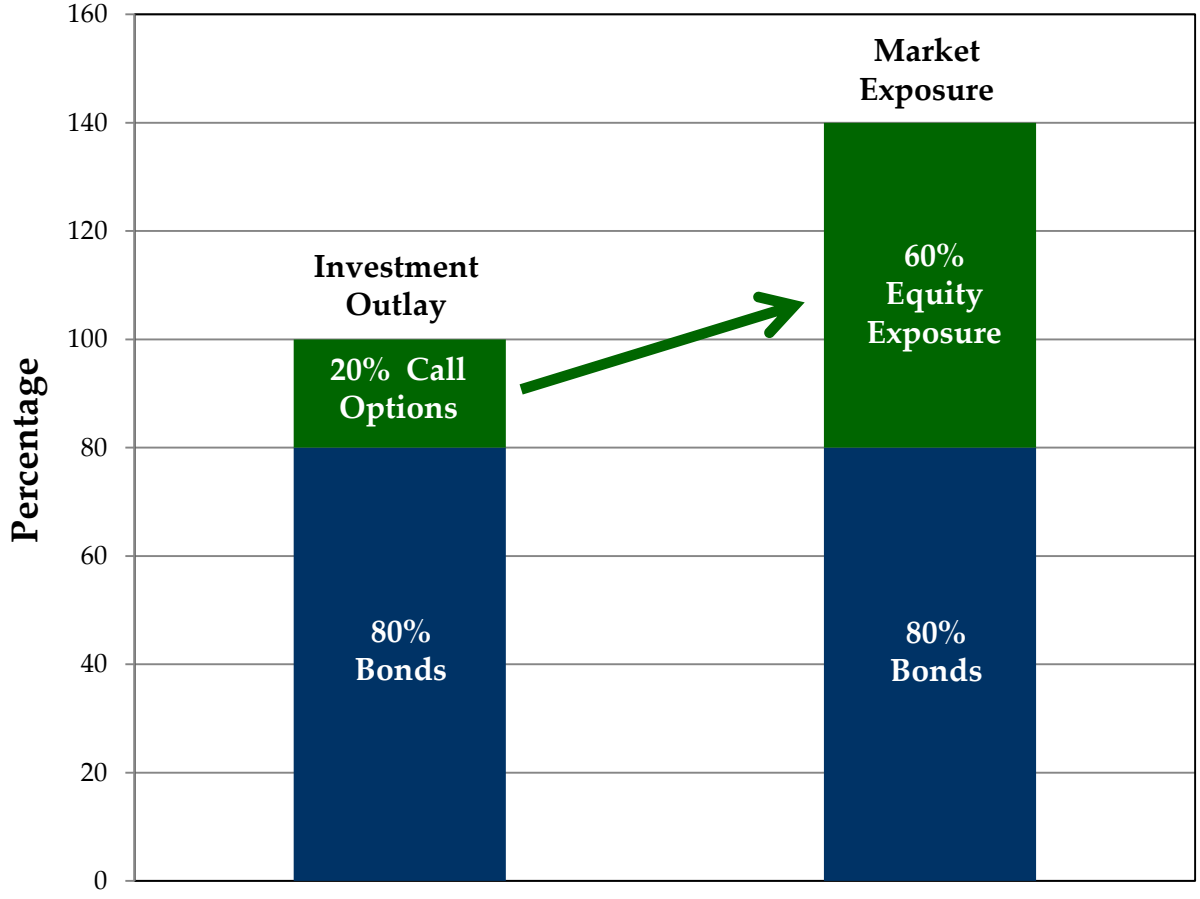
    - When the S&P 500 rallies the percentage price increase on a call option may be proportionately higher than the increase in the underlying S&P 500 investment

    - When the S&P 500 declines - unlike with a house - losses are limited to the initial premium because you haven't borrowed any money.

Source: QMA.
Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures.

Comparing Investment Outlay to Market Exposure

- QMA works with brokers to purchase options which normally would capture about 60% - 65% of the short term movements in the S&P 500 prior to maturity
- QMA brings 20 plus years of experience managing equity exposure through options

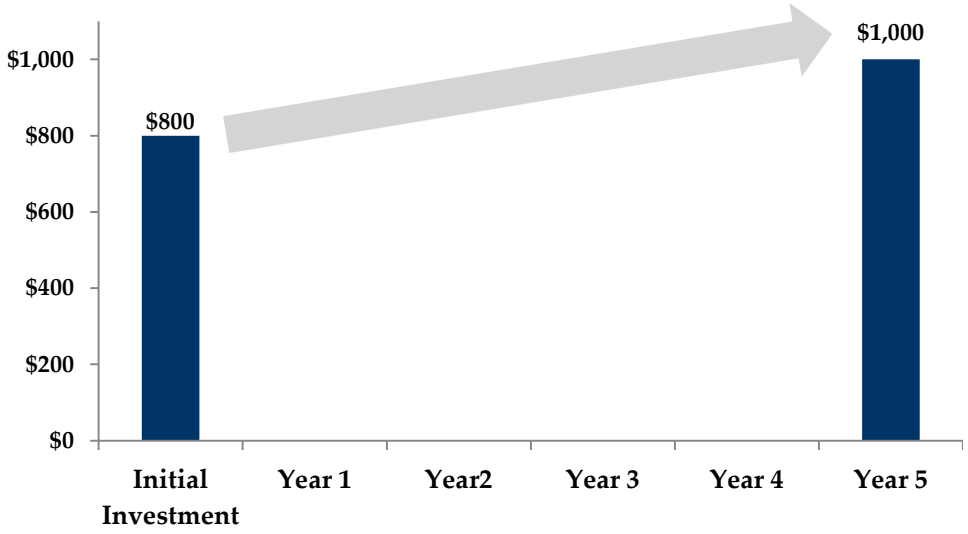


Source: QMA.
Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures.

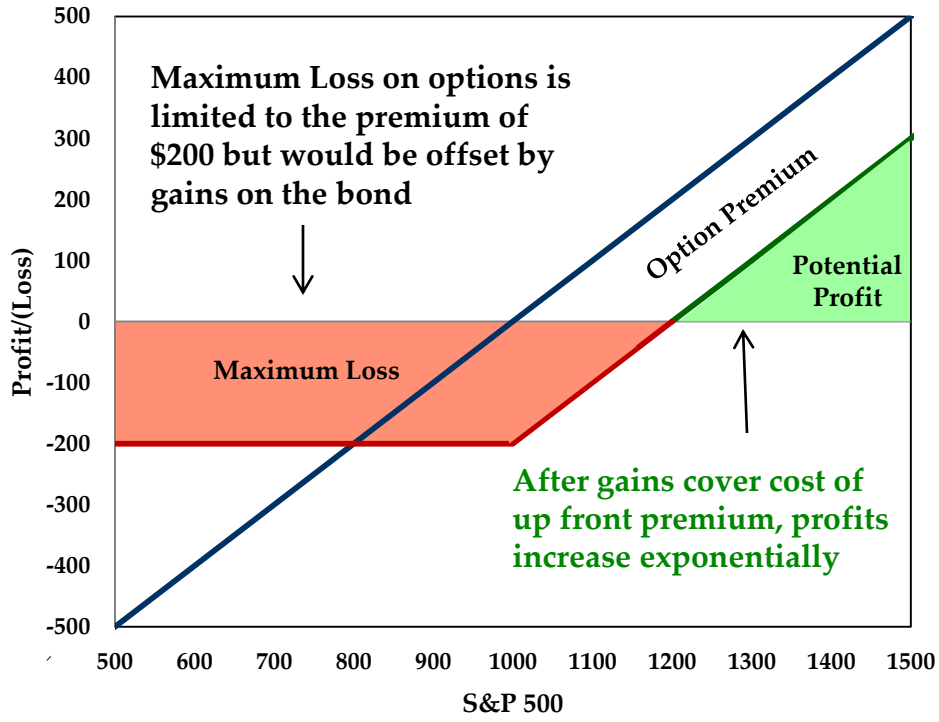
Market Participation - Changes in Value of Securities If Held to Maturity

Combines Zero Coupon Bonds & Call Options

Zero Coupon Bond
Yield @ 4.6%
Pay $800 for Bond



S&P 500 Call Options
Pay $200 for options; loss is limited to the premium paid

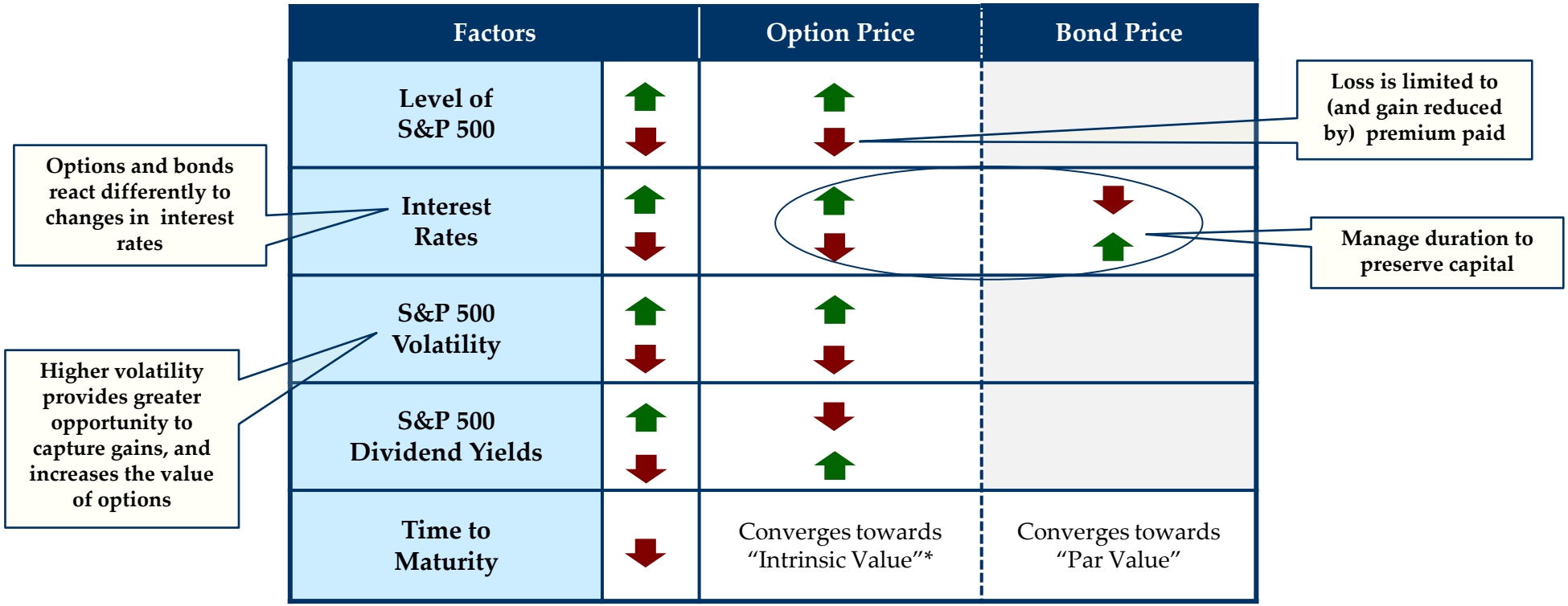


But, Bonds and Options are Actively Managed, not held to maturity…

Source: QMA.
Shown for illustrative purposes. Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures.

Managing Exposures in Response to Changing Market Conditions

Factors That Impact Portfolio Returns



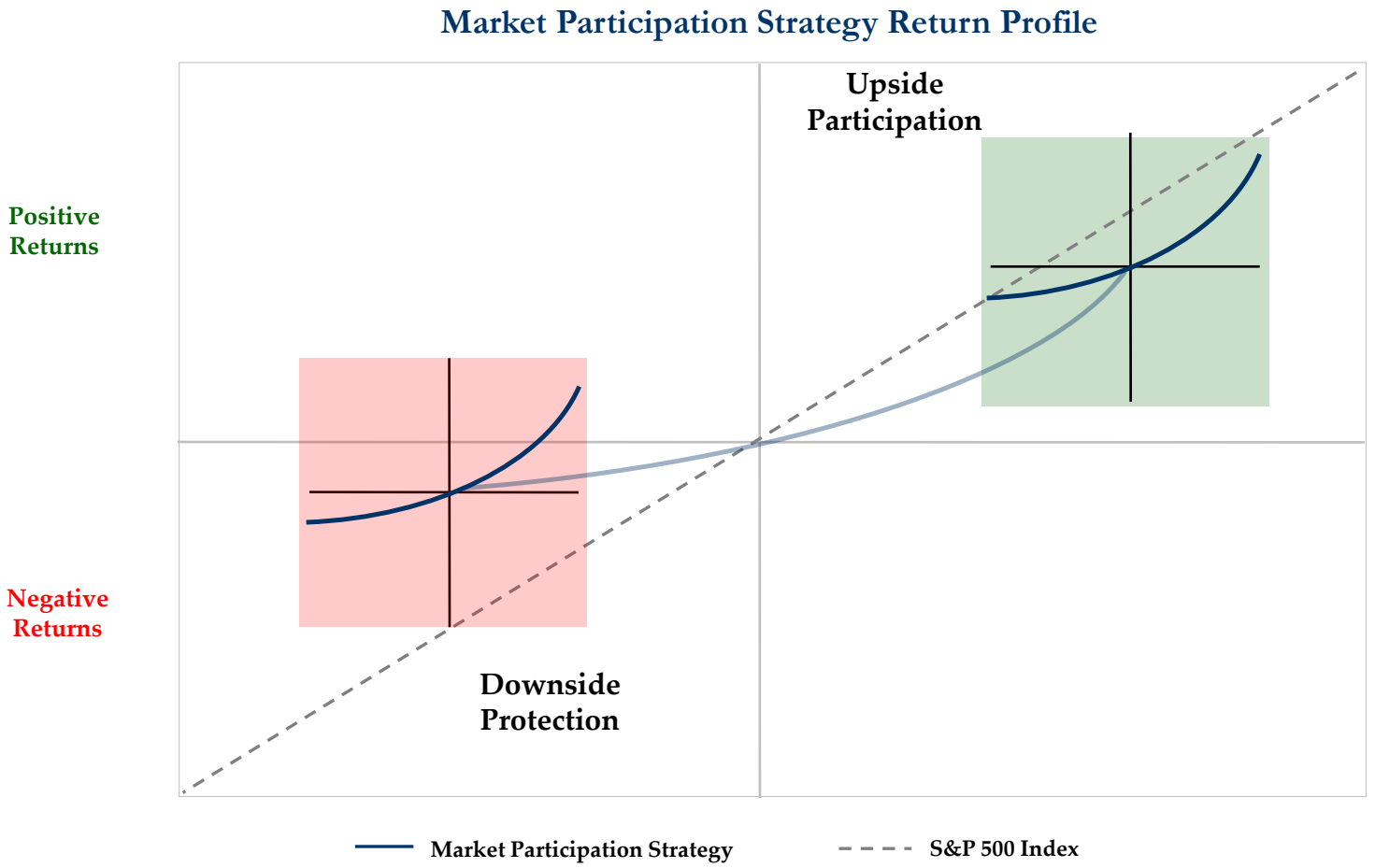
**Level of index- Strike price*

Source: QMA.

Shown for illustrative purposes. Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures.

Active Management of Equity Exposures

Periodic Resetting Results in Capturing Upside Gains & Reducing Downside Losses



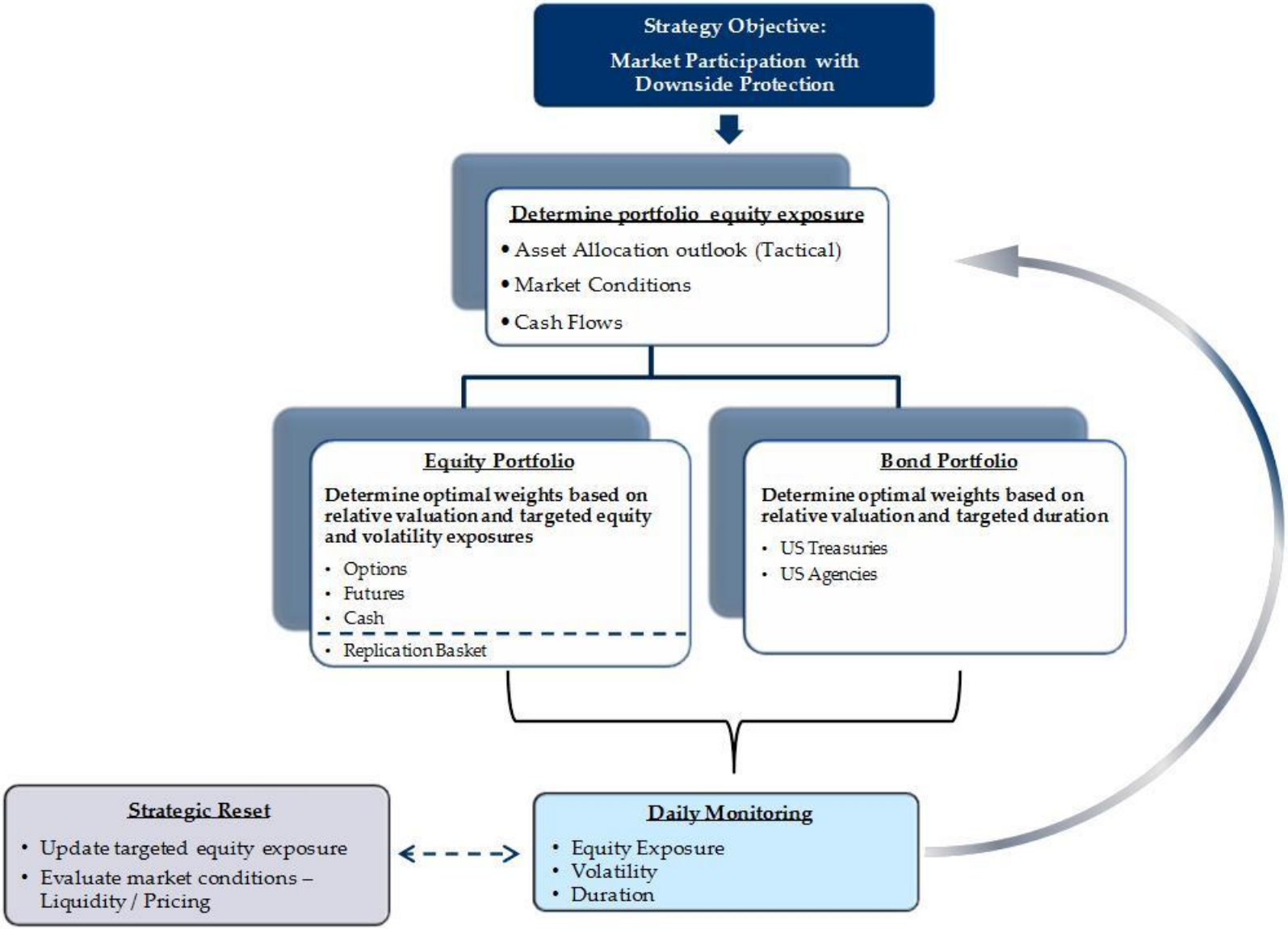
Shown for illustrative purposes only.

Resetting Equity Exposures Combines Quantitative Factors and Portfolio Management Judgment

- The strategy typically targets 60-65% equity exposure at reset
- Portfolio equity exposure varies (ranges from 10% to 90%)
- Key parameters which may trigger resetting equity exposures include:
  - Equity exposure changes more than 20%
  - Equity option weights change more than 10%
  - The maturity of the option portfolio approaches three years
- Additional factors considered include:
  - QMA Asset Allocation equity outlook
  - Liquidity in the markets
  - Interest rates and volatility levels

QMA's Market Participation Strategy

Investment Process



Performance Analysis - 2013

Options – Locking in Gains

Tactical reset trades allowed us to lock in equity gains and realign portfolio equity exposure

<u>1330 Call</u>
Held - Jan 1, 2013, at $210.18
Sold – Feb 28, 2013 for $260.00
Option return 24%, S&P 500 up 6%

<u>1520 Call</u>
Bought – Feb 28, 2013 for $215.00
Sold – Nov 19, 2013 for $390.00
Option return 81%, S&P up 18%

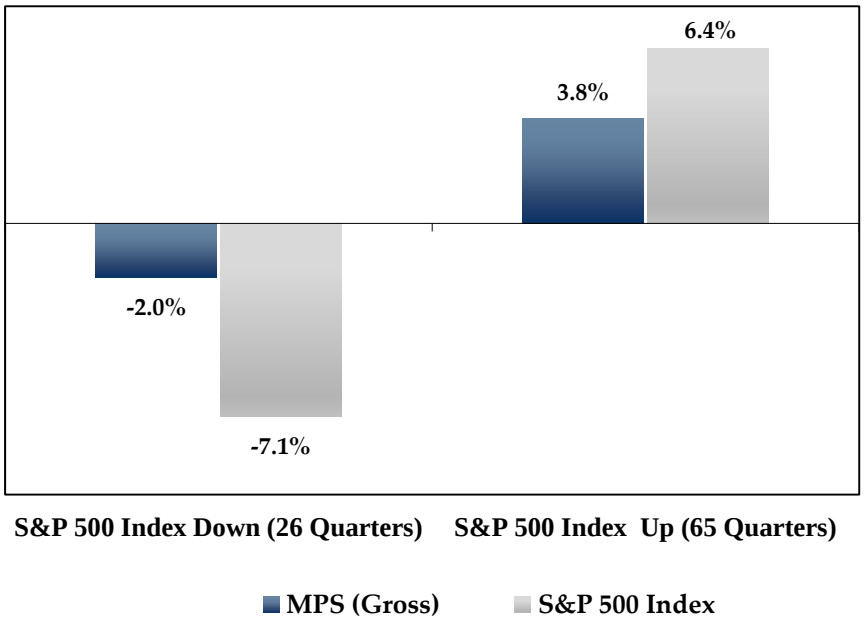
Sources: QMA, Markit and Bloomberg.
Shown for illustrative purposes only. Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures. Past performance is not a guarantee or a reliable indicator of future results.

US Market Participation Strategy Composite Return Characteristics

MPS has Provided 60% of Market Upside with 28% of the Downside Since Inception

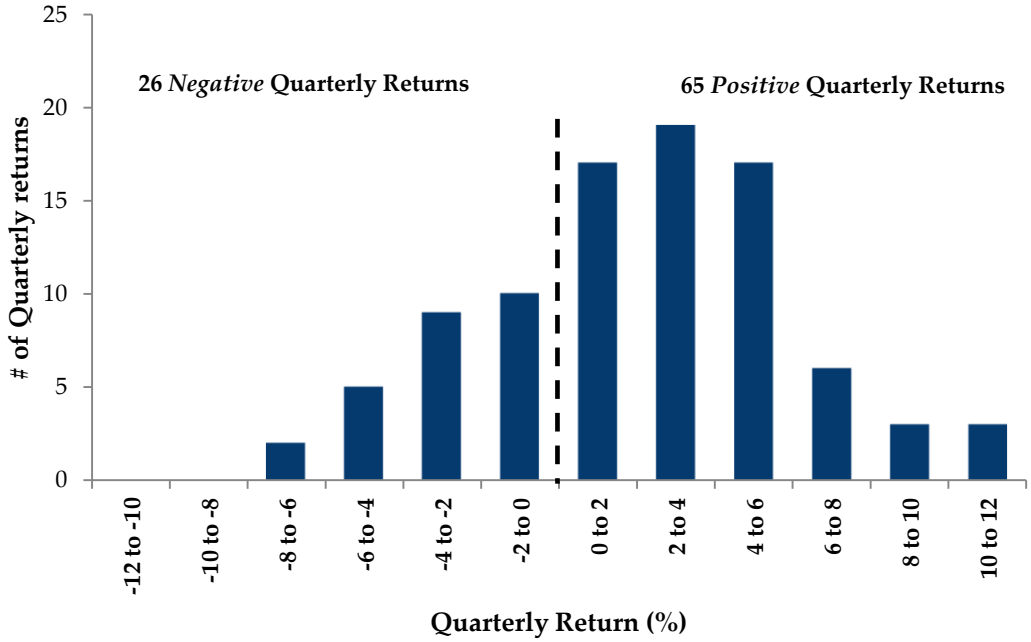
Since Inception*

Average quarterly results, January 1992 – September 2014



Quarterly Return Distribution

1992 – 3Q 2014

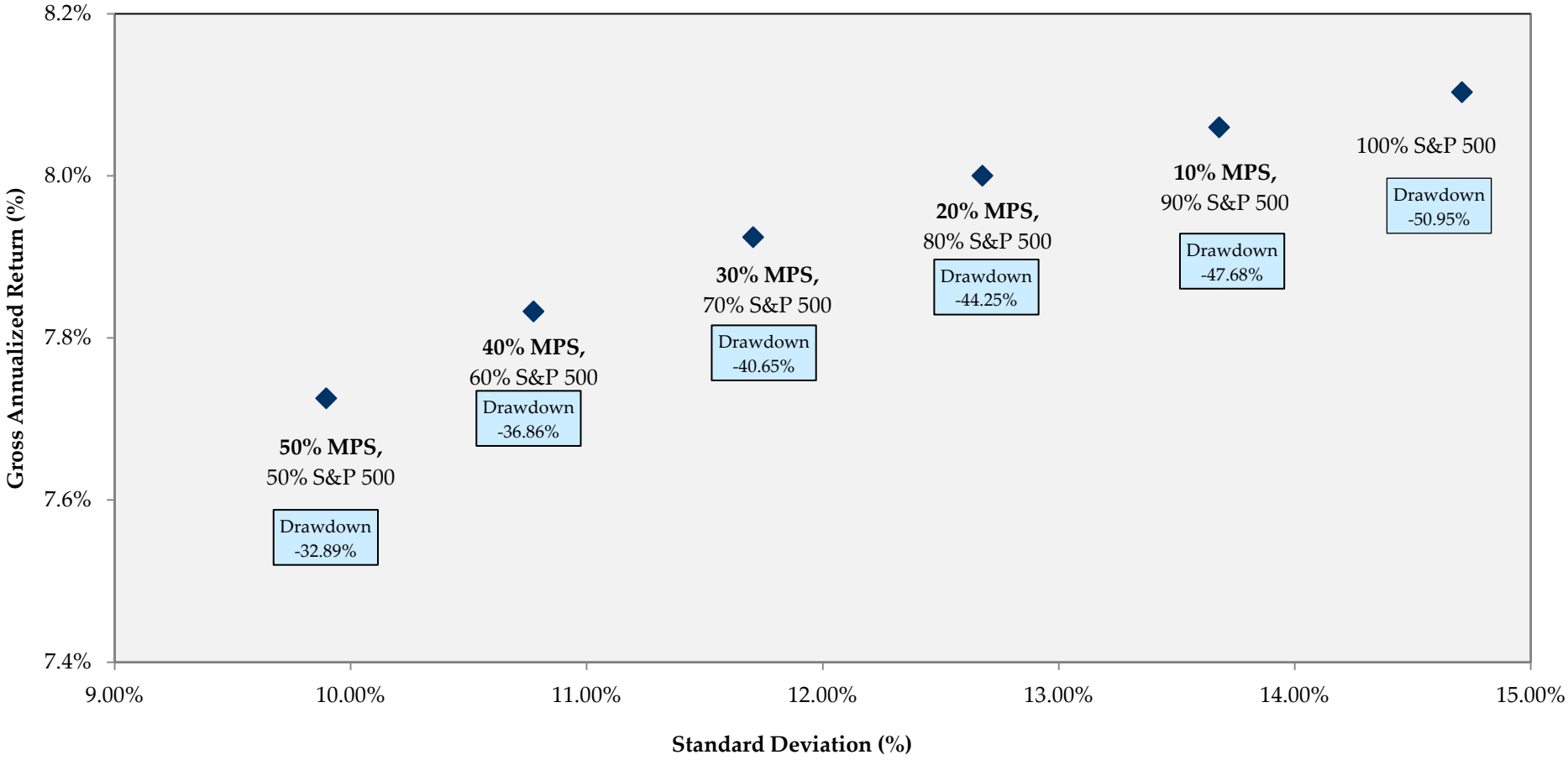


**Inception is 1/1/92.*

Source: QMA, Standard & Poor's.

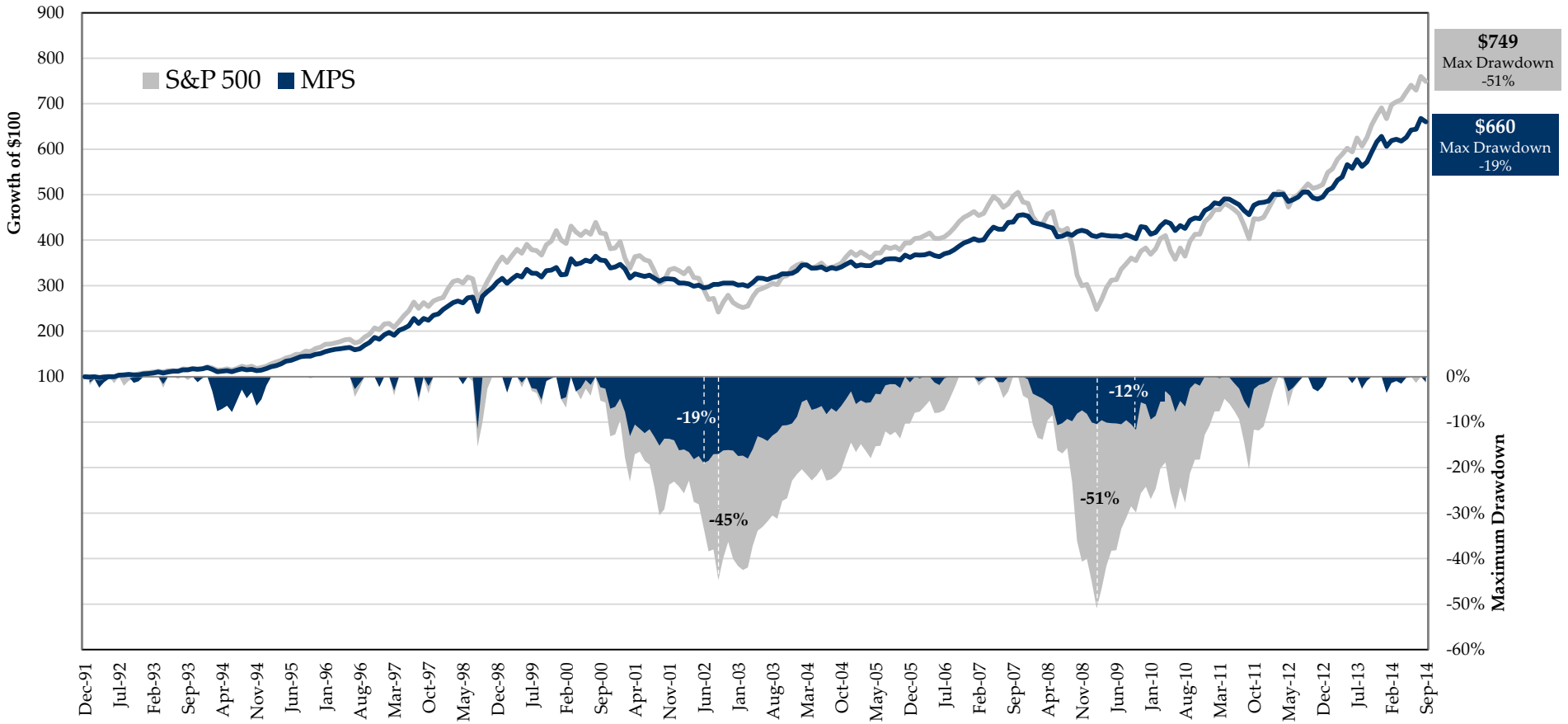
Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures, and the 'Composite Performance Returns' section in the Appendix for full disclosures and net performance through December 31, 2013. Past performance is not a guarantee or a reliable indicator of future results.

MPS May Help Reduce Equity Portfolio Risk



Source: QMA.
Results shown are for 10 years ending 9/30/14.
Shown for illustrative purposes only. Gross Annualized Return, Standard Deviation and Drawdown were calculated using historical returns for the 10 years ending 9/30/14 for the S&P 500 and the US Market Participation Strategy composite. QMA does not currently have a portfolio with this composition of assets. Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures. Past performance is not a guarantee or a reliable indicator of future results.

MPS Performance During Drawdowns and Recoveries



Source: QMA, Ibbotson Associates, Standard & Poor's.
Cumulative gross returns from January 1992 through September 2014. This chart demonstrates the growth of $100 and the maximum drawdown of the MPS portfolio. This is shown for illustrative purposes only. Please see 'Notes to Disclosure' page for Important Information including risk factors, disclosures, and the 'Composite Performance Returns' section in the Appendix for full disclosures and net performance. Past performance is not a guarantee or a reliable indicator of future results.

QMA's Market Participation Strategy Summary

- MPS seeks to provide upside equity participation while seeking to reduce downside risk
  - Builds off a 22 year live track record
  - Utilizes liquid, transparent securities
  - Actively managed
- Strategy focuses on reducing portfolio drawdowns
- Low correlation to both stocks and bonds
- Portfolio management stability

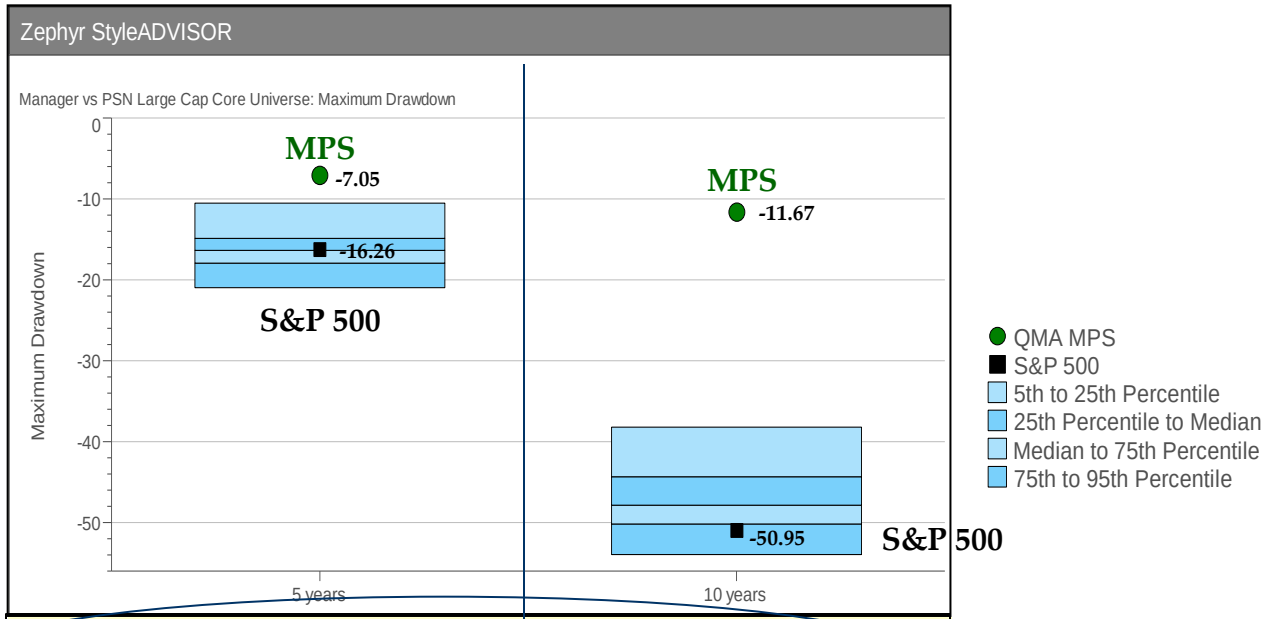
Appendix

- Additional Exhibits
- Biographies
- Notes to Disclosure
- Composite Performance Returns

MPS Has Significantly Lower Maximum Drawdown

When Compared to US Large Cap Core Equity Portfolios

Maximum Drawdown as of September 30, 2014

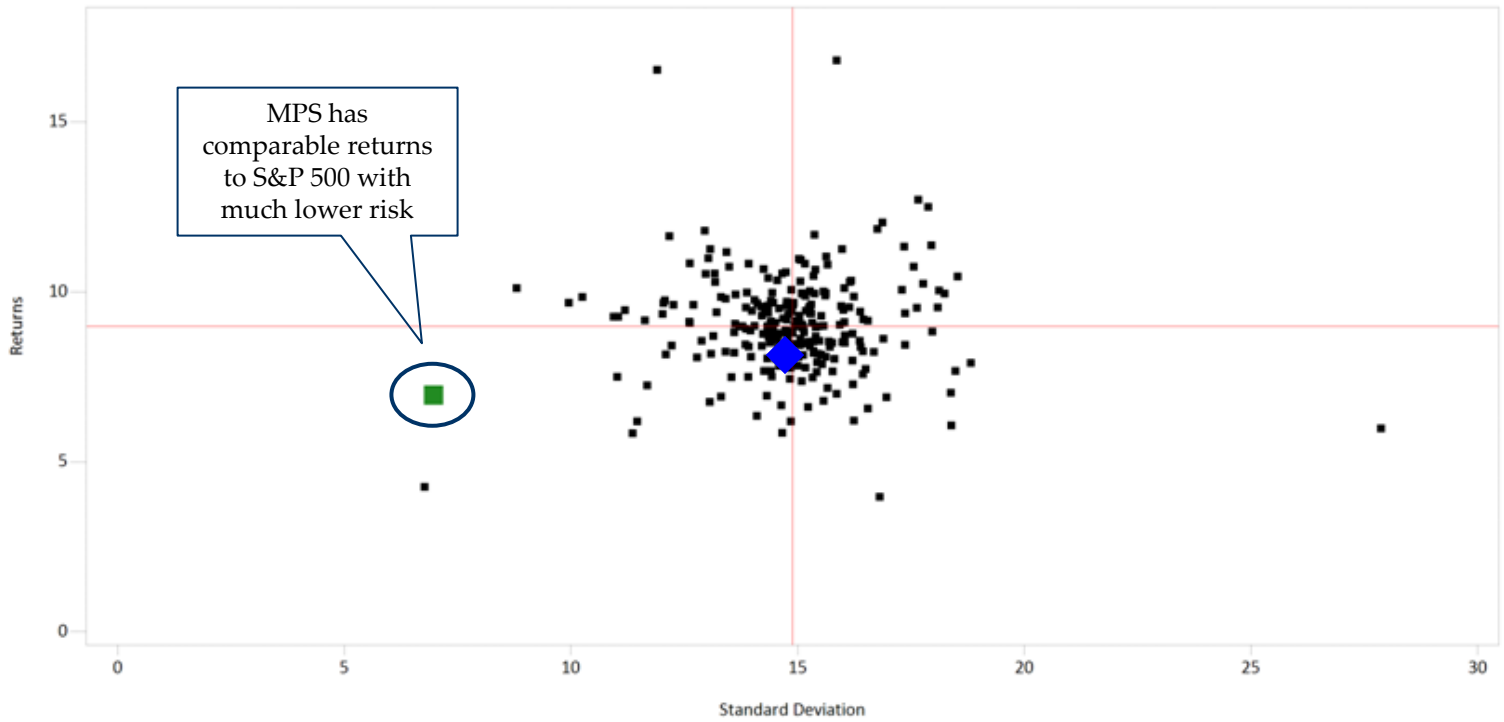


	5 years	10 years
MPS	**-7.05**	**-11.67**
S&P 500	-16.26	-50.95
5th percentile	-10.52	-38.21
25th percentile	-14.88	-44.34
Median	-16.36	-47.86
75th percentile	-17.94	-50.18
95th percentile	-20.97	-53.96
# of Observations	242	190

Source: QMA using software provided by Zephyr.
Shown for illustrative purposes only. Zephyr is an outside vendor whose software has been used to create this exhibit. QMA pays a fee for this software. QMA has made efforts to confirm accuracy/reliability of the data provided by Zephyr but we disclaim responsibility for its accuracy or completeness. "Maximum Drawdown" is the maximum drawdown of the peak-to-trough declines during a specific period. Going sequentially through time with a manager's cumulative return, it is the "loss" from the highest portfolio value to its lowest point. Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures, and 'Composite Performance Returns' section of the Appendix for full disclosures and net performance. Past performance is not a guarantee or a reliable indicator of future results.

MPS Provides Lower Standard Deviation Without Sacrificing Returns

Risk vs. Return Analysis
Annualized 10 Year Periods
As of September 30, 2014



Universe: eVestment US Large Cap Core Equity

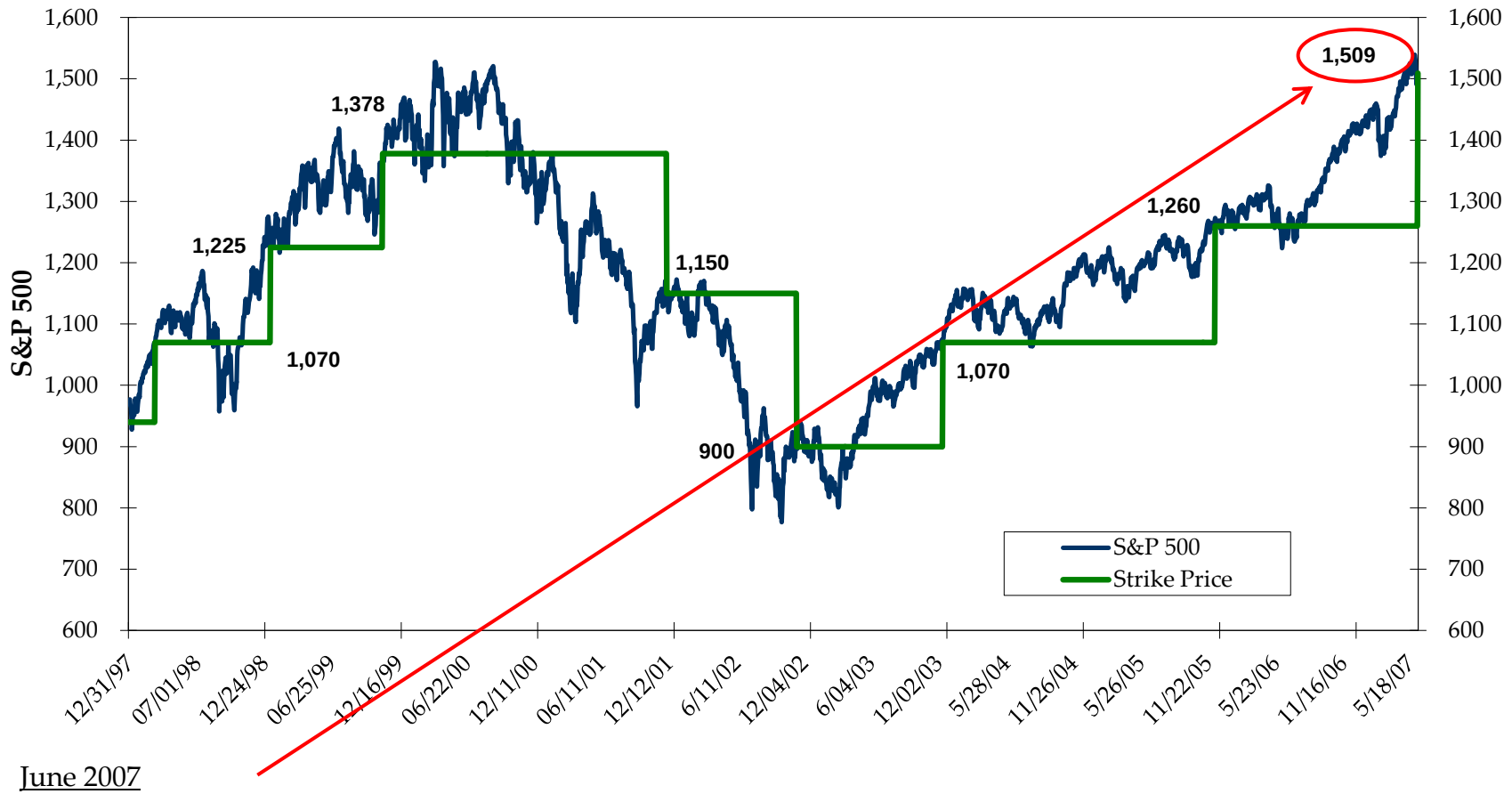
As Of: September 30, 2014
10 Years

	Returns	Standard Deviation
US Market Participation Strategy	6.96	6.97
S&P 500	8.11	14.71
Universe Median	8.99	14.89

Results displayed in US Dollar (USD)

Source: QMA and eVestment Alliance.
Shown for illustrative purposes only. eVestment Alliance is an outside vendor whose software has been used to create this exhibit. QMA pays a fee for this software. QMA has made efforts to confirm accuracy/reliability of the data provided by eVestment Alliance but we disclaim responsibility for its accuracy or completeness. Universe: eVestment Alliance US Large Cap Core Equity style. Returns are shown gross of management fees. Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures, and 'Composite Performance Returns' section of the Appendix for full disclosures and net performance. Past performance is not a guarantee or a reliable indicator of future results.

Example: Strategic Reset at Market High



<u>June 2007</u>

Market Movement

S&P 500 had increased 20% since last reset
MPS strategy had increased in value by 16%

Portfolio Implications

As a result, the portfolio composition was now 68% in bonds and 32% in equities

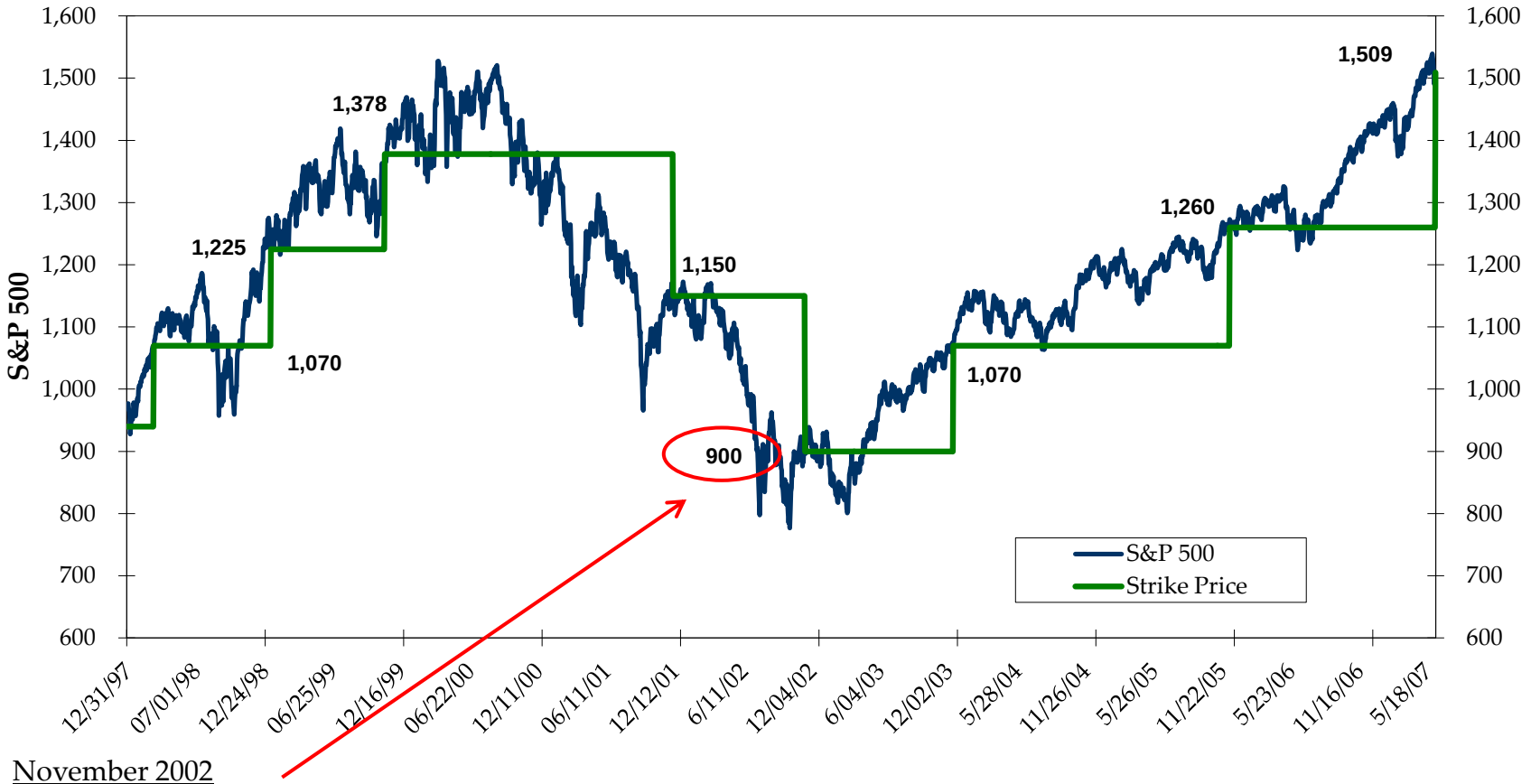
Strategic Reset

Allowed us to:

1) Capture upside equity gains
2) Rebalance between bonds and equities in order to achieve our targeted exposures

Sources: QMA and Standard & Poor's.
Shown for illustrative purposes only. Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures.
Past performance is not a guarantee or a reliable indicator of future results.

Example: Strategic Reset at Market Low



November 2002

Market Movement:

S&P 500 had dropped 22% since last reset

MPS strategy had only decreased in value by 3%

Portfolio Implications

As a result, the portfolio composition was now 90% in bonds and 10% in equities

Strategic Reset

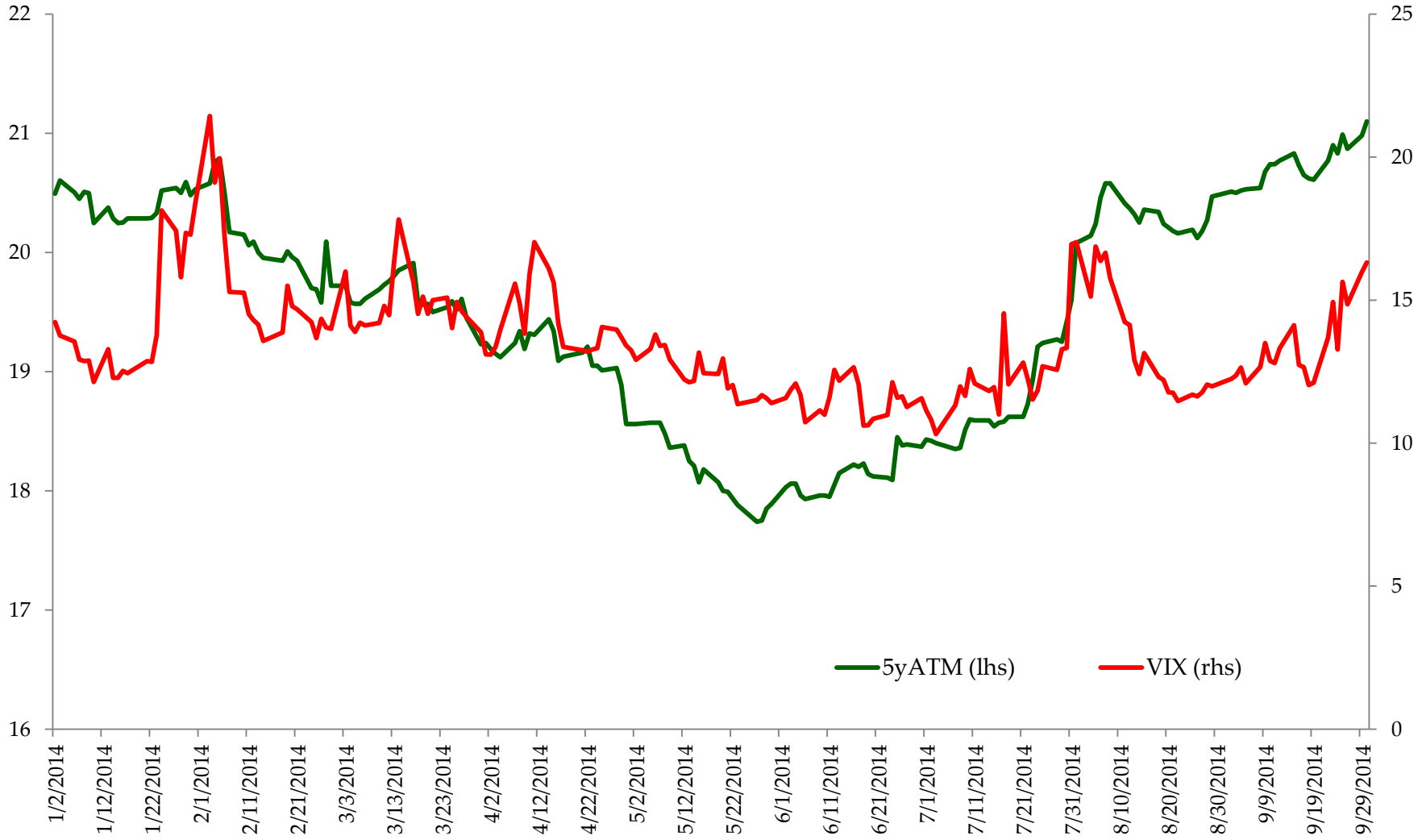
Allowed us to:

1) Reduce downside risk
2) Rebalance between bonds and equities in order to achieve our targeted exposures

Sources: QMA and Standard & Poor's.
Shown for illustrative purposes only. Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures.
Past performance is not a guarantee or a reliable indicator of future results.

Comparing VIX to Longer Dated Volatility

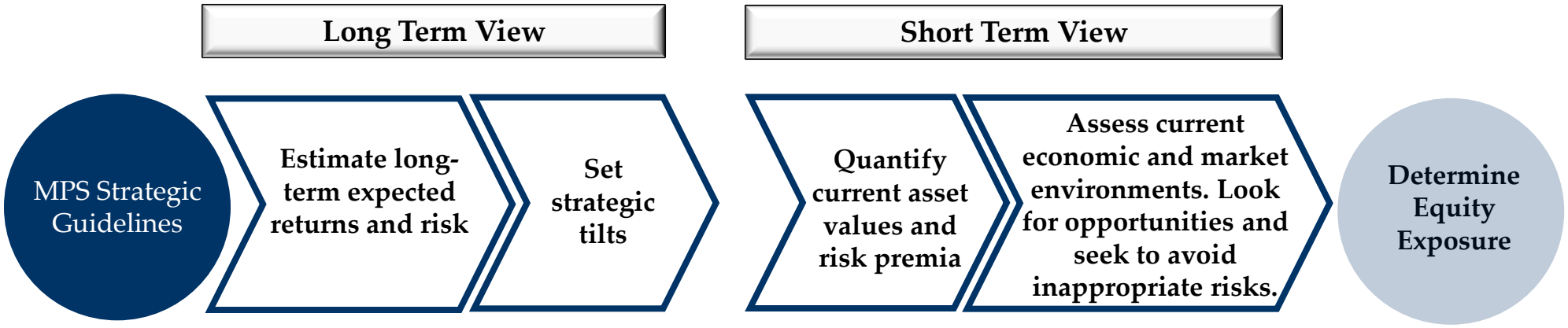
Year-to-Date 2014



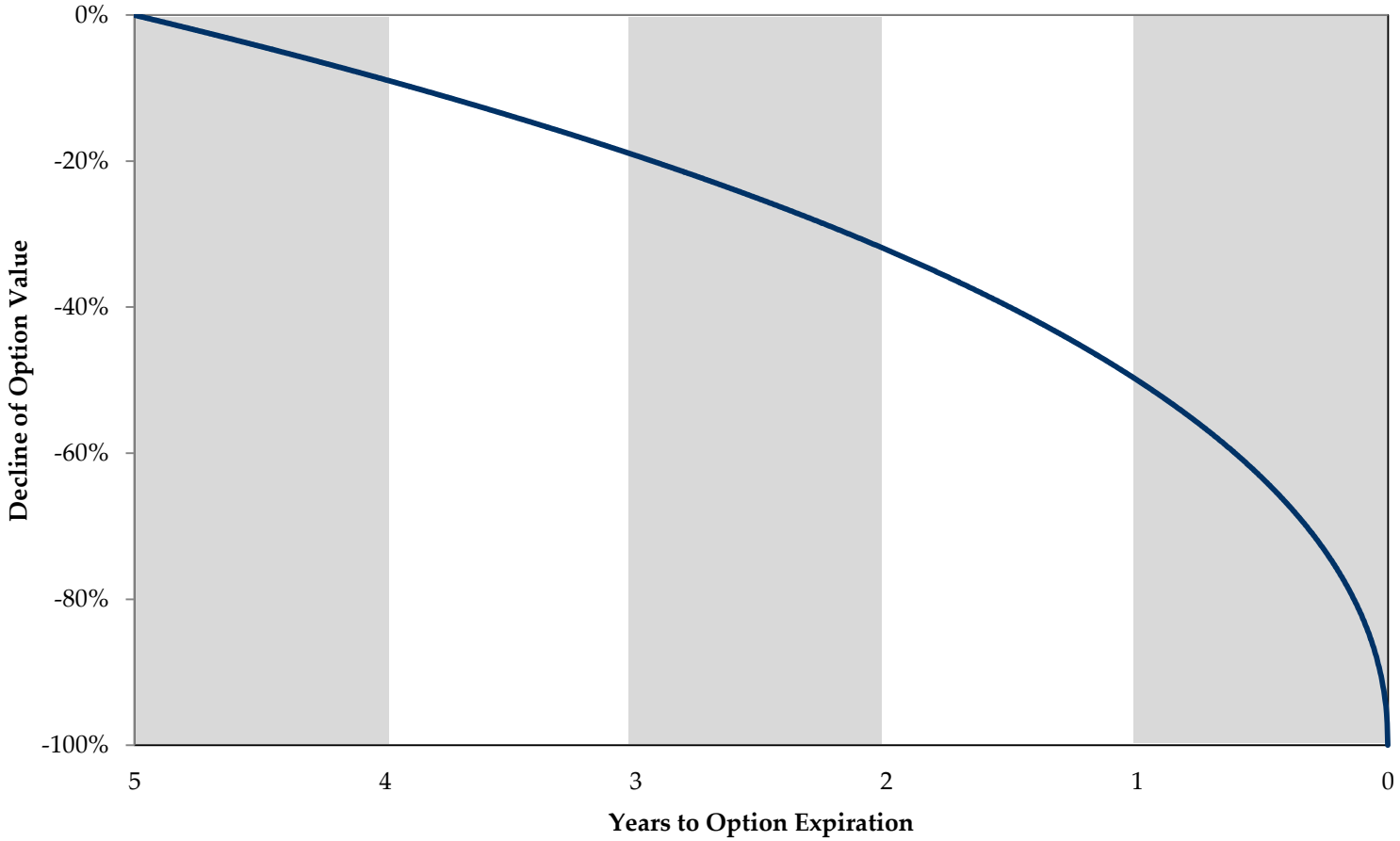
As of 9/30/14.
Sources: QMA, Bloomberg
Shown for illustrative purposes only. Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures. Past performance is not a guarantee or a reliable indicator of future results.

Equity Exposure is Adjusted Based upon QMA's Asset Allocation Outlook

Balances Longer Term Strategic Outlook with Shorter Term Opportunities



Time Decay of an Option



Source: QMA.
Shown for informational purposes to illustrate time decay of a 5 year option. Option values were calculated using the Black-Scholes Option Pricing Model.

Analysis of Market Participation Strategy Composite Statistics

Correlations as of September 30, 2014

Correlations	S&P 500 Index	U.S. Intermediate Gov't Bond Index
MPS (3 Year)	0.83	-0.21
MPS (5 Year)	0.85	-0.23
MPS (10 Year)	0.62	-0.11

Modest positive correlation to the S&P 500, and a flat to negative correlation to bonds may help diversify a portfolio

Source: QMA, Ibbotson Associates, Standard & Poor's.
Please see 'Notes to Disclosure' page for Important Information including risk factors, disclosures, and the 'Composite Performance Returns' section in the Appendix for full disclosures and net performance.

Analysis of Market Participation Strategy Performance

The Strategy Tends to Perform Well Across a Variety of Yield and Interest Rate Environments

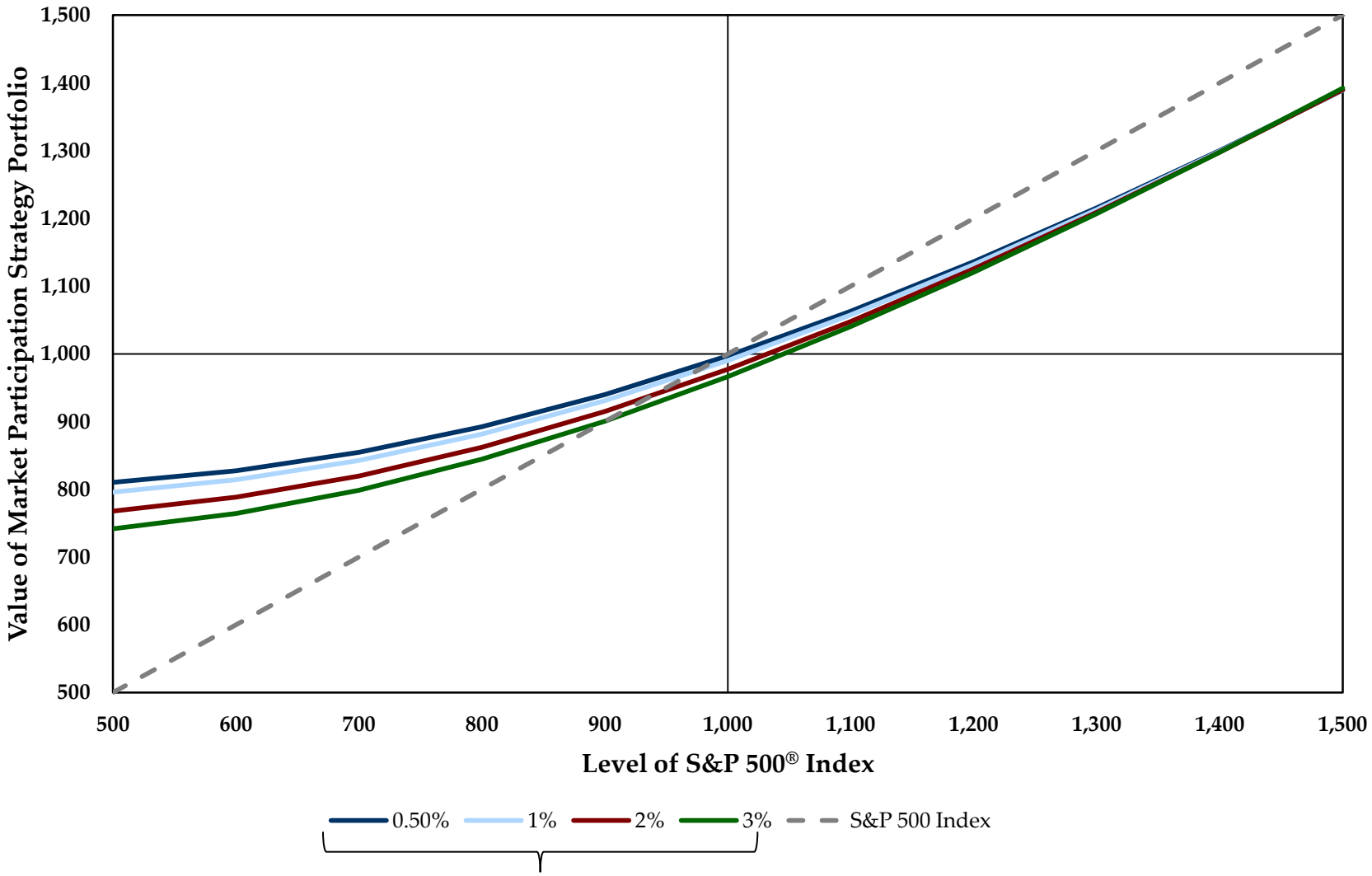
Periods of Rising Interest Rates	10 Year Treasury Rates	Change in Yields	Cumulative Total Return: Barclays Intermediate U.S. Treasury Bond Index	Cumulative Total Return: US Market Participation Strategy (Gross)	Cumulative Total Return: S&P 500 Index
Oct-93 Nov-94	5.4% 7.9%	-2.5%	-1.9%	-2.3%	2.2%
Jan-96 Aug-96	5.6% 7.0%	-1.4%	0.4%	6.6%	7.4%
Oct-98 Jan-00	4.4% 6.7%	-2.3%	0.3%	16.7%	39.4%
Nov-01 Mar-02	4.3% 5.4%	-1.1%	-2.1%	-3.4%	8.9%
Jun-03 May-04	3.4% 4.7%	-1.3%	-0.9%	7.0%	18.3%
Jul-05 Jun-06	3.9% 5.2%	-1.3%	-0.2%	3.9%	8.6%
Jan-09 Jul-09	2.3% 3.5%	-1.2%	-2.0%	-2.5%	11.0%
Aug-12 Jun-13	1.5% 2.5%	-1.0%	-1.2%	12.7%	19.0%

Source: QMA, Ibbotson Associates, Standard & Poor's, FactSet.

Please see 'Notes to Disclosure' page for Important Information including risk factors, disclosures, and the 'Composite Performance Returns' section in the Appendix for full disclosures and net performance. Past performance is not a guarantee or a reliable indicator of future results.

Market Participation Strategy Portfolio Values

Equity Price Movements Have the Largest Impact on the Overall Portfolio



Source: QMA.

Shown for informational purposes to illustrate the impact that interest rates and equity prices have on the Market Participation Strategy portfolio. Illustrative results reflects the value of the portfolio after one year with the following parameters: an option exercise price of $1,000, remaining maturity of approximately 4 years, risk free interest rate ranging from 0.5% to 3.0%, implied volatility at 25.8% (held constant), dividend yield rate of 2.0% (held constant). Option values were calculated using the Black-Scholes Option Pricing Model.

US Market Participation Strategy Composite

Investment Performance

Gross Annual Returns

Year	US Market Participation Strategy	S&P 500 Index	Difference vs. S&P 500 Index
2014 *(1/1 – 9/30)*	5.15%	8.34%	-3.19%
2013	26.75	32.39	-5.64
2012	2.55	16.00	-13.45
2011	3.86	2.11	+1.75
2010	8.64	15.06	-6.42
2009	2.28	26.46	-24.18
2008	-7.64	-37.00	+29.36
2007	13.99	5.49	+8.50
2006	9.70	15.80	-6.10
2005	2.65	4.91	-2.26
2004	7.88	10.88	-3.00
2003	7.11	28.69	-21.58
2002	-2.63	-22.10	+19.47
2001	-7.89	-11.89	+4.00
2000	0.12	-9.11	+9.23
1999	10.48	21.04	-10.56
1998	29.45	28.58	+0.87
1997	30.60	33.38	-2.78
1996	20.41	22.96	-2.55
1995	32.34	37.59	-5.25
1994	-2.07	1.32	-3.39
1993	10.26	10.08	+0.18
1992	5.91	7.61	-1.70

Source: QMA, Ibbotson Associates , Standard & Poor's.

The since inception gross performance for QMA's US Market Participation Strategy as of September 30, 2014 would have been reduced from 8.65% to 8.13% if netted by the highest single client fee for this strategy. Please see 'Notes to Disclosure' page for Important Information including risk factors and disclosures, and the 'Composite Performance Returns' section in the Appendix for full disclosures and net performance through December 31, 2013. Past performance is not a guarantee or a reliable indicator of future results.

Biographies

Senior Management

Scott Hayward is Chairman and Chief Executive Officer of QMA. Scott joined the firm in 2003 as head of Client Relations, with responsibility for relationship management, consultant relations and product and business strategy before becoming CEO in 2005. Previously, Scott was a Managing Director at JP Morgan Asset Management where he led a strategic initiative to build their retirement business and was head of Institutional Client Service and Marketing. Prior to joining asset management, Scott was a Vice President and served in a variety of roles within investment banking, private banking and corporate divisions of JP Morgan & Co. He is the President of the Board of the Reeves-Reed Arboretum, a trustee of Newark Academy, and member of the Executive Board of Give to the World. Scott is a Phi Beta Kappa and magna cum laude graduate of Boston College with a BA in Political Science.

Roy D. Henriksson, PhD, is the Chief Investment Officer of QMA. He has over twenty years experience combining quantitative research with its practical applications in investment portfolios. Prior to joining QMA, Roy was CIO of Advanced Portfolio Management, where he designed and managed customized, risk-targeted investment portfolios for institutional clients globally. He is also currently the co-chairman of the Liquidity Risk Committee and Member of the Advisory Board of the International Association for Quantitative Finance (the IAQF). Previously, Roy held a variety of senior positions in research, trading and product development at a number of large investment banks. His broad product experience spans equity, fixed income, hedge funds, currency, and commodity derivatives.

Roy has published numerous articles on market-timing skill, portfolio optimization and asset allocation in leading journals. A recipient of the Graham and Dodd Award from *The Financial Analysts Journal,* he has held the position of professor of finance at the University of California, Berkeley, where he also served as Senior Consultant to Wells Fargo Investment Advisors and as an advisor to the University of California Endowment. Roy holds a BS in Economics, a MS in Management, and a PhD in Finance, all from Massachusetts Institute of Technology.

Biographies

Portfolio Management and Research

Marco Aiolfi, PhD, is a Portfolio Manager for QMA and a member of the Asset Allocation team. His responsibilities include research and portfolio management for Asset Allocation strategies, with a focus on Global Tactical Asset Allocation. Prior to joining QMA, Marco was a portfolio manager and researcher at Goldman Sachs Asset Management where he was a member of the Quantitative Investment Strategies team. His experience included serving as lead portfolio manager for GTAA implementation in select portfolios and co-head of volatility strategies for a multi-strategy fund. Previously, Marco was a Principal at Platinum Grove Asset Management, where he designed, implemented and co-managed a systematic G10 currency trading strategy. Marco was a Research Scholar at the University of California, San Diego, specializing in macro asset pricing and econometrics, and he was a Visiting Scholar for the Research Department at the International Monetary Fund. Marco has published papers in several academic journals including the *Journal of Econometrics, the Journal of Forecasting, the Journal of Financial Econometrics, the Journal of Development Economics* and *the Oxford Handbook of Economic Forecasting*. He earned a BA in Economics Summa Cum Laude and a PhD in Economics from Bocconi University, Milan, Italy.

Pavlos M. Alexandrakis, CFA, is a Managing Director and Product Specialist for QMA, managing client relationships for QMA's Non-US Core Equity team. Prior to joining QMA, he was a senior client portfolio manager with Invesco's international and global equity teams and with JP Morgan Asset Management's international investment team. Previously, he managed non-US equity portfolios at Pioneer Investment Management, Smith Barney Asset Management, and Lazard Freres Asset Management. Pavlos earned a BBA in marketing and computer sciences and an MBA in international business and finance from George Washington University. He also undertook post-graduate studies in international economics at New York University, and he holds the Chartered Financial Analyst (CFA) designation.

Stephen Brundage, CFA, is a Managing Director and Product Specialist for QMA, managing client relationships for QMA's asset allocation team. Steve has also worked as a Client Advisor at JP Morgan, dealing with large endowments and foundations. He managed the Investment Research and Client Servicing function within the company's 401k business as well. In addition, he ran JP Morgan Asset Management's Global Product Development Group, spending three years in London. Steve holds a bachelor's degree in English from Clemson University and an MBA in Finance from Fordham University. He is member of the New York Society of Securities Analysts (NYSSA) and the CFA Institute and holds the Chartered Financial Analyst (CFA) designation.

Edward L. Campbell, CFA, is a Principal and Portfolio Manager for QMA and a member of the asset allocation team. In addition to portfolio management, Ed is a specialist in global macroeconomic and investment strategy research. He has also served as a Portfolio Manager with Prudential Investments (PI) and spent several years as a Senior Analyst with PI's Strategic Investment Research Group (SIRG). Prior to joining PI, Ed was a Partner and Vice President at Trilogy Advisors LLC. He earned a BS in Economics and International Business from The City University of New York and an MBA in Finance, Global Business, and Organizational Leadership from NYU's Stern School of Business. He also holds the Chartered Financial Analyst (CFA) designation.

Daniel Carlucci, CFA, is a Vice President and Portfolio Manager for QMA. Dan manages large-cap and small-cap core equity portfolios as well as domestic and international index funds. He is also responsible for directing QMA's managed account strategies. He previously served as an Investment Analyst with QMA's value equity team, where he assisted with the management of quantitative large-cap institutional portfolios. Dan holds a BS in Finance and an MBA in Finance from Rutgers University and holds the Chartered Financial Analyst (CFA) designation.

Biographies

Portfolio Management and Research

Chantal Chuang is an Investment Associate for QMA, working with the US Core Equity team. Her responsibilities include research and analysis. Prior to joining QMA, Chantal was an associate at MetLife Investment where she worked in their Global Economic and Market Strategy Group. Previously, she held roles at The Koos Group and Citigroup Global Markets Taiwan Limited. Chantal earned a BS in Business Administration in Finance from the National University of Taiwan, a MA in Statistics from Yale University and a MS in Computational Finance from Carnegie Mellon University.

Stephen Courtney is a Portfolio Manager for QMA and a member of the Value Equity team. His responsibilities include portfolio management, analysis, and research. Prior to joining QMA, Stephen was a Director at ClearBridge Investments and its predecessor organizations, where he served as a research analyst and portfolio manager for 26 years. He earned a BA in Political Science from Boston College. He is also a member of the CFA Institute and the New York Society of Security Analysts.

Rory Cummings is a Portfolio Manager for QMA and a member of the Asset Allocation team. He also conducts macroeconomic, market valuation, and capital markets research. Rory has worked in various roles within the Asset Allocation team and, prior to joining, served as a Client Relations Specialist covering a variety of institutional clients. He earned a BA in Finance from Seton Hall University and an MBA in Financial Markets and Corporate Finance from New York University.

Ken D'Souza, CFA, is a Quantitative Analyst for QMA, working with the Non-US Core Equity team. His responsibilities include research for QMA's Non-US portfolios as well as assisting the team in all aspects of portfolio management. Prior to joining QMA, Ken managed portfolios and served as a Quantitative Analyst on Batterymarch's Emerging Markets team. Prior to Batterymarch, he held roles related to engineering, management, and product development at Shaw Industries (Berkshire Hathaway). Ken holds a BS in Chemical Engineering from the Georgia Institute of Technology, a MS in Management Science and Engineering from Stanford University, and an MBA from the University of Chicago. He holds the Chartered Financial Analyst (CFA) designation and has served on the Board of Directors of the Boston Security Analyst Society.

Devang Gambhirwala is a Principal and Portfolio Manager for QMA. Devang is primarily responsible for overseeing the US Core Equity long-short and large-cap mandates, and is also responsible for the management of structured products. Earlier at Prudential Investment Management, Devang worked as a Quantitative Research Analyst and an Assistant Portfolio Manager. He earned a BS in Computer and Information Sciences from the New Jersey Institute of Technology and an MBA from Rutgers University.

Harry Hinkel is an Investment Associate at QMA, assisting with the global and non-US portfolios. He has previously served as a Senior Investment Specialist, supporting QMA's trade operations. He earned a BS in Economics from Rutgers University.

Kenneth Hsu, PhD, is a Researcher for QMA, where he is involved in quantitative research with a focus on portfolio construction and optimization. Previously, he was a Quantitative Researcher within the Emerging Markets group at GMO. Kenneth earned his BS, MS, and PhD in Mechanical Engineering at the University of California Berkeley, with a major emphasis in Control Theory and minors in Mathematics and Financial Engineering.

Biographies

Portfolio Management and Research

John A. Hudock, CFA, is a Portfolio Manager for QMA and a member of the Asset Allocation team. His responsibilities include research and portfolio management for Asset Allocation strategies, with a focus on developing and improving asset allocation models. Prior to joining QMA, John founded Amida Investments, a hedge fund and consulting company. Previously, John has led quantitative research and managed long-only portfolios and long/short equity hedge funds as Director of Research at RQSI, Managing Director at Trilogy Advisors (which he co-founded), and Portfolio Manager at Credit Suisse Asset Management. John started his career in commodities designing and programming analytic, trading and back-office systems for J. Aron, Marc Rich and Rothschild, Inc before moving to equities and asset allocation. He earned a BA in Mathematics from New York University and holds the Chartered Financial Analyst (CFA) designation.

Wen Jin, PhD, CFA, is a Principal and Portfolio Manager for QMA, working with the Non-US Core Equity team. His responsibilities include portfolio management, analysis and research. Prior to joining QMA, he was a Portfolio Manager and Director of Quantitative Strategy and Trading at Aristeia Capital Management, where he oversaw derivatives valuation, quantitative trading strategy development and portfolio management. Prior to that, Wen was a Quantitative Strategist in the options trading group at Citadel Investment Group. He earned a BS in Physics from University of Sciences and Technology of China, an MA and PhD in Physics from Columbia University and holds the Chartered Financial Analyst (CFA) designation.

Joel M. Kallman, CFA, is a Vice President for QMA. Joel is a portfolio manager and a member of the asset allocation team. He also conducts economic and market valuation research. Joel has also held various positions within Prudential's fixed-income group, in areas such as high-yield credit analysis and performance reporting. He earned a BS and MBA in Finance from Rutgers University. He is also a member of the New York Society of Security Analysts and holds the Chartered Financial Analyst (CFA) designation.

Edward F. Keon, Jr. is a Managing Director and Portfolio Manager for QMA, as well as a member of the asset allocation team. In addition to portfolio management, Ed contributes to investment strategy, research and portfolio construction. Ed has also served as Chief Investment Strategist and Director of Quantitative Research at Prudential Equity Group, LLC, where he was a member of the firm's investment policy committee and research recommendation committee. Ed's prior experience was as Senior Vice President at I/B/E/S International Inc. Ed is a member of the Board of Directors of the Chicago Quantitative Alliance and sits on the Membership Committee of the Institute of Quantitative Research in Finance (Q-Group). He graduated summa cum laude with a BS in industrial management from the University of Massachusetts/Lowell and an MBA in Finance and Marketing from the Sloan School of Management at the Massachusetts Institute of Technology.

John P. Leib, CFA, is a Portfolio Manager for QMA and a member of the Value Equity team. His responsibilities include portfolio management, analysis, and involvement in the research effort. John earned a BA in Economics and Mathematics from Hamilton College and an MBA in Finance from New York University. He also holds the Chartered Financial Analyst (CFA) designation.

Robert Leung, CFA, is a Portfolio Manager for QMA and a member of the Value Equity team. His responsibilities include portfolio management, analysis, and involvement in the research effort. Robert began with the team as a Portfolio Analyst/Research Assistant. He earned a BA *cum laude* in Economics from Union College and holds the Chartered Financial Analyst (CFA) designation.

Biographies

Portfolio Management and Research

Edward J. Lithgow is a Quantitative Analyst for QMA, assisting in portfolio management and research for US Core Equity Portfolios. Ed is responsible for optimizing and monitoring cash flows for US Core Equity portfolios, as well as performance attribution and risk analysis. Ed earned a BS in Business Administration from Seton Hall University and an MBA in Finance from St. Joseph's University.

Joshua Livnat, PhD, is a Managing Director for QMA, where he focuses on global accounting research. Previously, he was a Professor of Accounting at NYU's Leonard Stern School of Business. His primary research areas have included capital markets, the effects of various accounting disclosure on stock prices, market anomalies and valuation issues. Joshua co-authored the book "Cash Flow and Security Analysis". He has also been published in many journals, including *Journal of Accounting Research, Journal of Accounting & Economics, The Accounting Review, Journal of Finance, Journal of Portfolio Management,* and *Financial Analysts Journal.* Joshua has taught at Vanderbilt University, University of California at Berkeley, Northwestern University and Hebrew University in Jerusalem. He earned a BS in Mathematics and Statistics from Hebrew University and a PhD in Accounting from New York University.

Ted Lockwood is a Managing Director for QMA and head of QMA's asset allocation area. He is responsible for portfolio management, investment research, and new product development. QMA's asset allocation team focuses on tactical, strategic, and dynamic asset allocation across traditional and non-traditional asset classes, including real assets and alternatives. Ted's experience also includes managing tactical asset allocation overlays, dynamically managed volatility strategies, quantitative long-short equity portfolios, and synthetic convertible bonds. Earlier in his career, Ted was an AT&T Bell Laboratories Fellow and member of the technical staff at AT&T. Ted graduated summa cum laude with a BE in Engineering from Stony Brook University and earned an MS in Engineering and an MBA in Finance from Columbia University.

Edward Louie is a Senior Associate at QMA, assisting in portfolio management as well as trading equities and futures. He has also served as a Research Assistant for QMA's Value Equity team. Ed earned a BA in Economics from Stony Brook University and an MBA in Accounting from Baruch College.

Sean Lu, PhD, is a Quantitative Analyst for QMA, working with the Non-US Core Equity team. His responsibilities include research for QMA's Non-US portfolios. Prior to joining QMA, Sean worked for Huntington Ingalls Industries where he was the Senior Architect of information systems for nuclear submarines for the US Navy. Previously, he held roles as a Principal Design Engineer at UGS/Siemens, professor at Metropolitan State University, Senior Software Engineer at IBM Corp and a Research Associate at NASA. Sean has contributed to more than 20 publications in mathematics and other fields. Some of the journals where his work is published include the *Journal of Computational Mathematics, Iterative Methods in Scientific Computation, Applied Mathematics and Computation* and *Mathematics and Computer in Simulation.* He earned a BS in Applied Mathematics and a MS in Computational Mathematics from Peking University, a MS in Financial Mathematics from the University of Minnesota and a MS in Computer Science and a PhD in Computational Mathematics from Emory University.

Stacie L. Mintz, CFA, is a Managing Director and Portfolio Manager for QMA. Stacie is primarily responsible for overseeing equity mandates. Previously, Stacie was a member of the asset allocation team, where she was responsible for several retail and institutional portfolios. In addition, during that time, she was responsible for managing the overall asset allocation for the Prudential Pension Plan. She earned a BA in Economics from Rutgers University and an MBA in Finance from New York University and holds the Chartered Financial Analyst (CFA) designation.

Biographies

Portfolio Management and Research

John W. Moschberger, CFA, is a Managing Director for QMA. John manages both retail and institutional account portfolios benchmarked against the numerous domestic and international indices. He is also responsible for trading foreign and domestic equities, foreign exchange and derivative instruments. John previously worked as a Research Analyst with Prudential Equity Management Associates. John earned a BS in Finance from the University of Delaware and an MBA from Fairleigh Dickinson University and holds the Chartered Financial Analyst (CFA) designation.

Eugenio Ortiz, PhD, is a Researcher for QMA, with a focus on return forecasting and model implementation. Prior to joining QMA, Eugenio worked as a Senior Quantitative Researcher at GMO on the Emerging Markets team, having previously worked with their International team. He earned a BA in Physics from Princeton University and a PhD in Applied Physics from Columbia University.

Marcus M. Perl is a Vice President and Portfolio Manager for QMA and a member of the asset allocation team. In addition to portfolio management, Marcus is responsible for research, strategic asset allocation and portfolio construction. Marcus was a Vice President and Portfolio Manager at Prudential Investments; earlier, he was a Vice President at FX Concepts Inc. Marcus holds an MA in Economics from the University of Southern California.

Patrick Pfeifer, CFA, is a Senior Associate and Researcher for QMA, with a focus on alpha and implementation research that may be applicable across markets and strategies. Previously, Pat designed, built and managed technology systems to support research and the daily investment process at QMA. He earned a BS in Electrical Engineering from the University of Pennsylvania and an MBA in Quantitative Finance from New York University and holds the Chartered Financial Analyst (CFA) designation.

Jacob Pozharny, PhD, is a Managing Director for QMA, as well as Head of Research and Portfolio Management for Non-US Core Equity. Jacob was previously a Managing Director and head of International Quantitative Equity at the TIAA-CREF organization and Teachers Advisors, Inc., where he was responsible for quantitative stock selection and portfolio construction for the international portfolios. Earlier in his career, Jacob held positions at the University of California, Nicholas-Applegate Capital Management and the Federal Reserve. He earned a BA in Economics, an MS in Statistics, an MS in Finance and Applied Economics and a PhD in Applied Statistics from the University of California.

Kerri Quinn is an Associate for QMA and a member of the Value Equity team. She assists the portfolio managers of QMA's Value Equity team in monitoring cash flows, assembling trades, analyzing companies to be purchased and running the model. She earned a BS in Finance and Economics from Sacred Heart University and is pursuing an MBA in Finance from Seton Hall University.

Brian R. Reppert is a Quantitative Analyst for QMA, assisting in portfolio management and research for US Core Equity, domestic and international equity index, and managed account portfolios. Brian is responsible for optimizing and monitoring cash flows, as well as performance attribution and risk analysis. Brian began his career by serving in a three-year financial rotation program with Prudential. He earned a BS in Business from Bucknell University and an MBA in Finance from Rutgers University.

Biographies

Portfolio Management and Research

George Sakoulis, PhD, is a Managing Director and Senior Researcher for QMA, where he focuses on quantitative global macro equity research. Previously, he led quantitative research for the Emerging Markets Equity team at GMO. Prior to that, George served as the director of European equity strategies for Numeric Investors and was a director for UBS O'Connor. George earned a BA in Economics and a BS in Statistics from San Francisco State University, and an MA in Economics and a PhD in Financial Econometrics from the University of Washington.

Satish Sanapareddy, CFA, is a Vice President for QMA. Satish provides technical and programming support to the portfolio management process and research to the quantitative core process. He earned a BS in Engineering from Nagarjuna University of India and an MBA in Finance from Hull University in the UK and holds the Chartered Financial Analyst (CFA) designation.

Vlad Shutoy is a Vice President and Senior Quantitative Analyst for QMA, working with the Non-US Core Equity team. His responsibilities include stock selection research for QMA's global, developed, and emerging markets portfolios. Prior to joining QMA, Vlad worked at Bloomberg, L.P. where he was responsible for building multi-factor risk based models to quantify client portfolio risk. Previously, he held roles at Goldman Sachs, & Co. and ING Investment Management, where he focused on the quantitative research process. Vlad also held roles at Credit Suisse First Boston and Ziff Brothers Investments. He earned a BS in Computer Engineering and a MS in Computer Science from the Polytechnic Institute of New York University.

Jyoti Singh is an Investment Associate for QMA, working with the Non-US Core Equity team. Her responsibilities include research and analysis. Prior to joining QMA, Jyoti was an analyst at Rothschild India Pvt. Ltd. where she was covering the Indian Telecom sector in the M&A division. She earned a Bachelor of Technology, Production and Industrial Engineering degree from the Indian Institute of Technology, Delhi and a Masters of Finance from Massachusetts Institute of Technology.

Gavin Smith, PhD, is a Vice President and Researcher for QMA, with a focus on alpha and implementation research that may be applicable across markets and strategies. Previously, Gavin was at Macquarie Capital where he was Head of North American Quantitative Research. During his time at Macquarie he was named Rising Star for Quantitative Research in the Institutional Investor All American Research Survey for 2013. Prior to Macquarie, Gavin was a Quantitative Researcher in the Quantitative Equity Strategies team at Barclays Capital in New York. Gavin was also a co-founder of Plato Investment Management in Sydney, Australia. There he focused on alpha research within the Australian market. He received his Bachelor of Commerce (Honors) in Finance from the University of Wollongong and his PhD in Finance from the University of New South Wales in Australia. Research from his doctoral dissertation has been published in the *Critical Finance Review*.

Maxwell Smith, PhD, is a Vice President for QMA, involved in both the research and production side of QMA's quantitative equity investment process. Max has also served as a Municipal Bond Portfolio Manager with Prudential Fixed Income. He has coauthored publications in the *Journal of Finance*, *Review of Financial Studies* and *Journal of Financial Markets*. He earned a BS in Physics from CalTech, an MS in Physics from the University of Illinois, and a PhD in Finance from the University of British Columbia.

Biographies

Portfolio Management and Research

Mitchell Stern, PhD, is a Portfolio Manager for QMA and a member of the Value Equity team. His responsibilities include portfolio management, analysis, and research, and he has 29 years of industry experience . Mitch's experience at QMA has included leading value research, and managing core, long-short, and derivative portfolios. Previously, he was the lead researcher for Dreman Value Management. Earlier in his career, Mitch was an Assistant Professor of Finance at the University of Tennessee and Fairfield University. Mitch earned a BA *cum laude* in Economics from Brandeis University and an MA and a PhD in Economics from the University of Virginia.

Margaret S. Stumpp, PhD, is Senior Advisor to QMA. She is extensively involved in quantitative research in asset allocation, security selection and portfolio construction. Maggie previously served as QMA's Chief Investment Officer for over two decades. Maggie has published articles on finance and economics in numerous publications, including *The Financial Analysts Journal, The Journal of Portfolio Management, The Journal of Investment Management* and *Award Papers in Public Utility Economics*. Maggie earned a BA cum laude with distinction in Economics from Boston University and holds an AM and PhD in Economics from Brown University.

Martin Tarlie, PhD, CFA, is a Managing Director and Senior Researcher for QMA, where his responsibilities include research for quantitative equity and asset allocation strategies. Previously Martin worked at GMO in a variety of research and portfolio management roles. Prior to GMO, Martin worked as an analyst for Breakwater Trading and at Marlin Capital Corp. as the director of research. Martin earned his BS in Physics and Mathematics from the University of Michigan, his MS and PhD in Theoretical Physics from the University of Illinois at Urbana-Champaign, and his MBA from the University of Chicago Graduate School of Business. He was also a Postdoctoral Research Fellow in Theoretical Condensed Matter Physics at the James Franck Institute at the University of Chicago.

Madelen Tejada is an Investment Associate for QMA, where she manages currency exposure for the Non-US Core equity and balanced strategies in institutional and retail portfolios. Madelen has also worked as an Administrative Associate for the risk management division of The Prudential Insurance Company of America. Madelen attended Rutgers University and the New York Institute of Finance

Yesim Tokat-Acikel, PhD, is a Portfolio Manager for QMA and a member of the Asset Allocation team. Her responsibilities include research and portfolio management for Asset Allocation strategies, with a focus on Global Tactical Asset Allocation. Prior to joining QMA, Yesim was a senior quantitative analyst at AllianceBernstein, where she developed Global Tactical Asset Allocation strategies. She developed global equity, REIT, and credit models, as well as dynamic risk models. Previously, she was a senior investment analyst for The Vanguard Group where she built tactical and strategic asset allocation models for the retirement and private client markets. Yesim has published papers on strategic and tactical portfolio allocation issues in the *Journal of Investing, Journal of Wealth Management, Journal of Financial Planning, Journal of Economic Dynamics and Control,* and *Strategic Management Journal*. She earned a BS in Industrial Engineering from Bilkent University in Turkey; an MS in Industrial Engineering from the University of Arizona, Tucson, and a PhD in Economics from the University of California, Santa Barbara.

Biographies

Portfolio Management and Research

Peter Vaiciunas, CFA, is an Associate for QMA and a member of the Asset Allocation team, contributing to all aspects of the portfolio management process including research, idea generation, implementation, and risk management. Prior to joining QMA, Peter served as an Investment Analyst for Memorial Sloan Kettering's endowment fund. Previously, he held roles at ITG Investment Research and Liquidnet Inc. in New York as well as Speakeasy Investment Group in Toronto. Peter received his Bachelor of Commerce from University of Toronto and his MBA from McMaster University, DeGroote School of Business. Peter also holds the Chartered Financial Analyst (CFA) designation.

John Van Belle, PhD, is a Managing Director for QMA, where he manages global and non-US portfolios. John has also been a Vice President in Currency Management Consulting at both Bankers Trust and Citibank. He began his career in the research department of the Federal Reserve Bank of New York. He has taught Economics and Finance at the University of Virginia and Rutgers Graduate School of Management and has published numerous articles in the fields of Economics and Finance. John earned a BS in Economics from St. Joseph's College and a PhD in Economics from the University of Virginia.

Ping Wang, PhD, is a Managing Director and Portfolio Manager for QMA, working with the Non-US Core Equity team. His responsibilities include portfolio management, analysis and research. Most recently, Ping worked at TIAA-CREF Asset Management, where he performed extensive research in portfolio construction and stock selection in international equity, and also served as portfolio manager on a variety of innovative international products. Previously, he was a Senior Quantitative Analyst at Allstate Investments, where he was responsible for designing and implementing credit analysis for a credit derivatives strategy. Earlier in his career, Ping held positions at Fusion Technology Institute and National Laboratories. He earned a BS in Physics from Beijing Normal University, a MS in Atomic and Molecular Physics from University of Science and Technology of China, and a PhD in Physics from the University of Wisconsin-Madison.

Patricia Watral is a Vice President and Product Specialist for QMA, where she is responsible for managing client relationships for QMA's asset allocation team. Pat has also worked as a generalist sales representative in Prudential Investment Management's institutional sales and marketing group, representing a number of other investment teams. She earned a BA in Economics from Ursinus College and an MBA in Finance from Rutgers University.

Timothy Wheeler, PhD, is a Researcher for QMA, with a focus on portfolio construction and transaction cost analysis. Prior to joining QMA, Timothy worked as a Quantitative Researcher at GMO. He earned a BS and PhD in Mechanical Engineering from the University of California Berkeley, where he studied dynamical systems and control theory.

Deborah D. Woods is a Portfolio Manager for QMA and a member of the Value Equity team. Her responsibilities include portfolio management and analysis, and involvement in the research effort for value portfolios. Debbie began her career as an industry analyst covering Medical Equipment companies as well as Personal Care Consumer Product companies. She earned a BA in History from Wellesley College.

Peter Xu, PhD, is a Managing Director for QMA, as well as Head of Research and Portfolio Management for US Core Equity. Peter conducts equity research on alpha factors and portfolio construction, and is responsible for the portfolio management and performance of all US Core equity strategies. He has published articles in a number of journals, including *The Financial Analysts Journal, The Journal of Portfolio Management, The Journal of Asset Management, The Journal of Investing, Review of Quantitative Finance and Accounting,* and others. Peter earned a BS in Nuclear Physics from Fudan University in Shanghai, an MA in Economics from Rice University, and a PhD in Finance from the University of Houston.

Biographies

Trading

Richard L. Crist is a Principal and Head of Global Trading for QMA, where he is responsible for a team of traders and all aspects of trading in US and International markets for QMA's institutional strategies. The team currently transacts in equities, futures, currencies, ETFs and fixed-income products. Earlier in his career, Rich held various roles in portfolio management, compliance and accounting within the Prudential organization. Rich earned a BS in Accounting from Montclair State University.

Joseph Lombardi is a Senior Associate and Equity Trader for QMA, where he is responsible for trading in US and International markets for QMA's institutional strategies. He currently transacts in equities, futures, currencies, ETFs and fixed-income products. Previously, he held roles in investment operations where he worked on balanced and equity portfolios.

Wataru Yamaguchi is a Vice President and Trader for QMA, where he is responsible for trading in US and International markets for QMA's institutional strategies. He currently transacts in equities, futures, currencies, ETFs and fixed-income products. Prior to joining QMA, Wataru was a Senior Trader for Alphabet Partners Hedge Fund where his trading focused on special situations, merger arbitrage, tenders, event driven and volatility situations. Previously, he held trading roles with Hudson Bay Capital, Perch Bay Group, G&D Trading Company and Timber Hill Trading, LLC. He earned a BA in Economics and a BS in Mechanical Engineering from Massachusetts Institute of Technology.

Notes to Disclosure

IMPORTANT INFORMATION

The information contained herein is provided by Quantitative Management Associates LLC ("QMA"). This document may contain confidential information and the recipient hereof agrees to maintain the confidentiality of such information. Distribution of this information to any person other than the person to whom it was originally delivered and to such person's advisers is unauthorized, and any reproduction of these materials, in whole or in part, or the divulgence of any of its contents, without the prior consent of QMA, is prohibited. These materials are not intended for distribution to or use by any person in any jurisdiction where such distribution would be contrary to local law or regulation. Certain information in this document has been obtained from sources that QMA believes to be reliable as of the date presented; however, QMA cannot guarantee the accuracy of such information, assure its completeness, or warrant such information will not be changed. The information contained herein is current as of the date of issuance (or such earlier date as referenced herein) and is subject to change without notice. QMA has no obligation to update any or all such information; nor do we make any express or implied warranties or representations as to the completeness or accuracy. Any information presented regarding the affiliates of QMA is presented purely to facilitate an organizational overview and is not a solicitation on behalf of any affiliate**. These materials are not intended as an offer or solicitation with respect to the purchase or sale of any security.**

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There is no assurance that the investment objective of the strategy will be achieved. QMA has based this investment objective on certain assumptions that it believes are reasonable. There is no guarantee, however, that any or all of such assumptions will prove to be accurate in the face of actual changes in the securities market or other material changes in regional or local markets specific to this strategy. Factors that would or could mitigate against achieving this investment objective would include material changes in the economic environment and factors that are not included in our model or are under performing in our model. The investment objective contemplated herein is over a complete market cycle which is generally between three and ten years for this strategy.

The financial indices referenced herein are provided for informational purposes only. The manager's holdings and portfolio characteristics differ from those of the benchmark(s). Both benchmarks are substantially more diversified than the portfolios managed in this strategy. Additional factors impacting the performance displayed herein may include portfolio-rebalancing, the timing of cash flows, and differences in volatility, none of which impact the performance of the financial indices. Financial indices assume reinvestment of dividends but do not reflect the impact of fees, applicable taxes or trading costs which may also reduce the returns shown. You cannot invest directly in an index. The statistical data regarding such indices has been obtained from sources believed to be reliable but has not been independently verified.

These materials do not purport to provide any legal, tax or accounting advice.

US Market Participation Strategy Composite

US Market Participation Strategy Composite
January 1, 2004 to December 31, 2013

Annual Returns for periods ended December 31

Year	Gross Return	Net Return	S&P 500® Index	Custom Benchmark*	Composite 3-Yr St Dev	Benchmark 3-Yr St Dev	Custom Benchmark* 3-Yr St Dev	Number of Portfolios	Internal Dispersion	Composite Market Value (in millions)	Firm Assets (in millions)
2004	7.88%	7.34%	10.88%	7.83%	NR	NR	NR	5 or less	NM	$63.7	$51,815.0
2005	2.65%	2.13%	4.91%	3.57%	NR	NR	NR	5 or less	NM	$63.5	$52,410.0
2006	9.70%	9.16%	15.80%	10.60%	NR	NR	NR	5 or less	NM	$65.3	$59,925.9
2007	13.99%	13.43%	5.49%	7.52%	NR	NR	NR	5 or less	NM	$81.1	$62,556.0
2008	-7.64%	-8.10%	-37.00%	-19.52%	NR	NR	NR	5 or less	NM	$72.7	$53,456.9
2009	2.28%	1.78%	26.46%	14.66%	NR	NR	NR	5 or less	NM	$15.5	$70,162.1
2010	8.64%	8.10%	15.06%	12.40%	NR	NR	NR	5 or less	NM	$16.8	$79,735.3
2011	3.86%	3.35%	2.11%	5.27%	8.05%	18.97%	11.48%	5 or less	NM	$17.5	$70,564.6
2012	2.55%	2.24%	16.00%	10.38%	7.59%	15.30%	8.92%	5 or less	NM	$42.8	$86,274.3
2013	26.75%	26.38%	32.39%	18.04%	7.39%	12.11%	7.28%	5 or less	NM	$49.8	$109,742.9

Annualized Returns

As of December 31, 2013	Gross Return	Net Return	S&P 500® Index	Custom Benchmark*
1 Year	26.75%	26.38%	32.39%	18.04%
3 Year	10.52%	10.12%	16.18%	11.11%
5 Year	8.45%	8.00%	17.94%	12.07%
10 Year	6.73%	6.25%	7.41%	6.57%

NR Not Required

NM Not meaningful when there are less than or equal to 5 accounts in the composite for the full year.

*Custom benchmark consists of 60% S&P 500® Index + 40% U.S. Intermediate Government Bond Index

The inception date of the composite is January 1, 1992 and returns since inception are available upon request.

Quantitative Management Associates LLC (QMA) claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. QMA has been independently verified for the period from January 1, 1993 to December 31, 2013.

Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The US Market Participation Strategy Composite has been examined for the period from January 1, 1993 to December 31, 2013. The verification and performance examination reports are available upon request.

Notes

1. Quantitative Management Associates (QMA), an SEC-registered investment advisor, is a wholly-owned subsidiary of Prudential Investment Management, Inc. (PIM), a Prudential Financial, Inc. company. In 2008, QMA redefined the firm to include assets managed through wrap fee programs (QMA Managed Accounts) for all periods after January 1, 2006. Prudential Financial, Inc. of the United States is not affiliated in any manner with Prudential plc, a company incorporated in the United Kingdom.

2. Effective April 2013, the name of the composite was changed from Market Participation Strategy Composite to US Market Participation Strategy Composite. The US Market Participation Strategy Composite includes all discretionary portfolios whose investment objective is to provide participation in any price appreciation of the Standard and Poor's (S&P) 500® Index while reducing downside risk. The strategy utilizes zero coupon bonds, S&P 500® Index options and futures, and cash. This composite was created on December 31, 1998.

3. A list of composite descriptions and policies for valuing portfolios, calculating performance and preparing compliant presentations are available upon request.

4. Performance results are stated gross and net of model fees. Performance has been calculated in US dollars and reflects the reinvestment of dividends and other earnings. Returns for each client will be reduced by such fees and expenses as described in their individual contract. As of January 1, 2012, the fee schedule in effect is as follows: .30% on the first $50 million and .25% thereafter. Prior to January 1, 2012 the highest fee applicable to each portfolio was .50%. Actual advisory fees charged and actual account minimum size may vary by account due to various conditions described in QMA's Form ADV 2A. Net returns are calculated by deducting the highest tier of the fee schedule in effect for the respective time period from the monthly gross composite return. Fees may be higher for commingled accounts, insurance company separate accounts, and trust, corporate, or bank-owned life insurance products. The composite shown may include accounts that are group annuity or life insurance products issued by The Prudential Insurance Company of America. The three-year annualized ex-post standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. It is not required to be presented for annual periods prior to 2011 or when a full three years of composite performance is not yet available. The internal dispersion of annual returns is measured by the asset-weighted standard deviation of portfolio returns included in the composite for the entire year. The annualized return is equivalent to the annual return which, if earned in each year of the indicated multi-year period, would produce the actual cumulative return over the time period. As of November 30, 2009, QMA changed its valuation source for the S&P 500® Flex Index Options within the US Market Participation Strategy Composite. QMA has contracted with Markit Valuations Limited ("Markit"), an independent valuation services provider, to obtain pricing for such S&P 500® Index Options. QMA believes that the pricing data provided by this new valuation source may more closely approximate the market or trading valuations of such S&P 500® Flex Index options than the publicly available prices previously utilized. Past performance is not a guarantee or a reliable indicator of future results.

5. In light of the investment objective for the US Market Participation Strategy, described above, as well as the composition of portfolios managed in the strategy, there are two benchmarks for this composite, the S&P 500® Index, and a blended 60% S&P 500® Index and 40% U.S. Intermediate Government Bond Index which is rebalanced monthly. As of January 1, 2011, we added the S&P 500® Index as a benchmark to reflect our return expectations over several market cycles. We believe that the blended 60% S&P 500® Index and 40% U.S. Intermediate Government Bond Index reflects approximately the level of risk that the strategy is likely to experience over several market cycles. The S&P 500® Index is an unmanaged index of 500 common stocks, weighted by market capitalization, representing approximately 75% of the New York Stock Exchange. Dividend income is reinvested. The U.S. Intermediate Government Bond Index represents the change in the flat price plus accrued income of a single-bond portfolio. The single bond is the shortest non-callable bond with a maturity of not less than five years that is "held" for the calendar year. Source of the S&P 500® Index: Standard & Poor's. "Standard & Poor's", "S&P", "S&P 500", "Standard & Poor's 500" and "500" are trademarks of McGraw-Hill, Inc. and have been licensed for use by The Prudential Insurance Company of America and its affiliates and subsidiaries. The product is not sponsored, endorsed, sold or promoted by S&P and S&P makes no representation regarding the advisability of investing in the product. Source of the U.S. Intermediate Government Bond Index: Ibbotson. The financial indices referenced herein are provided for informational purposes only. The manager's holdings and portfolio characteristics differ from those of the benchmarks. Both benchmarks are substantially more diversified than the portfolios managed in this strategy. Additional factors impacting the performance displayed herein may include portfolio-rebalancing, the timing of cash flows, and differences in volatility, none of which impact the performance of the financial indices. Financial indices assume reinvestment of dividends but do not reflect the impact of fees, applicable taxes or trading costs which may also reduce the returns shown. You cannot invest directly in an index. The statistical data regarding such indices has been obtained from sources believed to be reliable. Benchmark returns are not covered by the report of independent verifiers.

QMA-20140915-91

ANODOS
ADVISORS

Alaska Retirement Management Board
Report on State Performance Consultants

November 18, 2014

Alaska Retirement Management Board

Report on State Performance Consultants

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I. Executive Summary

The Alaska Statute 37.10.220(a)(11) directs the Alaska Retirement Management Board (here after "ARMB" or the "Board") to "contract for an independent audit of the state's performance consultant(s) not less than once every four years." Anodos Advisors, LLC ("Anodos") was engaged by the Board to conduct this statutorily required independent evaluation of ARMB's Performance Consultants, Callan Associates, Inc. ("Callan"), its General Consultant, and The Townsend Group, Inc. ("Townsend"), its Real Estate Consultant.

The following executive summary highlights our key observations and conclusions. It is necessary to read our full report to obtain the detail underlying our observations, and our recommendations. We note that our report is limited to the specified scope of work and we were not tasked with reviewing investment policies, or other areas of the ARMB investment program, such as governance or asset allocation.

The parameters of this audit can be effectively captured by answering three key questions central to ARMB's oversight:

Performance Reporting

Question #1: Are the performance reports provided by the Performance Consultants consistent with ARMB Policies, the Performance Consulting Agreements with ARMB, and common and best practices within the industry?

Conclusions and Observations

The performance reports provided by Callan conform to ARMB Policies, the Performance Consulting Agreement, and best practices within the industry. The reports could be improved with the following:

- Callan's reports should include net-of-fee performance at least annually.
- Callan's reports should include comprehensive risk data for particular managers and pools.
- Standardization of presentation styles should be enhanced among Callan's Board Presentation, Board Report and Staff Report. (These three specific Callan reports are discussed in the body of our report.)

The performance reports provided by Townsend for the Real Estate portfolio conform to ARMB Policies, the Performance Consulting Agreement, and best practices within the industry.

Performance Measurements

Question #2: Are the performance measurements presented by the Performance Consultants reasonable, accurate and consistent with best practices and industry standards with regard to methods factors and data used?

Conclusion

The performance measurements (returns) presented by both Callan and Townsend are accurate and consistent with best practices within the industry.

Performance Benchmarks

Question #3: Are the benchmarks used by the Performance Consultants reasonable and appropriate given the objectives and characteristics particular to the manager, pool or portfolio?

Conclusion and Observations

The overall Total Return and Pool level benchmarks are reasonable and appropriate. We have the following observations for enhancements to ARMB's benchmarks:

- At the individual manager level, we observed eight instances where the primary benchmarks used to measure the managers' risk and return characteristics are not statistically representative of the managers' actual portfolio characteristics.

- We observed at least twenty instances where the benchmark being used is not sufficiently supported statistically by the information provided in the performance reports. The need for supporting data is more acute within the Fixed Income portfolio.

II. Methodology and Acknowledgements

Methodology

To answer the questions above our methodology included collection and analysis of documents, statutes, reports and other data, interviews of ARMB staff and the Performance Consultants, mathematical calculations of performance, follow up questions with staff, development of a draft report of observations and recommendations, discussion and review of staff comments, revision of the draft, if deemed necessary in our sole judgment, and delivery and presentation of our report to the Board in fulfillment of our agreement and the Board's statutorily defined duty.

Acknowledgements

We wish to thank Ms. Judy Hall, ARMB's Liaison Officer for coordinating our efforts with the Board and consultants, Mr. Gary Bader, CIO, for his time and candor in response to our questions, and likewise, for Mr. Stephen Sikes, ARMB's Real Assets Portfolio manager. We also are grateful to Ms. Micolyn Magee, from Townsend, and Mr. Paul Erlendson, from Callan for their time and cooperation.

III. Performance Reporting to the Board – Callan Associates

Are the performance reports provided by the Performance Consultants consistent with ARMB Policies, the Performance Consulting Agreements with ARMB, and common and best practices within the industry?

Background

As a first step Anodos evaluated the performance reports to confirm compliance with the Board's policies, consistency with CFA Institute standards, contractual requirements, and the staff and trustees' needs.

Callan provides five standardized reports to ARMB. These reports are identified by different names by the ARMB staff and the consultants. For the sake of this review we will use the nomenclature used by Callan. A summary of each report follows:

1. Board Presentation ("BP"): A PowerPoint presentation augmented with verbal explanation by Callan during each quarterly board meeting. Typical length of this report is 50-60 pages.
2. Board Report ("BR") (aka 'Executive Summary' or 'Callan Report' by ARMB): This more comprehensive report on the Fund, Pool and Manager level performance of the ARMB holdings is provided in the electronic Board packet. The report is usually in excess of 200 pages.
3. Staff Report ("SR"): The most exhaustive of the three performance reports provided by Callan. This report provides Fund, Pool and Manager level performance with additional transparency at the manager level. The Staff Report averages 400+ pages.
4. Defined Contribution Plan Report: 50-60 page report for self-directed plan assets, including the investment options for the individual participants.

5. **Private Equity Portfolio Review:** Includes educational exhibits and manager performance reports, and commentary.

Board Presentation ("BP") – Observations and Recommendations

1. Economic Data (BP 1q14, pgs. 2-21): The initial 20 pages of the Board Report are focused on an overview of the most recent quarter's economic data. Staff and Callan suggested that approximately half of the Board Presentation time is dedicated to this economic data. Based on our review of other state and municipal investment performance presentations we think Callan's focus on economic data in the Board Presentation may be disproportionate. To be sure, focusing some portion of the presentation on the economic data is important. However, emphasizing quarterly data routinely is not necessary for a fund with a long term focus.

   Recommendation 1:
   Callan's emphasis on the economic section of the Board Presentation should be limited to a brief overview of the economic environment and should document the specific risks, opportunities and recommendations the Performance Consultant makes to the Board.

2. Policy re: Gross-of-Fee Performance Reporting (BP 1q14 Final, pgs. 26-27): Throughout the Board Presentation, Board Report, and Staff Report, the Fund, Pool and Manager level performance is reported gross-of-fees. We find no documentation in the Policies and Procedures Manual recording the basis for reported performance exclusively gross-of-fees. Though staff and Callan each offered reasonable explanation for why performance is reported exclusively gross-of-fees these arguments are not recorded in the Policies and Procedures Manual.

Page 24 of Appendix A of the Policies and Procedures Manual notes:

> *"Results should be presented before fees; performance net of fees is permitted as well. In either case an appropriate fee schedule should be presented."*

The GIPS Guidance Statement of Fees recommends that gross-of-fee performance be presented and encourages, though does not require, that net-of-fee performance be included as well. Common practice within the public funds industry is to report performance both gross-of-fees and net-of-fees at least annually.

Recommendation 2:
At least annually, net-of-fee performance should be presented against the Manager's and Pool's performance benchmarks in all reports.

Recommendation 3:
In the absence of net-of-fee performance reporting, a fee schedule should be included in the performance reports to be consistent with the direction of the Policies and Procedures Manual.

3. "Gross-of-Fees" Notation at the Fund Level (BP 1q14, pgs. 26-27): In all three standardized performance reports performance is clearly noted at the Manager and Pool level to be gross-of-fees. However, at the Fund level there is no notation. Staff and Callan confirm that the performance at the Fund level is presented gross-of-fees.

Recommendation 4:
A clear notation should be made that the Fund level performance is "gross-of-fees" to be consistent with the Pool and Manager level data in accordance with GIPS guidelines (see rule 4.A.5 of the 2012 GIPS Handbook).

4. Risk Measurement for ARMB Fixed Income Assets (BP 1q14 – Total Bond Pool Section, pg. 29): It is generally accepted that the primary risk measures in a fixed income portfolio are 1) the duration or term of the fixed income assets, and 2) the credit quality of these assets. These two factors are fundamental to the oversight and monitoring of fixed income investments. Neither the Board Presentation, the Board Report, nor the Staff Report provide these critical measures. We understand that calculating these risk factors presents several challenges due to the limited market data for fixed income assets. Nonetheless, the data is useful for performance monitoring of the portfolio.

   Recommendation 5:
   Duration and credit quality should be reported quarterly for fixed income assets at the Pool and Manager levels in all reports.

5. Manager Level Data in the Board Presentation (BP 1q14 Final, pgs. 31, 32, 41): The Board Presentation is designed to give the trustees a high level view of the performance of the ARMB assets and Fund and Pool levels. Detailed analysis of particular manager level performance, risk, and attribution is generally reserved for staff review and brought to the Board's attention if any "outliers" exist. Contrary to this construct, three managers – Mondrian, MacKay Shields and Lazard – are included in every Board Presentation going back to April 2012. (It is possible that these three managers were included in Board Reports prior to this date but Board Packets before April 2012 are not available on the ARMB web page for our investigation.)

Recommendation 6:
The reason should be noted why these three managers, above all others, are included in each Board Presentation. If there is no particular reason, the data should be excluded from the Board Presentation and reserved for staff to review along with the other managers.

Board Report ("BR") – Observations and Recommendations

6. Standardize Reporting Periods (BR 1q14 Final, pg. 108): The Fund level performance intervals on page 79 include 1, 3, 5, 7, 10-year, and since inception which is standard in the industry.[1] The period performance reported at the Pool level (and the Fund and Manager levels in the Board Report and Staff Report) is not consistent with 1, 3, 5, 7, and 10. Instead, they follow a 1, 3, 5, *6*, and 10-year reporting structure.

   Recommendation 7:
   1, 3, 5, 7, and 10-year performance is the industry standard and is being used for period performance at the Fund level. The same periods should be adopted at the Pool and Manager levels in the Board Presentation, the Board Report and the Staff Report.

7. Portfolio Characteristics for International Equity Asset Classes (BR 1q14, pg. 180): The ARMB Policies and Procedures Manual at page 16 directs:

[1] Some ARMB reports also include 2-year performance. Changes in these requirements may require changes in the performance consultant agreement.

"At least quarterly the Consultant will provide ARMB and Investment Staff with performance reports that at a minimum provide the following information: Performance attribution analyses; market sensitivity analysis; measurement of diversification, capital ratios, price-to-earnings ratio, turnover, comparison by style of management and other comparisons or information that is relevant to the particular manager, pool or asset class."

The Board Report presents this important information for the Domestic Equity asset classes (see Large Cap Equity Pool as a comparison on page 104). However, the performance report for the International Equity asset class does *not* provide the 1) market cap, 2) price-to-earnings ratio, 3) price-to-book, 4) forecasted earnings, 5) dividend yield, and 6) MSCI Combined Z-Score that are included for the Domestic Equity asset classes. We understand that standardization across these various international markets may be problematic. Nonetheless, the data is useful for performance monitoring of the portfolio.

Recommendation 8:
"Portfolio Characteristics" should be included for the International Equity pools and managers.

8. Data on Potential Conflicts of Interest is Offered but Not Collected: Callan is a large financial services company offering a variety of products and services to many investment management companies throughout the industry. As disclosed by Callan in accordance with SEC regulations, several of the managers hired by ARMB pay fees to Callan. Such fees can create a potential conflict of interest since Callan is paid by ARMB to provide oversight and monitor these managers' activities. Callan notes near the end of each of the standardized reports the following:

> *"Fund sponsor clients may request a copy of this list* [of managers used by ARMB who also pay fees to Callan for various products and services] *at any time. Fund sponsor clients may also request specific information regarding the fees paid to Callan by the managers employed by their fund. Per company policy, information requests regarding fees are handled exclusively by Callan's Compliance Department."*

It is best practice to collect and review this data.

Recommendation 9:
ARMB staff should collect Callan's conflict of interest disclosure information on an annual basis, including the amount and nature of fees paid to Callan by ARMB's managers and report it to the Board. Particular note should be made of the percentage of total fund assets controlled by managers who have a financial relationship with the Performance Consultants.

Staff Report ("SR") – Observations and Recommendations

9. Manager Fee Analysis : Appendix A at Page 28 of the ARMB Investment Policies and Procedures Manual notes:

> *"Investment manager fees, stated in basis points, vary widely depending upon the asset class and the size of the account. Trustees should negotiate the fees, and make sure that they are competitive and in line with the average pattern of fees in the industry. Particular attention should be paid to a situation where a manager is being paid an above-average fee but is performing below its performance benchmark." [Emphasis added]*

To provide the recommended attention one would need to identify 1) managers who are performing below their performance benchmarks (in our view this should be net-of-fees), and 2) whether the manager's fee is "above-average" when compared to other managers with a similar mandate. ARMB staff reported that they are not aware that such analysis has been conducted.

Recommendation 10:
As part of its performance monitoring ARMB should request Callan or staff to perform the analysis at some reasonable frequency to ensure they are competitive and in line with the average pattern of fees in the industry.

Defined Contribution Report ("DC") – Observations and Recommendations

10. Consistency Within Performance Presentation 5/2013 (DC, 2q2014, pgs. 20, 31): All funds within the Defined Contribution Report present their returns and risk characteristics based on net-of-fee performance other than the S&P 500 fund SSgA Global Balanced fund.

Recommendation 11:
Report S&P 500 fund and SSgA Global Balance fund performance net-of-fees to be consistent with other fund reporting.

Private Equity Report – Observations and Recommendations

11. Private Equity Pool and In-House Data (Private Equity Review dated 12/5/2013): The Private Equity Portfolio Review does not include the following data at the total private equity portfolio level or in-house portfolio level:

- Annual returns
- Since inception return
- Annual benchmark returns
- Since inception benchmark returns
- Capital commitments, paid-in capital, uncalled commitments, distributions
- Diversification breakout of investments

Recommendation 12:

Include with the Private Equity Report the above-mentioned data for the total private equity portfolio level and in-house portfolio level.

IV. Performance Calculations and Methodology - Callan Associates

Are the benchmarks used by the Performance Consultants reasonable and appropriate given the objectives and characteristics particular to the manager, pool or portfolio?

Chain of Custody for Performance Data

Callan receives a nightly data feed from State Street enabling them to calculate performance at any time for those managed assets that have daily marketability.

Performance Calculation Methodology

Callan informed us that for the Domestic Equity portfolios, which have daily pricing available, their reports portray "true" time-weighted return (aka "daily pricing" method or "exact" method). This method yields the most accurate calculation and is typically used at other consulting firms. This method used by Callan allows for accurate comparison to other retirement funds.

For all other portfolios, for which monthly (or quarterly) pricing is available, Callan uses the "modified BAI" (Bank Administration Institute) method, which entails linking monthly (or quarterly) IRRs to approximate the true time-weighted return. When fund flows exceed 10% in a portfolio, the portfolio is revalued so as to minimize the skewing of performance. Returns for greater than one year are chain-linked then annualized with the geometric mean of the periodic returns. We believe that this is a reasonable method to arrive at accurate estimates of return when daily pricing is not available and in the absence of other more reasonable methods.

Recommendation 13:
Over the last decade, the GIPS standards have transitioned to more frequent valuations and more precise calculation methodologies. Given this guidance, ARMB should re-evaluate Callan's policy on the frequency of valuing the non-domestic portfolios for performance measurement purposes.

Regarding the calculation of net-of-fee returns, Callan communicated that they do not have the actual fee amounts available to them, but they instead apply the managers' respective fee schedules to the quarter-average market value of the assets. If the actual fee dollars cannot be made available to Callan, this is a proxy calculation for net-of-fee performance, though it is only an approximation. According to ARMB staff and Callan, management fees are not paid out of the managed asset accounts, but instead verified and paid by DOR staff, which is why Callan does not have the information.

Performance Recalculation Process

Anodos recalculated a sample of returns in order to verify the accuracy of the performance presented by the Performance Consultants throughout their reports. Our calculation utilizes the "true" time-weighted method which is the most accurate method when daily values are available. The five managers and one fund selected for recalculation were:

1. Allianz/RCM	(U.S. large cap equity)
2. SSgA Russell 1000 Growth	(U.S. large cap equity
3. Luther King	(U.S. small cap equity)
4. Brandes Investment Partners, L.P.	(international equity)
5. Mondrian Investment Partners	(international fixed income)
6. Alaska Public Employees Retirement System (PERS)	(total fund)

Performance Calculations – Observations and Recommendations

As noted above, Anodos utilized the "true" time-weighted return method for calculating performance, though Callan at times did not calculate returns with this method because of daily market values not being available. Following is a summary of the results of our performance recalculations:

1. At the manager level, were daily transactions and market values correctly integrated into a quarterly performance number? *(Sample period used: 2014 Q2)*

   Our *gross-of-fee* calculations matched Callan's calculations presented throughout their reports within one basis point (0.01%). Our *net-of-fee* return expectedly diverged from Callan's returns between 1-5 basis points (0.01%-0.05%). This is due to applying the management fee to the gross return in different fashions. Again, Callan uses management fee schedules (applying a percentage to average market value), while our analysis used actual dollar amounts which we obtained from ARMB staff.

2. At the manager level, were quarterly returns correctly integrated into a 5-year performance number? *(Sample period used: July 2009 - June 2014)*

   For all managers, our *gross-of-fee* and *net-of-fee* returns matched exactly those of Callan as presented in their performance reports.

3. At the manager level, were quarterly *benchmark* returns correctly integrated into a 5-year benchmark performance number? *(Sample period used: July 2009 - June 2014)*

For all manager benchmarks, our returns matched exactly those of Callan as presented in their performance reports.

4. At the fund level, were quarterly returns correctly integrated into a 5-year performance number? *(Sample period used: July 2009 - June 2014)*

   For the PERS fund, our *gross-of-fee* and *net-of-fee* returns matched exactly those of Callan as presented in their performance reports.

We conclude that from this sample of returns, the performance measurements presented by Callan are accurate and consistent with best practices within the industry.

V. Investment Performance Benchmarks - Callan Associates

Are the benchmarks used by the Performance Consultants reasonable and appropriate given the objectives and characteristics particular to the manager, pool or portfolio?

The Benchmark Conundrum

The ARMB Policies and Procedures Manual notes on page 20 of Appendix A:

> *"The choice of the peer styles group and benchmark is 'objective' in the sense that it comes directly from the manager structural decision. For example, if it is decided to allocate assets to a 'small cap value' manager, then for this part of the manager search the peer group and benchmark should be 'small cap value.'"*

Defining the appropriate benchmark is complex. There are questions upon which reasonable minds can differ: How big is too big to be considered "small"? How much growth is too much growth to be considered "value"?

In this section we identify several instances where particular managers' strategies have meaningful deviations from the characteristics of the benchmarks to which they are compared. The question that we are not in a position to answer is whether these deviations are reasonably acceptable to ARMB. Clearly some deviation from the benchmark is expected. If one expected perfect alignment with the benchmark, they would use only passively managed index strategies and monitor tracking error.

Where ARMB has delegated investment functions to a manager who seeks to add value through either fundamental analysis (security selection) or tactical rebalancing (market timing), it is expected that there will be deviation from the benchmark. At issue is how much deviation is too much deviation.

In some instances the trustees may conclude that the manager is straying beyond their mandate. In other cases it could be reasonable to decide that the manager's deviation from the benchmark is acceptable. In some rare cases the trustee could conclude that it is better to define a new benchmark than to force a manager to conform to its original benchmark. Again, these are weighty issues that are long debated and upon which doctoral theses are developed and PhDs are earned. In the following section our observations are made to spur further dialogue and for guidelines to be developed to address this issue.

The first step in determining if the benchmark being used is representative of the manager's strategy is to identify the risk and return factors to which the manager has exposed the fund assets.

Total Portfolio and Pool Level Benchmarking

The overall Total Return and Pool level benchmarks are reasonable and appropriate.

Equity Benchmarking Methodology

The seminal work by Eugene Fama and Kenneth French observed that the "size factor" (large stocks v. small stocks) and the "value factor" (growth stocks v. value stocks) are the greatest determinants of a particular portfolio's risk and return characteristics.[2]

An appropriate benchmark for any given equity manager will share similar investment exposure along the following continuums: 1) regional focus (domestic v. non-domestic), 2) market capitalization strata (large+mid v. small+micro) and 3) growth v. value. Identifying a benchmark that is consistent with the manager's allocation to these three factors is central to creating accountability in determining whether the manager is adding the value they profess to deliver at the commencement of the relationship.

Callan reports the weighed market cap of each equity manager in the Staff Report, as well as the MSCI Combined Z-Score which measures the holdings of each equity manager along the growth/value continuum. Using these two data points we compared the size and growth/value characteristics of the managers' deployed assets to the respective benchmarks being used. (For further explanation of the MSCI Combined Z-Score methodology, see the MSCI Global Investable Markets Value and Growth Index Methodology dated December 2007).

[2] Fama, E.F. and French, K.R. (1993) "Common risk factors in the returns on stocks and bonds". *The Journal of Financial Economics . p. 33*

Equity Benchmarking – Observations and Recommendations

For the most part we observed that the benchmarks used for each manager were consistent with the size and growth/value factors that each manager represented. However, we observed eight instances where the primary benchmarks used to measure the managers' risk and return characteristics are not statistically representative of the managers' actual portfolio characteristics.

1. Manager Deviation from Benchmark: The following eight managers had deviation from their primary benchmark that warrant further review by staff which may result in a) application of a more accurate benchmark being used, b) the establishment of a policy defining acceptable deviation from the benchmark, or c) determination that the manager has strayed from their original mandate. (Our detailed review of each manager's size and growth/value characteristics is included at Exhibit D of this report.)

Manager	Size Factor	Growth/Value Factor
Lazard Asset Management - Large Cap Value - Russell 1000 Value	Though Lazard is reported to be a Large Cap equity manager, almost 10% of their current holdings are in the Small to Micro Cap asset class. (This is 5x the Small+Micro weighting of their benchmark.)	Though Lazard is a "Value" manager being measured against the Russell 1000 Value Index they have growth/value Z-score more consistent with a market-weighted manager with neither a value nor growth tilt.
Barrow Hanley - Small Cap Value - Russell 2000 Value	Though Barrow Hanley is reported to be a Small Cap equity manager, over 33% of their current holdings are in the Large to Mid Cap asset class. (This is 7x the Large to Mid Cap weighting of their benchmark.)	
Frontier Capital	Though Frontier Capital is reported to be a	

Manager	Size Factor	Growth/Value Factor
- Small Cap Value - Russell 2000 Value	Small Cap equity manager, over 23% of their current holdings are in the Large to Mid Cap asset class. (This is nearly 5x the Large to Mid Cap weighting of their benchmark.)	
Jennison Associates - Small Cap - Russell 2000	Though Jennison is reported to be a Small Cap equity manager, over 29% of their current holdings are in the Large to Mid Cap asset class. (This is over 4x the Large to Mid Cap weighting of their benchmark.)	
Lord Abbett - Small Cap - Russell 2000 Growth	Though Lord Abbett is reported to be a Small Cap equity manager, over 34% of their current holdings are in the Large to Mid Cap asset class. (This is almost 3x the Large to Mid Cap weighting of their benchmark.)	
Luther King - Small Cap - Russell 2000		Though Luther King is being measured against the Russell 2000 Index, they have growth/value Z-score more consistent with a Small Cap Growth-tilted manager.
Brandes Investment Partners - Large Cap Int'l - MSCI EAFE		Though Brandes is being measured against the MSCI EAFE Index, they have a growth/value Z-score more consistent with a strongly-tilted Value manager. (In fact Brandes has the largest value tilt of any

Manager	Size Factor	Growth/Value Factor
		equity manager Domestic or International).
Capital Guardian - Large Cap Int'l - MSCI EAFE		Though Capital Guardian is being measured against the MSCI EAFE Index, they have a growth/value Z-score more consistent with a strongly tilted Growth manager.

Recommendation 14:
In order to enhance decision making ability from the benchmark comparisons, ARMB should consider establishing a policy that defines the managers' acceptable deviation from their benchmarks.

2. Manager Risk Data Needed (SR 2q2014, pgs. 355-357, 360-361): For the two International Small Cap managers (Mondrian and Schroder) and the two Emerging Markets managers (Eaton Vance and Lazard), there is no market capitalization or growth/value statistics reported. As such we cannot comment on whether the MSCI EAFE Small Cap benchmark and MSCI Emerging Markets benchmark, respectively, are appropriate comparisons for their current investment holdings, strategy or risk factors. Additionally, this risk data is missing at the International Equity pool level, and we cannot comment on the appropriateness of its benchmark.

Recommendation 15:
Collect growth/value and size data for International Small Cap and Emerging Market managers.

3. Presentation of Risk Data: Within the Staff Report, the Risk Adjusted Return Measures and Risk Statistics Ranking are included for some managers (Barrow Hanley, Lazard, McKinley, Quantitative Management and Allianz/RCM), but for all other managers this important risk data is not presented.

   Recommendation 16:
   Collect Risk Adjusted Return Measures and Risk Statistics Rankings for all managers.

4. Consistency of Benchmark Risk Data: In most cases where the Risk Adjusted Return data and Risk Statistics data is reported there are inconsistencies between the benchmarks which are *presented* and the *actual* primary benchmarks for the managers. As an example, please reference the Barrow Hanley "Risk Adjusted Return Measures vs Russell 1000 Value Index" on page 31 and the "Risk Statistics Ranking vs Russell 1000 Value Index" on page 32 of the June 2014 Staff Report. The index used in these charts is not the Russell 1000 Value index, but rather the Russell 1000 Index (without the value tilt). This same discrepancy is repeated throughout the report (as examples, see Lazard on pgs. 48-49, Quantitative Management on pgs. 82-83, Allianz/RCM on pgs. 101-102).

   Recommendation 17:
   Ensure that the primary index referenced in the Risk Adjusted Return data and Risk Statistics data is the same index against which the manager is compared.

5. McKinley (int'l equity) Customized Benchmark (BR 2q2014, pg. 111): The McKinley international equity manager is compared against a customized benchmark based on a recommendation from the prior audit:

"McKinley's exposure to emerging markets as of 3/31/2010 was 28.5% and has consistently been above 20% over the past two years. As of 3/31/2010, the MSCI ACWI ex-US Index contained 22.6% emerging market equities and 77.4% developed market equities, which may make it a more relevant benchmark for comparison of McKinley's performance…Given McKinley's disposition to hold a significant amount of equities from emerging market countries, ARMB should consider adding the MSCI ACWI Ex-US Growth Index as a strategic policy benchmark or making it the primary benchmark."

In our view, the difference between the manager's weighting to emerging markets and the benchmark's emerging markets are not so disparate that a customized benchmark was warranted. The original benchmark, MSCI ACWI ex-US Index, is in our view the more appropriate index to use. Absent statistical data available for this manager (see Recommendation #15 above), the scatter graph at pg. 187 confirms a tighter correlation between McKinley and the MSCI ACWI ex-US Index.

Recommendation 18:
Remove the customized benchmark, MSCI ACWI Ex-US Growth Index, for McKinley international equity.

6. Equity Pool Data Observation: The risk factors, statistical data and performance history for the Domestic Equity pool are nearly identical to the Russell 3000 Index data against which this pool is compared. It appears the distinct activities of the 19 managers in this Domestic Equity pool have replicated the Russell 3000 index. This puts into question whether any value is created when so many managers within the pool effectively dilute their own unique strategies and focuses, and also create an implicit cost to monitor them.

Pool/Index	Number of Securities Represented	Beta v. Index	R^2 v. Index	Relative Standard Deviation v Index	MSCI Combined. Z-Score	5-year Return*	6-year Return*	10-year Return*
Domestic Pool	2982	1.01	1.0	1.01	(0.01)	21.44%	8.79%	7.18%
Russell 3000 Index	2992	1.00	1.0	1.00	(0.00)	21.93%	8.87%	7.86%

* Historic return presented gross of fees.

Fixed Income Benchmarking – Observations and Recommendations

1. As noted earlier, the primary factors of non-diversifiable risks within a fixed income portfolio are 1) the duration or term of the asset being held and 2) the credit quality of the underlying securities (Fama & French). Similar to our earlier observation, these two critical factors of risk and return are unreported in any of the performance reports. As such there is no data provided by Callan to determine whether the benchmarks being used for the fixed income managers or fixed income pools are appropriate.

   Following are a list of managers and pools for which an evaluation of the appropriateness of their respective benchmarks is impossible without this additional term and credit quality data. (Other fixed income portfolio statistics may also prove valuable.)

   - Total Fixed Income Pool
   - Domestic Fixed Income Pool
   - International Fixed Income Pool
   - High Yield Pool
   - Internally Managed US Treasury Pool (Treasuries)

- Guggenheim Taxable Muni (Municipal bonds)
- Western Asset Taxable Muni (Municipal bonds)
- Lazard Emerging Income (Emerging market debt)
- Mondrian Investment Partners (International fixed income)
- MacKay Shields (High yield bonds)

Recommendation 19:

Further research by ARMB staff and Callan are strongly recommended to collect this critical data for determining appropriateness of these managers' benchmarks.

VI. Performance Reports – The Townsend Group

Are the performance measurements presented by the Performance Consultants reasonable, accurate and consistent with best practices and industry standards with regard to methods factors and data used?

Background

The Real Estate asset class is a component of the "Real Assets" portfolio which includes real estate, farmland, timberland, TIPS, energy, and infrastructure. Real Estate is further divided into Private and Public investments. Private real estate consists of Core and Non-core, with further sub-division between separately managed accounts, closed-end and open-end funds and non-core consists primarily of specialty property types and strategies. We refer to the individual private real estate investments as 'Managers' since each one is managed by a third party investment firm. The Public segment consists entirely of publicly traded Real Estate Investment Trust securities (REITs). The REIT portfolio is managed internally by DOR staff.

The Townsend Group (Townsend) consults for ARMB only on the Real Estate components of the Real Assets portfolio. Callan is responsible for performance measurement and consulting on the other components. Townsend generates two types of performance reports for the ARMB:

1. Staff Report (aka "Flash Report"): A detailed quarterly report for staff.
2. Annual Performance Report (aka "Board Report") as of June 30th of each year that accompanies an oral presentation at the Board's September meeting.

Staff Report

The Staff Flash Report contains performance metrics and a variety of characteristics on the ARMB's private and public real estate investments. The first page, "Funding Status", is a summary of the real estate program and shows performance of the real estate portfolio against the NCREIF Property Index (NPI). The Staff Flash Report also includes performance statics such as vintage year, capital flows, market values, and the unfunded commitment amounts.

The next pages of the Staff Flash Report provide more detail for the core, non-core, and REIT sub-asset classes. Data is clearly shown in a tabular format for each Manager.

The eight pages of the Staff Flash Report present Returns (including net IRR by Manager and in total), Cash Flows and LTV%, various Diversification analysis pages (e.g., by Manager by type and location, comparative Quartile Analysis for the separate account Managers, and finally, Attribution analysis pages.

Detailed performance is shown on the "Returns" page. Returns are decomposed into return from income and appreciation and shown both gross and net of fees over all periods (Quarter, Year-to-Date, 1, 3, 5 years, and since inception.) The presentation of returns by Townsend is consistent with CFA Institute standards.

Presenting performance as IRR is a common practice in the real estate investment industry. Townsend now provides net IRRs for all real estate Managers and includes corresponding inception dates.

The Diversification pages in the Staff Flash Report show diversification by Manager and in total by location (including ex-US) and by property type. Townsend now also provides diversification by type and location for the benchmark NPI.

The Cash Flow Activity page includes the capital flows, income, fees, net appreciation/depreciation, and the ending market value.

We conclude that he Quarterly Staff Report provided by Townsend is consistent with common practices in the industry. Townsend complies with the Performance Measurement requirements of its agreement with ARMB.

Annual Performance Report

The annual performance report has an Introduction and a high-level, recently added (2013), Allocation Snapshot which tracks the Board's strategic change that added real estate to Real Assets and reduced its overall allocation. Page one of the Introduction tracks the real estate market recovery of the ARMB real estate portfolio from its peak in 2008 to the current quarter. At June 30, 2014, the portfolio was just slightly above 75% of its 2008 peak market value.

The Allocation Snapshot page affords the Board high-level information to track progress of the strategy implementation.

The second section, Portfolio Overview, contains performance objectives and measures, and strategic objectives with implementation status. These two sections are at a high level and provide Townsend's consideration of the more important aspects of real estate overall, including a twenty-two year chart of the

Five Year Rolling Net Real Rate of Return which is a key statistic since an overall objective for ARMB is to achieve at least 5% by this measure.

The following pages of the annual Board Report drill down into the core, non-core and internally managed REIT portfolios and show performance and universe comparisons for similar Managers. A snapshot of the separately managed accounts, and an overview of the real estate market, is attached as an appendix to the presentation.

We conclude that the Annual Performance Report provided by Townsend is consistent with common practices in the industry. Townsend complies with the Performance Measurement requirements of its agreement with ARMB.

VII. Performance Calculations and Methodology – The Townsend Group

Are the benchmarks used by the Performance Consultants reasonable and appropriate given the objectives and characteristics particular to the manager, pool or portfolio?

Chain of Custody of Performance Data

Townsend receives raw data from the external real estate managers, calculates performance, then sends a draft performance report to ARMB Manager of Real Assets. Townsend does not calculate performance of the REIT portfolio. We were informed by staff that this is done by State Street. The Manager of Real Assets will review the draft report to verify its accuracy and will work with Townsend to resolve any discrepancies or other related issues.

Performance Calculation Methodology

Townsend informed us that their performance reports portray time-weighted quarterly returns using the Modified Dietz methodology. Performance for greater than one year is chain-linked then annualized with the geometric mean of the quarterly returns. Townsend additionally reports IRR on real estate managers, which may be more relevant in those cases when the manager controls the timing decisions of capital contributions or distributions in accordance with CFA Institute recommendations.

Performance Recalculation Process

Anodos recalculated a sample of performance figures for real estate managers with the same methodology as conducted with Callan and described above. The three real estate managers selected for audit were:

1. LaSalle I.M.A. (separately managed real estate fund)
2. JP Morgan Strategic Property Fund (open-end real estate fund)
3. Lowe Hospitality Investment Partners (closed-end real estate fund)

Performance Calculations – Findings and Recommendations

As noted above, Anodos utilized the "true" time-weighted return method for calculating performance, though Townsend did not calculate returns with this method because of daily market values not being available. Following is a summary of our inquiries and observations:

1. At the manager level, were daily transactions and market values correctly integrated into a quarterly performance number? *(Sample used: 2014 Q2)*

   Our *gross-of-fee* and *net-of-fee* returns matched exactly Townsend's figures when we used the Modified Dietz method which is the method they choose to use. Using a "true" time-weighted calculation provides a slightly higher result, though the Modified Dietz calculation is a reasonable method and calculated properly.[3]

[3] The difference between *gross-of-fee* and *net-of-fee* for LaSalle IMA is 0.13% and 0.12%, respectively; 0.03% and 0.01% for JP Morgan Strategic Property Fund; and identical for the Lowe Hospital Investment Partners due its transactions occurring on quarter-end.

2. At the manager level, were quarterly returns correctly integrated into a 5-year performance number? *(Sample used: July 2009 - June 2014)*

   For all managers, our *gross-of-fee* and *net-of-fee* returns matched exactly those of Townsend as presented in their performance reports.

3. At the manager level, were quarterly *benchmark* returns correctly integrated into a 5-year benchmark performance number? *(Sample used: July 2009 - June 2014)*

   For all manager benchmarks, our returns matched exactly those of Townsend as presented in their performance reports.

We conclude that from this sample of returns, the performance measurements presented by Townsend are accurate and consistent with best practices within the industry.

VIII. Investment Performance Benchmarks – The Townsend Group

Are the benchmarks used by the Performance Consultants reasonable and appropriate given the objectives and characteristics particular to the manager, pool or portfolio?

The Real Estate portfolio is a component of the real asset composite which also includes farmland investments, timberland investments, TIPS, energy, and infrastructure investments. The Staff Flash Report also uses the NPI as a standalone benchmark.

As documented in the Real Estate Policy, the benchmark for the real estate pool is 90% NCREIF Property Index plus 10% FTSE NAREIT Equity Index. This is reasonable given that the majority of the portfolio is private real estate. (Although, we note that approximately twenty percent of the portfolio FMV was comprised of REIT investments at June 30, 2014.)

As for the real estate managers, the closed-end fund managers have a benchmark of a net internal rate of return target (e.g., 15% net IRR target), and the contract benchmark for the open-end fund managers and separate account managers is the NCREIF Property Index (NPI) or the NCREIF Open-End Diversified Core (ODCE) Index.

We conclude that the benchmarks used by Townsend are appropriate and consistent with common practices in the industry.

EXHIBIT A
Summary of Recommendations

Ref #	Recommendation	Page
1	Callan's emphasis on the economic section of the Board Presentation should be limited to a brief overview of the economic environment and should document the specific risks, opportunities and recommendations the Performance Consultant makes to the Board.	8
2	At least annually, net-of-fee performance should be presented against the Manager's and Pool's performance benchmarks in all reports.	9
3	In the absence of net-of-fee performance reporting, a fee schedule should be included in the performance reports to be consistent with the direction of the Policies and Procedures Manual.	9
4	A clear notation should be made that the Fund level performance is "gross-of-fees" to be consistent with the Pool and Manager level data in accordance with GIPS guidelines (see rule 4.A.5 of the 2012 GIPS Handbook).	10
5	Duration and credit quality should be reported quarterly for fixed income assets at the Pool and Manager levels in all reports.	10
6	The reason should be noted why these three managers, above all others, are included in each Board Presentation. If there is no particular reason, the data should be excluded from the Board Presentation and reserved for staff to review along with the other managers.	11
7	1, 3, 5, 7, and 10-year performance is the industry standard and is being used for period performance at the Fund level. The same periods should be adopted at the Pool and Manager levels in the Board Presentation, the Board Report and the Staff Report.	11
8	"Portfolio Characteristics" should be included for the International Equity pools and managers.	12
9	ARMB staff should collect Callan's conflict of interest disclosure information on an annual basis, including the amount and nature of fees paid to Callan by ARMB's managers, and report it to the Board. Particular note should be made of the percentage of total fund assets controlled by	13

	managers who have a financial relationship with the Performance Consultants.	
10	As part of its performance monitoring ARMB should request Callan or staff to perform the analysis at some reasonable frequency to ensure they are competitive and in line with the average pattern of fees in the industry.	14
11	Report S&P 500 fund and SSgA Global Balance fund performance net-of-fees to be consistent with other fund reporting.	14
12	Include with the Private Equity Report the above-mentioned data for the total private equity portfolio level and in-house portfolio level.	15
13	Over the last decade, the GIPS standards have transitioned to more frequent valuations and more precise calculation methodologies. Given this guidance, ARMB should re-evaluate Callan's policy on the frequency of valuing the non-domestic portfolios for performance measurement purposes.	17
14	In order to enhance decision making ability from the benchmark comparisons, ARMB should consider establishing a policy that defines the managers' acceptable deviation from their benchmarks.	25
15	Collect growth/value and size data for International Small Cap and Emerging Market managers.	25
16	Collect Risk Adjusted Return Measures and Risk Statistics Rankings for all managers.	25
17	Ensure that the primary index referenced in the Risk Adjusted Return data and Risk Statistics data is the same index against which the manager is compared.	26
18	Remove the customized benchmark, MSCI ACWI Ex-US Growth Index, for McKinley international equity.	27
19	Further research by ARMB staff and Callan are strongly recommended to collect this critical data for determining appropriateness of these managers' benchmarks.	28

EXHIBIT B
Follow-up on Prior Audit Recommendations

Task Area	Recommendation	Status
Task Area A.1.b. Recommendation 1 (of 2010 IFS Report)	ARMB should request that Callan include the TIPS portfolio and the REIT portfolio in the Investment Manager Returns exhibit and provide an investment summary page for the TIPS portfolio.	Implemented in Board Report and Staff Report.
Task Area A.1.b. Recommendation 2	The CIO and ARMB staff should work with Callan to determine how the reporting on timberland and farmland can be enhanced.	Unknown.
Task Area A.1.b. Recommendation 3	ARMB should continue to work with Callan to show an IRR for the private equity program as a whole.	There is no IRR measurement for total private equity program in the Private Equity report. TVPI (total value to paid in) is calculated for the previous two years only.
Task Area A.1.b. Recommendation 4	ARMB should ask Callan to provide performance for the private equity program by strategy (e.g., Buyouts, Venture Capital, Mezzanine, etc.) and to show portfolio diversification by geography and industry.	This performance is not provided, though diversification is shown.
Task Area A.1.b. Recommendation 5	ARMB should ask Callan to display the total fee for each fund shown in the defined contribution report.	Not implemented.
Task Area A.1.b. Recommendation 6	ARMB should ask Townsend to show the inception date for the IMAs.	Implemented – Townsend now includes performance from inception in its annual Performance Report and "vintage year" in its quarterly Staff Flash Report.

Task Area	Recommendation	Status
Task Area A.1.b. Recommendation 7	ARMB should ask Townsend to show annualized performance for a time period greater than five years (e.g., seven or 10 years) for the IMAs, where applicable.	Implemented – Townsend now includes performance since inception for the IMAs (Core Portfolio) in its quarterly Staff Flash Report.
Task Area A.1.b. Recommendation 8	ARMB should ask Townsend to show performance for the IMAs as an internal rate of return (IRR) in addition to time-weighted returns.	Implemented – Townsend now includes performance as an IRR in its quarterly Staff Flash Report for Core, Non-Core, REITs and the real estate portfolio in total.
Task Area A.1.b. Recommendation 9	ARMB should consider asking Townsend to show the country allocation for those managers with properties located internationally.	Implemented on the Flash Report, including the percentage of holdings that are "ex-US" in the Non-Core portfolio.
Task Area A.1.b. Recommendation 10	ARMB should consider asking Townsend to show property diversification and geographic diversification for the real estate benchmarks (i.e., NCREIF Property Index and FTSE NAREIT Index).	Implemented – Townsend now includes property type and geographic representation of the NPI.
Task Area A.1.b. Recommendation 11	ARMB should consider asking Townsend to show the allocation to each fund (as well as the sub-portfolios and total portfolio) by percentage.	Implemented on the Funding Status page.
Task Area A.2. Recommendation 1	ARMB should consider adding MSCI ACWI ex-US Growth Index as a strategic policy benchmark or making it the primary benchmark for McKinley's international portfolio.	Implemented on Board Report and Staff Report.
Task Area A.2. Recommendation 2	ARMB should consider adding the FTSE NAREIT Equity Index to the real asset benchmark.	Implemented on Board Report and Staff Report.
Task Area A.2. Recommendation 4	ARMB should consider adding the KLD index on which the RCM Socially Responsible Investment Fund is based as a strategic benchmark.	Implemented on Defined Contribution Report.

EXHIBIT C
Performance Calculations Overview

There are several methods of calculating portfolio time-weighted rates of return that are accepted by the CFA Institute's Global Investment Performance Standards (GIPS®). Depending on the cash flow activity in the account, one or more of the methods may not be appropriate in a given situation.

The methods differ in the frequency of data input into the calculation, the accuracy of the calculation, and the cost of conducting the calculation. The resulting rates of return from the three methods may be identical, may differ slightly, or may differ materially, depending on the size and timing of cash flows relative to the size of the account.

"True" time-weighted return (aka "daily valuation") is the most mathematically accurate method, as it calculates a daily rate of return, based on that day's cash flows and updated market value. This is the method utilized within this audit:

For the 1-quarter performance inquiry, we requested of ARMB daily market values and cash flows and recalculated the performance by first calculating holding period returns (HPR) for each sub-period of time between non-income cash inflows or outflows (CF):

$$HPR = [(MV_1 - MV_0 + D_1 - CF_1) / MV_0]$$

(Note: Debits such as cash outflows should be represented as negative numbers within this equation.)

After calculating each holding period return, they are "chain-linked" to form one return figure for the quarter:

$$\text{"True" time-weighted return} = [(1 + HPR_1) * (1 + HPR_2) * (1 + HPR_3) \ldots * (1 + HPR_N)] - 1$$

For the 5-year performance and benchmark inquiry, we requested of ARMB quarterly returns both gross-of-fee and net-of-fee. These quarterly returns were "chain-linked" as illustrated above and then annualized over the 5-year period:

Annualized time-weighted return = (Cumulative time-weighted return ^ $^{1/5}$) - 1

For a *gross-of-fee* return calculation, we treated management fee transactions as cash outflows, rather than a reduction in market value. This treatment removes any impact on performance. To calculate *net-of-fee* returns, we instead allowed management fees to reduce the market value (at quarter-end) in the same way that a dividend payment would increase market value. For the non-real estate managers we examined, ARMB staff provided us the actual management fee dollars paid in Q2, since as noted above management fees are not debited from the managed assets but are instead paid from an external account.

Gross-of-Fee: $HPR = [(MV_1 - MV_0 + D_1 - CF_1 - MF_1) / MV_0]$

Net-of-Fee: $HPR = [(MV_1 - MV_0 + D_1 - CF_1) / MV_0]$

(Note: Debits such as cash outflows and management fees should be represented as negative numbers within this equation.)

Dietz is the simplest method in that it requires the least amount of data. Only beginning and ending market values and the total amount of cash flows for the month are used. The Dietz algorithm assumes all cash flows occur at the middle of the month and that the change in market values occurs evenly throughout the month. This method results in a reasonable rate of return if the cash flows are very small relative to the portfolio value. Modified Dietz uses the same beginning and end of month values as the Dietz method, but identifies each cash flow with the date it occurred and weights it accordingly within the month. Modified Dietz is the most common method for calculating periodic portfolio performance, since the information needed is usually easily available in ordinary portfolio record keeping.

The alternative to the time-weighted rate of return is the money-weighted rate of return or internal rate of return (IRR). This methodology is affected by external cash flows and is most often used when the investment manager can control the size and timing of these cash flows. For managers that operate under this type of arrangement, such as various types of real estate and private equity managers, using a money-weighted rate of return is typically preferred as it better evaluates the manager's skill. For example, the GIPS developed by CFA Institute recommends presenting performance using a money-weighted rate of return for real estate assets and requires it for private equity investments.

EXHIBIT D
Manager Risk Factors
- Large v. Small and Growth v. Value -

Index Identification				Large+Mid v. Small+Micro					Combined Z-Score Style Distribution				
Page	Manager	Pool	Primary Benchmark	Page	L&M Man	S&M Man	L&M Indx	S&M Index	Page	Mgr G Z	Mgr V Z	Index G Z	Index V Z
2		Domestic Equity Pool	R3k	13	83.50%	16.50%	91.40%	8.60%	13	0.01	0.01	(0.01)	0.01
16		Large Cap Equity	R1k	27	98.10%	1.90%	98.40%	1.60%	27	0.01	0.03	(0.01)	0.01
30	Barrow Hanley	Large Cap Domestics	Russell 1000 Value	44	97.80%	2.20%	97.80%	2.20%	44	(0.24)	0.43	(0.37)	0.45
47	Lazard	Large Cap Domestics	Russell 1000 Value	62	90.30%	9.70%	97.80%	2.20%	62	0.16	(0.03)	(0.37)	0.45
65	McKinley	Large Cap Domestics	Russell 1k G	79	100.00%	0.00%	99.10%	0.90%	79	0.44	(0.35)	0.35	(0.44)
82	Quantitative Mgmt Associattes	Large Cap Domestics	R1kv	97	99.10%	0.90%	97.80%	2.20%	97	(0.43)	0.66	(0.37)	0.45
100	Allianz/RCM	Large Cap Domestics	R1kG	115	100.00%	0.00%	99.10%	0.90%	115	0.50	(0.46)	0.35	(0.44)
118	SSgA - R1kG	Large Cap Domestics	R1kG	128	99.10%	0.90%	99.10%	0.90%	128	0.35	(0.44)	0.35	(0.44)
130	SSgA - R1kV	Large Cap Domestics	R1kV	140	97.80%	2.20%	97.80%	2.20%	140	(0.37)	0.46	(0.37)	0.45
142	SSgA - R200	Large Cap Domestics	R200	153	100.00%	0.00%	100.00%	0.00%	154	(0.02)	0.05	(0.02)	0.05
157		Small Cap Equity Pool	R2k	167	18.70%	81.30%	7.10%	92.90%	167	0.06	(0.09)	(0.02)	(0.03)
170	Barrow Hanley Small Cap Value	Small Cap Equity	R2kV	183	34.50%	65.50%	5.20%	94.80%	183	0.02	0.12	(0.19)	0.41
186	DePrince, Race & Zollo	Small Cap Equity	R Micro Value	191	0.00%	100.00%	0	100.00%	191	(0.41)	0.59	(0.27)	0.41
193	Frontier Capital	Small Cap Equity	R2kV	200	23.70%	76.30%	5.20%	94.80%	200	(0.02)	0.33	(0.19)	0.41
203	Jennison Associates	Small Cap Equity	R2k	217	29.40%	70.60%	7.10%	92.90%	217	0.08	(0.21)	(0.02)	(0.03)
220	Lord, Abbett Micro Cap Value	Small Cap Equity	R Micro Growth	225	0.00%	100.00%	0.00%	100.00%	225	0.28	(0.95)	0.05	(0.67)
227	Lord,Abbett Small Cap Growth	Small Cap Equity	R2kG	232	34.10%	65.90%	8.90%	91.10%	232	0.50	(0.74)	0.16	(0.49)
234	Luther King	Small Cap Equity	R2k	249	15.60%	84.40%	7.10%	92.90%	249	0.18	(0.29)	(0.02)	(0.03)
252	SSgA - R2kG	Small Cap Equity	R2kG	257	8.80%	91.20%	8.90%	91.10%	257	0.16	(0.49)	0.16	(0.49)
259	SSgA - R2kV	Small Cap Equity	R2kV	264	5.20%	94.80%	5.20%	94.80%	264	(0.19)	0.42	(0.19)	0.41
266	Victory Capital Mgmrt	Small Cap Equity	R2kV	273	13.10%	86.90%	5.20%	94.80%	273	(0.14)	0.26	(0.19)	0.41

Index Identification				Large+Mid v. Small+Micro					Combined Z-Score Style Distribution				
Page	Manager	Pool	Primary Benchmark	Page	L&M Man	S&M Man	L&M Indx	S&M Index	Page	Mgr G Z	Mgr V Z	Index G Z	Index V Z
275		Alternative Equity Pool					No Data					No Data	
276	Analytic SSgA	Alternative Equity	S&P 500 / CBOE Buy Write				No Data					No Data	
277	Advent Capital	Alternative Equity	S&P 500 / All Yld Alt US Cvt				No Data					No Data	
280	In House Equity Yield	Alternative Equity	US Dividend 100				No Data					No Data	
281	Relational Investors	Alternative Equity	S&P 500	291	96.00%	4.00%	100.00%	0.00%	291	(0.17)	0.08	(0.03)	0.04
294		International Equity Pool	MSCI EAFE / MSCI ACWI ex US				No Data					No Data	
296		Intl Equity (ex Emerging Mkts) Pool	MSCI EAFE	302	58.30%	41.70%	65.90%	34.10%	302	(0.01)	0.14	(0.01)	(0.01)
305	BlackRock ACWI ex US IMI	International Equity	MSCI ACWI ex US IMI				No Data					No Data	
307	Brandes Investment Mgmt	International Equity	MSCI EAFE	314	56.70%	43.30%	65.90%	34.10%	314	(0.22)	0.64	(0.01)	(0.01)
316	Capital Guardian	International Equity	MSCI EAFE	324	59.10%	40.90%	65.90%	34.10%	324	0.17	(0.25)	(0.01)	(0.01)
327	Lazard Asset Mgmt	International Equity	MSCI EAFE	333	59.40%	40.60%	65.90%	34.10%	333	0.07	(0.03)	(0.01)	(0.01)
337	McKinley Capital Mgmt	International Equity	MSCI ACWI ex US Growth	343	57.70%	42.30%	55.50%	44.50%	343	0.28	(0.05)	0.27	(0.51)
347	SSgA International	International Equity	MSCI EAFE	352	54.80%	45.20%	67.20%	32.80%	352	(0.02)	0.02	(0.01)	(0.01)
355	Mondrian Intl Small Cap	International Equity	EAFE Small Cap				No Data					No Data	
356	Schroder Inv Mgmt	International Equity	EAFE Small Cap				No Data					No Data	
358		Emerging Markets Pool	MSCI Emerging Mkts				No Data					No Data	
360	Eaton Vance	Emerging Markets	MSCI Emerging Mkts				No Data					No Data	
361	Lazard Emerging	Emerging Markets	MSCI Emerging Mkts				No Data					No Data	
363	Lazard Asset Mgmt	Global Equity	MSCI World	366	78.50%	21.50%	86.00%	14.00%	366	0.11	(0.03)	(0.01)	0.01

Index Identification				Large+Mid v. Small+Micro					Combined Z-Score Style Distribution				
Page	Manager	Pool	Primary Benchmark	Page	L&M Man	S&M Man	L&M Indx	S&M Index	Page	Mgr G Z	Mgr V Z	Index G Z	Index V Z
369		Total Fixed Income Pool	Fixed Income Target				No Data					No Data	
371	US Treasury Pool	Domestic Fixed Income	Barclays Intmdt Treas				No Data					No Data	
373	Guggenheim Taxable Muni	Domestic Fixed Income	Barclays Muni Tax Bd				No Data					No Data	
374	Western Asset Taxable Muni	Domestic Fixed Income	Barclays Muni Tax Bd				No Data					No Data	
376	Lazard Emerging	International Fixed Income	Libor 3-month				No Data					No Data	
377	Mondrian Investment Partners	International Fixed Income	Benchmark				No Data					No Data	
382	REIT Holdings	Real Assets	NAREIT All Equity				No Data					No Data	
386	TIPS Internal Portfolio	Real Assets	Barclays US TIPS				No Data					No Data	
388		Absolute Return Pool	T-Bills + 5% / HFRI Fund of Funds Compos				No Data					No Data	
390	Crestline Investors	Absolute Return Funds	T-Bills + 5% / HFRI Fund of Funds Compos				No Data					No Data	
391	Global Asset Mgmt	Absolute Return Funds	T-Bills + 5% / HFRI Fund of Funds Compos				No Data					No Data	
393	Prisma Capital	Absolute Return Funds	T-Bills + 5% / HFRI Fund of Funds Compos				No Data					No Data	
395		High Yield Pool	High Yld Target / BC Aggregate				No Data					No Data	
398	MacKay Shields	High Yield	High Yld Target / BC Aggregate				No Data					No Data	

EXHIBIT E
Report Limitations

The specific details, scope and depth of this review are defined by the agreement between ARMB and Anodos Advisors. This Report should be read and evaluated with several caveats in mind.

- Throughout the report we reference "best practices" and in each case seek to defend the basis for this opinion. It should be noted that what we have deemed as industry "best practice" is based on our experience performing similar reviews. A best practice is not necessarily the "norm" or most common practice, rather it is the most effective and efficient means (e.g., a process, procedure or structure) of doing something in a given situation to achieve an optimal outcome. Since effectiveness and efficiency are situational, what is a best practice for one operation may not be a best practice for all operations.

- Many of the subjects addressed in this Report are inherently judgmental and not susceptible to absolute or definitive conclusions. Many of our conclusions constitute alternatives for the Board and staff to consider in light of the ARMB's evolving investment program now and over the coming years.

- In conducting this review, we assumed the information we were provided, whether by the Service Providers, staff or the Board, is accurate, and could be relied upon. We sought to cross-verify certain information among different interviewees and documents, but the process of cross-verification was limited. We were not hired to detect or investigate fraud, concealment or misrepresentations and did not attempt to do so. We were not hired to, and did not attempt to conduct a formal or legal investigation or otherwise to use judicial processes or evidentiary safeguards in conducting our review. Our observations and conclusions are based upon our extensive review of documents, the interviews we conducted with the Board and staff, our independent analysis, and our experience and expertise.

- This Report does not and is not intended to provide legal advice.

- Our observations are necessarily based only on the information we considered as of and during the period we performed our review, especially as of March 31, 2014 and June 30, 2014.

- Our Report cannot and does not attempt either to assess the manner in which any of our recommendations may be implemented or observed in the future, or predict whether ARMB's practices, as represented to us, will be observed in the future. Nor does our Report supplant or reduce the ongoing independent fiduciary duty of the Board and staff to structure and evaluate their investment program or policies and procedures.

- We are not a firm of certified public accountants and this report is not intended to conform to generally accept auditing standards (GAAS) as promulgated by the AICPA, nor was it required to conform to GAAS.

- Though this audit is conducted with familiarity with the Global Investment Performance Standards (GIPS®), this engagement did not call for nor does this report constitute a GIPS "verification."

- Although we have discussed our observations with, and submitted draft versions of our Report to ARMB and its representatives, its final form and content reflect the independent judgment of Anodos Advisors. The extent to which our Report and recommendations are implemented is the Board's decision.

* * *

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Taxable Municipal Fixed Income Investment Guidelines — ACTION: X

DATE: December 4, 2014 — INFORMATION:

BACKGROUND:

At its December 2012 meeting, the Alaska Retirement Management Board (ARMB) instructed Callan Associates (Callan) to conduct a search for a taxable municipal bond manager to invest up to $200 million in assets. Callan sent requests for information to over twenty firms and received twelve responses. From those responses, Callan narrowed the list to six firms. Staff conducted on-site interviews of two firms from this list: Guggenheim and Western Asset Management Company. These prospective investment managers presented at the April 2013 ARMB meeting and the Board awarded a $100 million mandate to each manager.

Following contract negotiations, which included the development of mutually agreed-upon investment guidelines, each manager received initial funding on October 1, 2013.

STATUS:

Each manager has been flagged for compliance violations relating to the purchase of securities that are not explicitly categorized as municipal securities in the compliance system. For example, some securities issued by universities are displayed as municipal securities and some are displayed as corporate securities. To overcome an ambiguity in the definition of a municipal security in the investment guidelines, section D-5 was augmented. Additionally, a minor correction was made to the language in section E-2. The recommended changes were made in collaboration with the two managers.

RECOMMENDATION:

That the Board approve Resolution 2014-26, revising the investment guidelines for taxable municipal fixed income.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to Taxable Municipal Fixed Income Guidelines

Resolution 2014-26

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, the Board contracts an independent consultant to provide experience and expertise in asset allocation and other investment matters to come before the Board; and

WHEREAS, the Board has established an asset allocation for the funds that considers earnings and liabilities on a current as well as a future basis; and

WHEREAS, the Board has authorized investment in fixed income securities; and

WHEREAS, the Board will establish and from time to time as necessary modify guidelines for fixed income securities.

NOW THEREFORE BE IT RESOLVED THAT THE ALASKA RETIREMENT MANAGEMENT BOARD adopts the attached Taxable Municipal Fixed Income Guidelines, attached hereto and made a part hereof, regarding investment in fixed income securities. This resolution repeals and replaces Resolution 2013-17.

DATED at Anchorage, Alaska this _____ day of December, 2014.

_____
Chair

ATTEST:

_____
Secretary

TAXABLE MUNICIPAL FIXED INCOME GUIDELINES

A. Purpose. The emphasis of investments in fixed income securities shall be diversification, subject to defined constraints, to minimize risk.

B. Investment Management Service to be Performed. Taxable municipal fixed income Contractors shall invest and reinvest the cash and securities allocated to them and deposited in their account, without distinction between principal and income, in a portfolio consisting of fixed income securities with an intended emphasis on taxable municipal securities. These securities will be selected and retained by Contractors solely on the basis of their independent judgment relating to economic conditions, financial conditions, market timing, or market analysis, and will not be subject to direction from the ARMB.

C. Performance Standards. Contractors are expected to have returns, net of fees, in excess of the appropriate benchmark over rolling 5-year periods with an ex-ante tracking error, defined as the annualized standard deviation of returns relative to the index, of less than two percent. The benchmark is the Barclays Taxable Municipal: US Aggregate Eligible Index. The Contractors cannot guarantee any outcome and these targets are not to be considered an assurance or guarantee of performance or of realized risk in the portfolio.

D. Investment Structure. Permissible U.S. dollar denominated debt investments shall be limited to the following:

1. Money market investments comprising:

    a. Repurchase agreements collateralized only by U.S. Treasury obligations, including bills, notes, and bonds, and only when the collateral carries a market value equal to or greater than 102% of the amount of the repurchase agreements, and only when the custodial bank appointed by retirement funds will take custody of the collateral;

    b. Commercial paper rated at least Prime-1 by Moody's Investor Services, Inc. and A-1 by Standard and Poor's Corporation;

    c. Negotiable certificates of deposit and bankers acceptances; provided that an issuing bank must have total assets in excess of $5 billion.

2. United States Treasury obligations including bills, notes, bonds, other debt obligations issued by the United States Treasury, and backed by the full faith and credit of the U.S. Government.

3. Other full faith and credit obligations of the U.S. Government.

4. Securities issued or guaranteed by agencies and instrumentalities of the U.S. Government, but not explicitly backed by the full faith and credit of the U.S. Government.

5. Securities issued or guaranteed by municipalities in the United States, including but not limited to territories and commonwealths, as well securities issued by non-profit institutions and special purpose entities such as higher education institutions, health care organizations and project finance corporations, regardless of tax status:
    - general obligation bonds
    - revenue bonds
    - housing authority bonds
    - private activity bonds
    - industrial development bonds
    - residual interest bonds
    - tender option bonds
    - tax and revenue anticipation notes
    - bond anticipation notes
    - ~~tax-exempt~~ commercial paper
    - municipal leases
    - participation certificates
    - corporate backed municipal issuers
    - taxable municipal closed-end funds

E. Portfolio Constraints. All limitations are applicable at the time of purchase. Short term securities must be rated at least A-2/P-2/F-2 or equivalent by an Nationally Recognized Statistical Rating Organization (NRSRO) or by the Contractor, if unrated. Long term securities must be rated investment grade by an NRSRO or by the Contractor, if unrated. Only one rating is necessary, and the median rating will apply for securities rated by more than one NRSRO. The Contractor shall apply appropriate diversification standards subject, however, to the following limitations based on the current market value of assets:

1. The portfolio's duration may not exceed a band of +/-20% around the duration of the index.

2. The Contractor may not invest more than 20% of the portfolio's assets in securities that are not rated~~s~~ by an NRSRO.

3. The Contractor may not invest more than 25% of the portfolio's assets in securities originated by it or an affiliated company.

4. There shall be no investment in private placements, except Rule 144A securities.

5. The Contractor shall not sell securities short.

6. The Contractor shall not purchase securities on margin.

7. The Contractor shall not utilize options or futures.

8. Externally Managed Assets: Internal cross trading is permitted but only in accordance with requirements under: (1) 29 U.S.C. §1108(b)(19); (2) 29 C.F.R. §2550.408b-19; and (3) 26 U.S.C. §4975(d)(22).

F. Required Remedies. Recognizing that ratings and relative asset worth may change, the Contractor shall liquidate invested securities with care and prudence when the credit rating of a security falls below the minimum standards set in these guidelines or when the relative market value of that investment type exceeds the levels of holdings permitted in these guidelines. The Contractor is required to notify the chief investment officer to discuss the situation and the proposed liquidation strategy if it is not prudent simply to liquidate immediately.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to Taxable Municipal Fixed Income Guidelines

Resolution 2014-26

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ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	QMA Market Participation Strategy	ACTION:	X
DATE:	December 4, 2014	INFORMATION:	

BACKGROUND:

Quantitative Management Associates (QMA) has been managing their Market Participation Strategy (MPS) since 1992. The MPS strategy's investment objective is to provide upside participation in the U.S. equity market while reducing downside risk. The MPS strategy is considered defensive but expected to perform similar to the S&P 500 Index over a five to seven year market cycle while displaying a third less volatility. The strategy seeks to achieve this by holding a blend of S&P 500 call options and U.S. Treasury Zero Coupon Bonds. Equity exposure is actively managed based on the market environment with a normal exposure capturing 60-65% of the S&P 500. Over the past 5 years, the MPS portfolio has returned 10.1% gross annualized compared to the S&P 500 Index return of 15.7% with an annualized standard deviation of 8.1% compared to the S&P 500 Index of 13.2%. Over the past 7 years, the MPS portfolio has returned 6.0% gross annualized compared to the S&P 500 Index return of 6.0% with an annualized standard deviation of 7.6% compared to the S&P 500 Index of 16.9%.

STATUS:

On July 22, 2014, staff met with QMA at their office in New Jersey to review the MPS strategy as a means of managing downside risk within the equity portfolio. Subsequently, staff directed Callan to conduct a review of the strategy. In September 2014, Callan completed their analysis and concluded that QMA's MPS strategy can be characterized as defensive or conservative and may be a good fit for ARMB's Alternative Equity allocation.

RECOMMENDATION:

The Alaska Retirement Management Board hire QMA to manage a $200 million Market Participation Strategy, subject to successful contract and fee negotiations. The QMA Market Participation Strategy would be managed within the Alternative Equity asset class.

Alaska Retirement Management Board

QMA Market Participation Strategy (MPS)

Alaska Retirement Management Board

December 2014

Gary M. Bader
Chief Investment Officer

Adopting the Market Participation Strategy

Objectives:

1. Minimize impact of volatility on portfolio while achieving equity-like returns.
2. Cushion against large equity market declines.
3. Benefit from possible increases in interest rates.

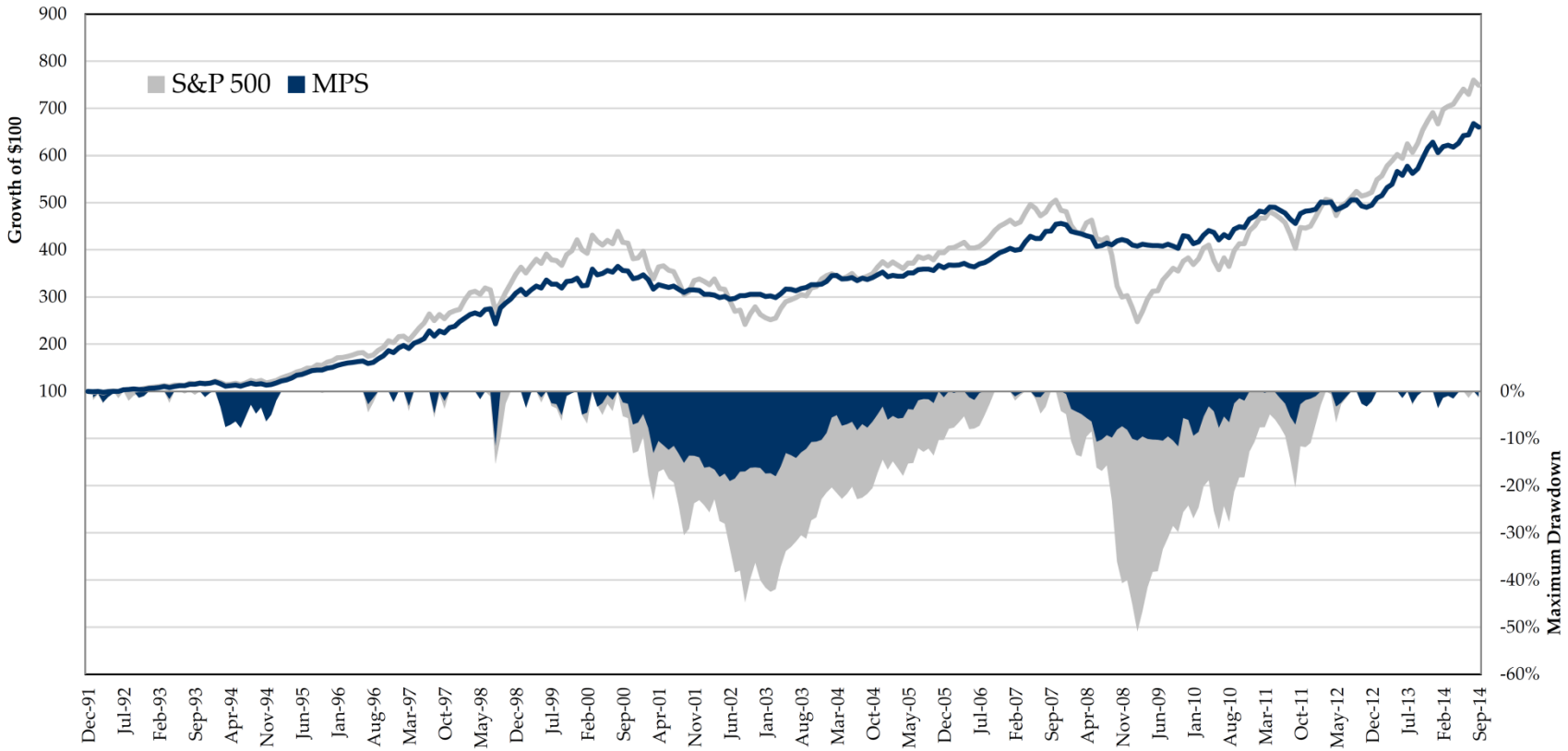
Volatility: Friend or Foe?

	Return Stream 1	Return Stream 2
Year 1	10%	5%
Year 2	-10%	-5%
Year 3	10%	5%
Year 4	-10%	-5%
Year 5	10%	5%
Year 6	-10%	-5%
Average Return	**0.00%**	**0.00%**

Volatility Matters

	Return Stream 1	Return Stream 2
Beg. Balance	100,000.00	100,000.00
Cumulative		
Year 1	110,000.00	105,000.00
Year 2	99,000.00	99,750.00
Year 3	108,900.00	104,737.50
Year 4	98,010.00	99,500.63
Year 5	107,811.00	104,475.66
Year 6	97,029.90	99,251.87
Total	**97,029.90**	**99,251.87**

MPS Performance During Drawdowns and Recoveries



Source: QMA, Ibbotson Associates, Standard & Poor's.
Cumulative gross returns from January 1992 through September 2014. This chart demonstrates the growth of $100 and the maximum drawdown of the MPS portfolio. This is shown for illustrative purposes only. Please see 'Notes to Disclosure' page for Important Information including risk factors, disclosures, and the 'Composite Performance Returns' section in the Appendix for full disclosures and net performance. Past performance is not a guarantee or a reliable indicator of future results.

The Black Scholes Model

$$C_0 = [S_0 \times N(d_1)] - [X \times e^{-R_f^c \times T} \times N(d_2)]$$

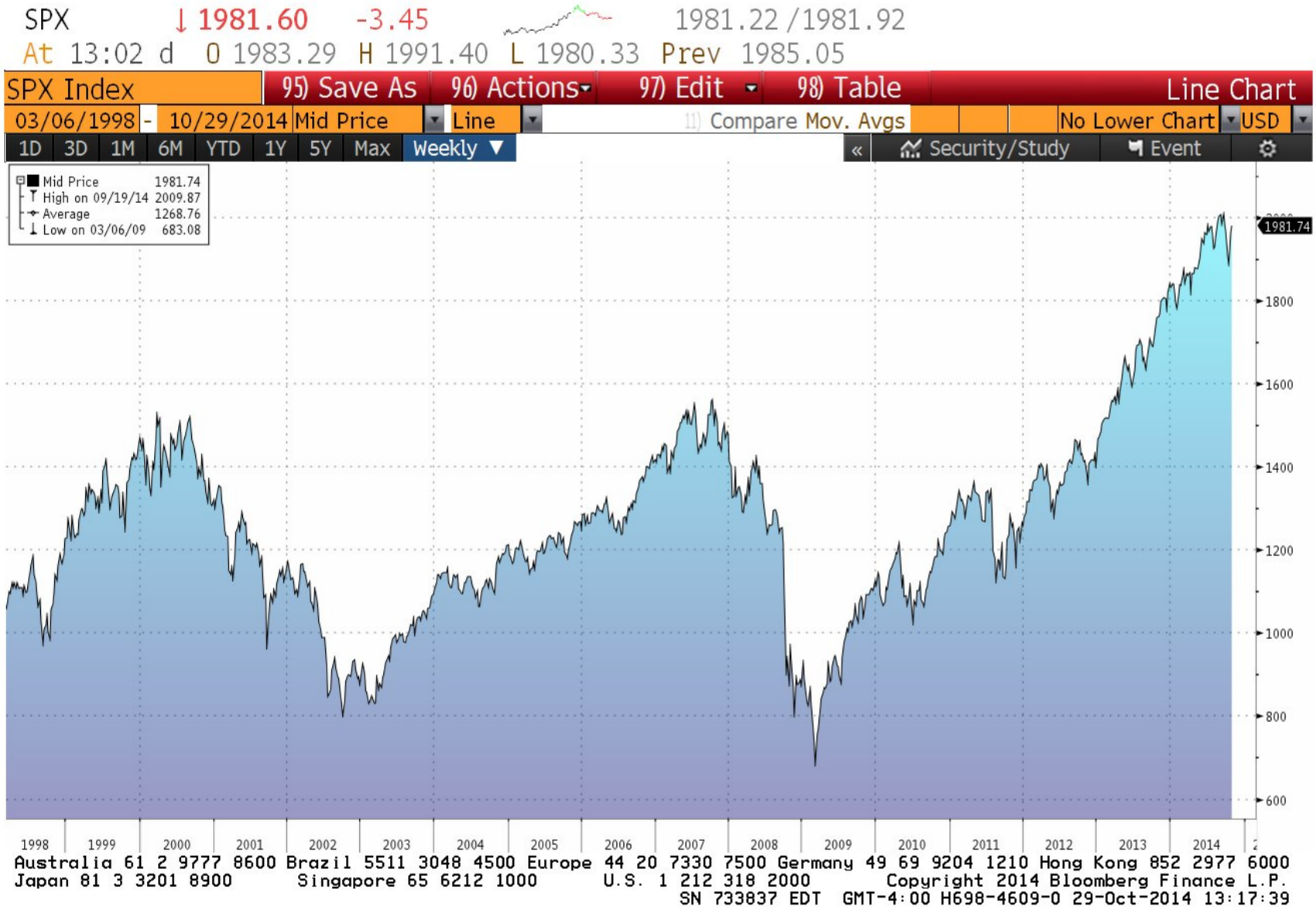
where:

$$d_1 = \frac{\ln\left(\frac{S_0}{X}\right) + \left(R_f^c + \frac{\sigma^2}{2}\right) \times T}{\sigma \times \sqrt{T}}$$

and

$$d_2 = d_1 - (\sigma \times \sqrt{T})$$

S&P 500


SPX ↓ 1981.60 -3.45 1981.22 /1981.92
At 13:02 d O 1983.29 H 1991.40 L 1980.33 Prev 1985.05
SPX Index 95) Save As 96) Actions 97) Edit 98) Table Line Chart
03/06/1998 - 10/29/2014 Mid Price Line 11) Compare Mov. Avgs No Lower Chart USD
1D 3D 1M 6M YTD 1Y 5Y Max Weekly
Security/Study Event
Mid Price 1981.74
High on 09/19/14 2009.87
Average 1268.76
Low on 03/06/09 683.08
1981.74
1800
1600
1400
1200
1000
800
600
1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000
Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2014 Bloomberg Finance L.P.
SN 733837 EDT GMT-4:00 H698-4609-0 29-Oct-2014 13:17:39

Impact of Volatility Increase on Call Prices

Volatility	20%		30%		20%		30%
Strike Price	100		100		100		100
Stock Price	100		100		100		100
Time (days)	60		60		1000		1000
Interest Rate	1%		1%		1%		1%
Call Price	$3.31		$4.92		$14.36		$20.72
Gain Due to Increased Volatility			**49%**				**44%**

Impact of Interest Rate Change on Call Prices

Volatility	20%		20%		20%		20%
Strike Price	100		100		100		100
Stock Price	100		100		100		100
Time (days)	60		60		1000		1000
Interest Rate	**1%**		**2%**		**1%**		**2%**
Call Price	$3.31		$3.39		$14.36		$15.64
Gain Due to Increased Interest Rate			**2%**				**9%**

Recommendation

- The Alaska Retirement Management Board hire QMA to manage a $200 million Market Participation Strategy portfolio subject to successful contract and fee negotiations.
- The Market Participation Strategy would be managed in the Alternative Equity asset class.

Callan

Callan Associates Inc.
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Denver, CO 80202

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Fax 303.832.8230

www.callan.com

Quantitative Management Associates LLC
September 2014

Introduction

Quantitative Management Associates (QMA) is proposing the use of the Market Participation Strategy (MPS) with the Alaska Retirement Management Board (ARMB) to diversify and lower volatility in the portfolio. MPS seeks to provide upside participation when the S&P 500 advances, while reducing downside risk. It is a defensive or conservative equity-oriented strategy that is expected to perform in line with the S&P 500 over a full market cycle but with a significantly reduced drawdown risk over time.

Callan conducted a conference call with Tim Crist (Consultant Relations), Steven Brundish (Product Specialist), Devang Gambhirwala (Portfolio Manager), Kevin McGrory (Consultant Relations Manager), and Kevin O'Rourke (Relationship Manager to ARMB) of QMA to discuss the strategy and process. Callan participants were Dana Brown and Mark Wood.

QMA Firm & Market Participation Strategy Background

QMA operated for many years as a unit within Prudential Investment Management, Inc. (PIM). In July 2004, the quantitative management business of PIM was transferred to QMA, which remains a wholly-owned subsidiary of PIM and an indirect, wholly-owned subsidiary of Prudential Financial, Inc.

The initial MPS portfolio was designed to meet the needs of a longstanding institutional client and launched in 1992. Interest in the approach dissipated due to a rapidly recovering equity market in 2002. Following the large declines in equity markets in 2008 and the first quarter of 2009, however, the strategy has experienced increased traction and interest, which is reflected in asset growth. Currently, there are four clients (invested through three accounts) in the MPS portfolio, with a total of $398 million in assets, as of August 18, 2014. Assets in the strategy increased by $164 million year-to-date 2014 (year-end 2013 assets were $234 million).

Market Participation Strategy Discussion

The goal of MPS is to perform in line with the S&P 500 index over a five to seven year market cycle but with a third less volatility. To achieve this goal, the strategy combines S&P 500 call options and US Treasury zero coupon bonds. According to QMA, call options allow for upside equity market participation while limiting downside losses. The portfolio holds physical bonds to provide diversification and act as safe haven during market corrections and declines. Duration of the bonds varies with market conditions but, in general, is actively managed to minimize interest rate risk. The team does seek yield in the bond portfolio but not at the expense of increasing the risk of capital loss.

The portfolio is overseen by the asset allocation team at QMA. Devang Gambhirwala focuses on the S&P 500 index option exposure while Ted Lockwood leads the QMA asset allocation team to determine the ideal mix of options and bonds.

The overall process can be distilled into the following steps:

- Review portfolio and determine appropriate portfolio equity exposure
- Purchase customized equity options (based on level of S&P 500 index, volatility, interest rates, dividend yield, time to maturity)
- Purchase bonds (based on interest rate outlook, targeted duration)
- Monitor portfolio exposure daily
- Rebalance portfolio as necessary (based on ongoing monitoring, updated equity exposure target, evaluation market conditions/pricing/liquidity)

S&P 500 options characteristics:

- Typically 10% - 30% of portfolio.
- Utilize flex options that are custom designed and publicly traded, typically work with 3 to 5 banks to ensure competitive pricing
- Options utilized are listed on the Chicago Board of Exchange (CBOE) in order to reduce counterparty risk (exchange traded, priced daily)
- Long dated with expiration approximately five years out thus reducing losses due to time decay
- The strike price is usually at-the-money at time of purchase
- At times, will opportunistically use synthetic options in short-term to complement flex options when QMA identifies mispricing in shorter dated options

US Treasury Zero Coupon Bonds characteristics:

- Typically comprises 70% - 90% of MPS portfolio
- Actively managed to minimize portfolio interest rate risk
- Duration will vary based on market conditions but is typically between 3 and 10 years

QMA focuses on limiting the downside in the portfolio to the cost of the option premium when equity markets decline. Both the options and bonds are actively managed and typically not held to maturity. The rebalancing process dictates the overall asset allocation between S&P 500 options and US Treasury zero coupon bonds. The strategy targets 60% equity exposure (or 0.6 delta relative to the S&P 500 index) as the neutral position. As shown in Table 1, portfolio rebalancing is driven by a combination of objective parameters and subjective factors:

Table 1
Portfolio Structure Considerations

Objective Parameters	Subjective Factors
• Equity exposure above 80% or below 30% • Options are less than 10% or greater than 30% of the portfolio • Duration of flex options is less than three years • 75-80% of rebalancing decision	• Outlook for stocks • Liquidity in markets and trading costs • Interest rates and volatility levels • 20-25% of rebalancing decision

For input into the subjective "outlook for stocks", the team uses results from a series of quantitative tools that are also used in the management of QMA's asset allocation portfolios, which represents $60 billion in assets (so a significant part of QMA's overall asset base). These tools include a multi-asset indicator model, dividend discount model, an intermediate term capital market assumptions model, and the equity portion of a multi-factor GTAA model. Drawing on these tools, QMA's Asset Allocation team meets daily to determine whether and how much to overweight (or underweight) equities versus a normal allocation.

Given option exposure, the strategy benefits when there is increased long-term price volatility related to the S&P 500 index and markets in general (but is not highly correlated with the VIX, a measure of implied volatility of S&P 500 index options over the next 30 day period, due to the emphasis in the strategy on long dated options). QMA measures risk by drawdown versus standard deviation (emphasizing max drawdown over given periods) and not standard deviation. As the strategy is looking to capitalize on long-term volatility, the team does not expect the strategy to perform as well in "sideways" markets. During declining markets the portfolio will benefit from the holdings in US treasuries.

Callan

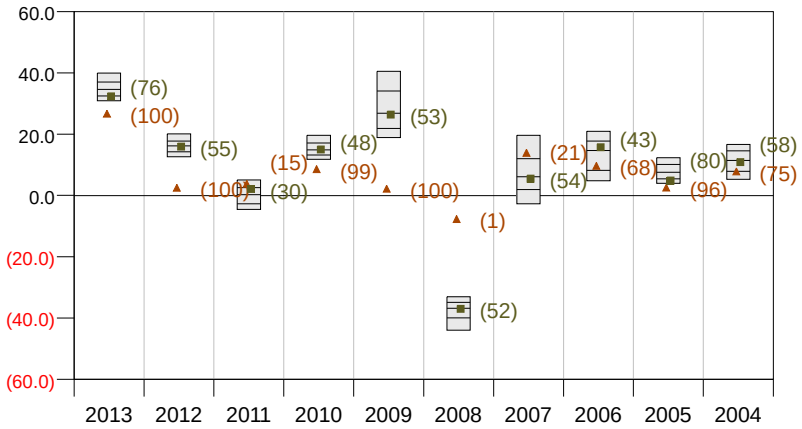
Performance

QMA benchmarks the strategy to the S&P 500 Index (long term and day to day) and expects to perform in line with the benchmark over 5 to 7 years. On an absolute basis, QMA also expects MPS to perform within a range of 7% to 10% annualized over the same 5 to 7 year period.

As shown in Chart 1, performance in recent periods has vacillated based on the market activity of the S&P 500 index:

- In 2011, S&P 500 returns were flat, but equity markets were quite volatile. As a result, MPS outperformed the S&P 500, as expected.
- During 2012, volatility declined dramatically and MPS underperformed the S&P 500.
- In 2013 volatility was low (but stable) but S&P 500 returns were strong, leading to MPS performing well on an absolute basis.

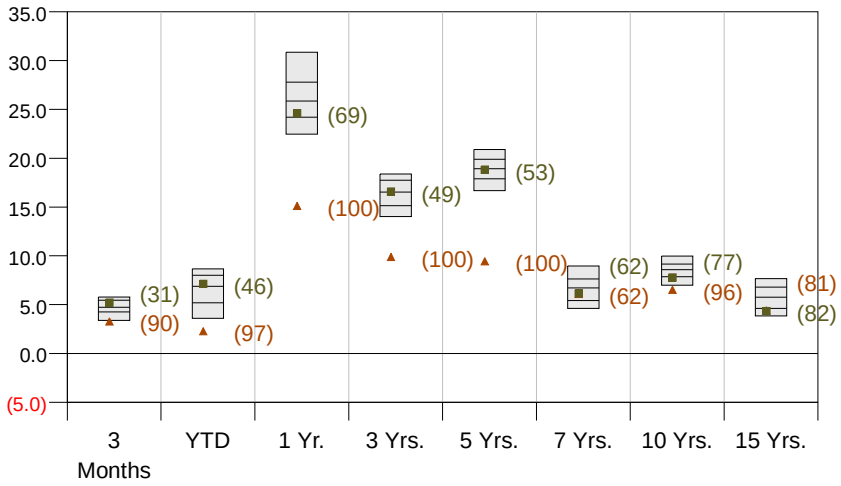
Chart 1
Returns for Calendar Years
10 Years Ended December 31, 2013
Group: CAI Large Capitalization Style



		2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
Median		34.64	16.21	0.34	14.91	26.85	(36.77)	6.17	14.75	7.57	11.49
QMA:US Market Participation	▲	26.76	2.56	3.86	8.64	2.29	(7.64)	14.00	9.70	2.65	7.88
S&P:500	■	32.39	16.00	2.11	15.06	26.47	(37.00)	5.49	15.79	4.91	10.88

As shown in Chart 2 on the following page, the portfolio is meeting its stated performance goal over 7 years; performing in line with the S&P 500 (6.12% vs. 6.16% respectively). The portfolio is significantly trailing over 5 years (9.45% vs. 18.83%), as there have been only two brief down market periods during this time (see Chart 3). It is, however, meeting the secondary absolute goal of returning 7% to 10% over 5 to 7 years:

Chart 2
Trailing Returns for Periods Ended June 30, 2014
Group: CAI Large Capitalization Style

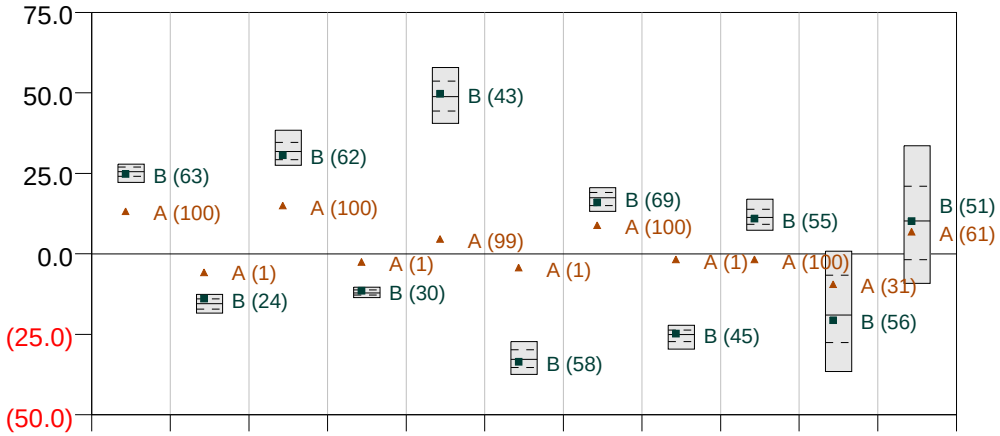


		3 Months	YTD	1 Yr.	3 Yrs.	5 Yrs.	7 Yrs.	10 Yrs.	15 Yrs.
Median		4.76	6.89	25.86	16.56	18.95	6.72	8.60	5.76
QMA:US Market Participation	▲	3.29	2.29	15.13	9.92	9.45	6.12	6.53	4.42
S&P:500	■	5.23	7.14	24.61	16.58	18.83	6.16	7.78	4.35

As a neutral position, the portfolio is designed to have a delta of 0.6 to the S&P 500 index at the time of rebalance. As a result, the portfolio can underperform the S&P 500 index during an extended bull market. Conversely, QMA aims to outperform during market corrections. The portfolio management team believes volatility is mean reverting. Current positioning is based upon the observation that volatility has been low since 2012 and is now one of the more attractive “asset classes”.

Over the strategy's 22-year history, it has returned (on average) -2.0% versus -7.1% in the 26 down quarters experienced by the S&P 500 during the period (versus 3.9% and 6.5% respectively in the remaining 64 positive quarters). In addition, the strategy has consistently added value in market drawdowns as shown in the various peak to trough periods in Chart 3:

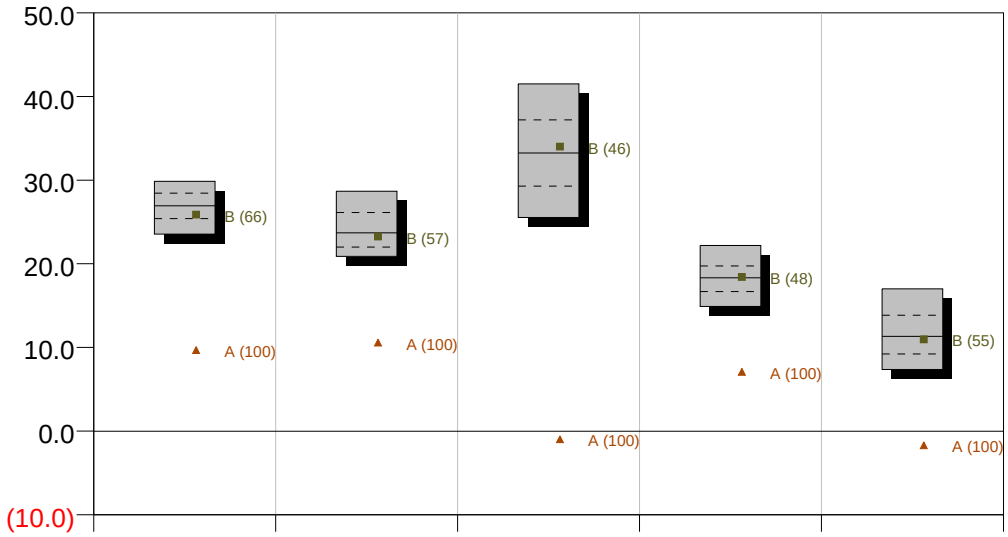
Chart 3
Returns for Domestic Equity Rising/Declining Periods
15 Years Ended June 30, 2014
Group: CAI Large Capitalization Style



		Rising Period 10/1/11 to 6/30/14	Declining Period 7/1/11 to 9/30/11	Rising Period 7/1/10 to 6/30/11	Declining Period 4/1/10 to 6/30/10	Rising Period 4/1/09 to 3/31/10	Declining Period 10/1/07 to 3/31/09	Rising Period 4/1/03 to 9/30/07	Declining Period 4/1/02 to 3/31/03	Rising Period 10/1/01 to 3/31/02	Declining Period 4/1/00 to 9/30/01	Rising Period 7/1/99 to 3/31/00
Median		25.54	(15.49)	31.85	(12.12)	48.89	(32.78)	17.46	(25.07)	11.36	(18.97)	10.23
QMA:US Market Participation	A	13.26	(5.70)	15.01	(2.50)	4.65	(4.23)	8.94	(1.70)	(1.67)	(9.41)	6.92
S&P:500	B	24.82	(13.87)	30.69	(11.43)	49.77	(33.53)	16.04	(24.76)	10.99	(20.61)	10.18

QMA indicated that performance typically lags coming out of down markets, which is evident in Chart 4 showing performance relative to the S&P in the six months following a market trough:

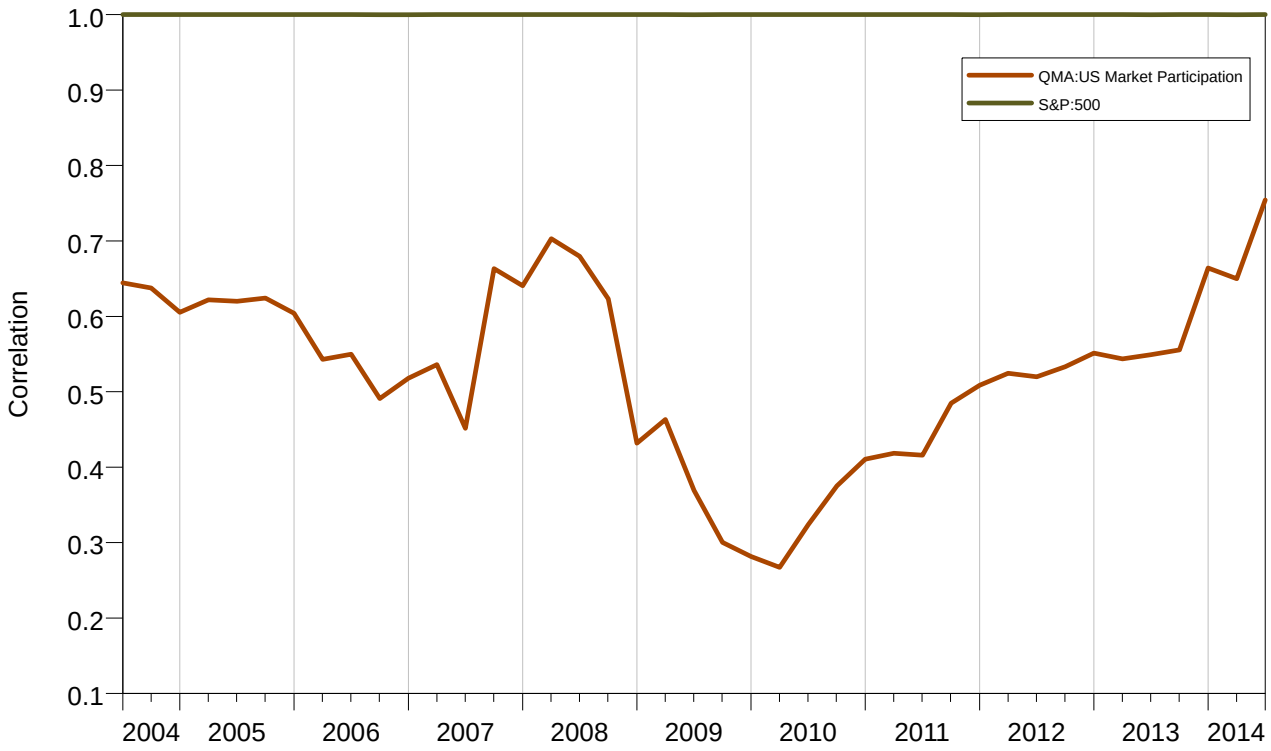
Chart 4
Returns for Various Periods
Group: CAI Large Capitalization Style



Median		26.96	23.72	33.26	18.35	11.36
QMA:US Market Participation	A	9.70	10.59	(0.96)	7.09	(1.67)
S&P:500	B	25.89	23.27	34.02	18.45	10.99

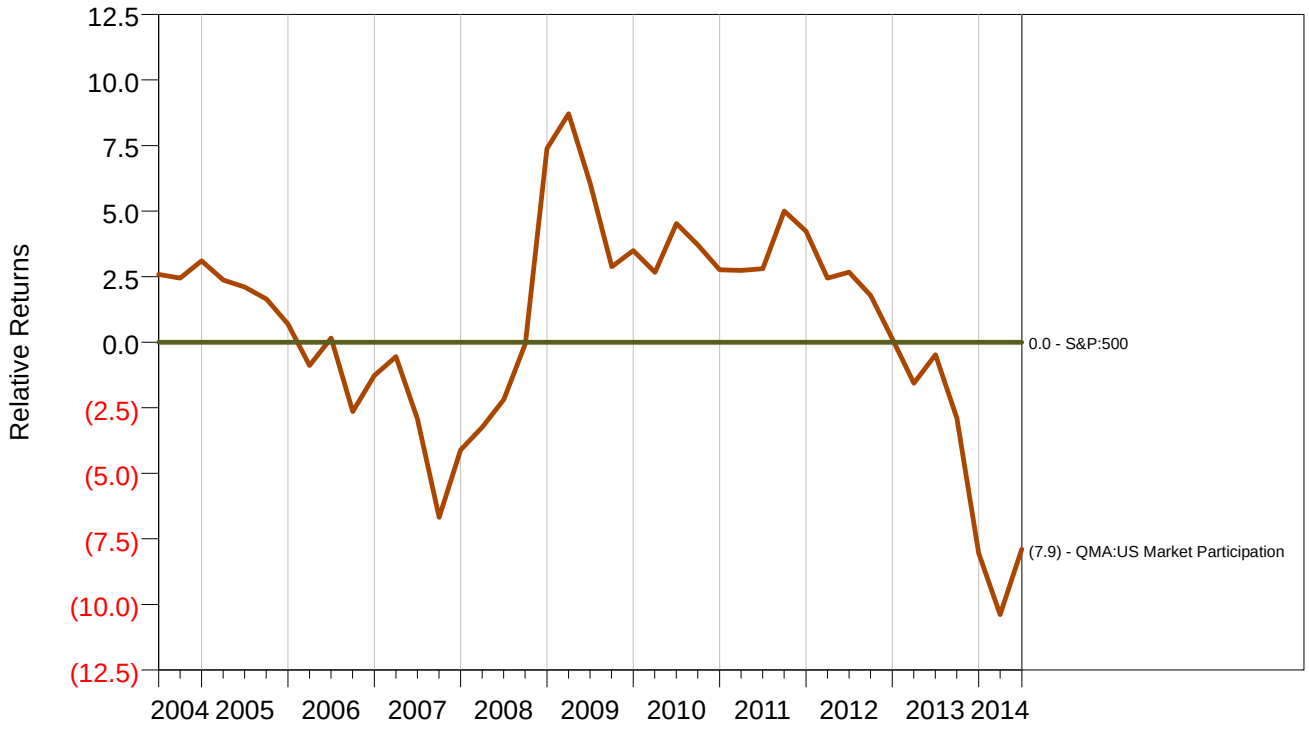
QMA indicated that the strategy will exhibit low correlation to both stocks and bonds. However, as shown in Chart 5, this appears to vary over time for stocks (though lower correlation in 2008 and higher correlation in the market recovery would seem to be a positive):

Chart 5
Rolling 20 Quarter Correlation Relative To S&P:500
for 10 Years Ended June 30, 2014



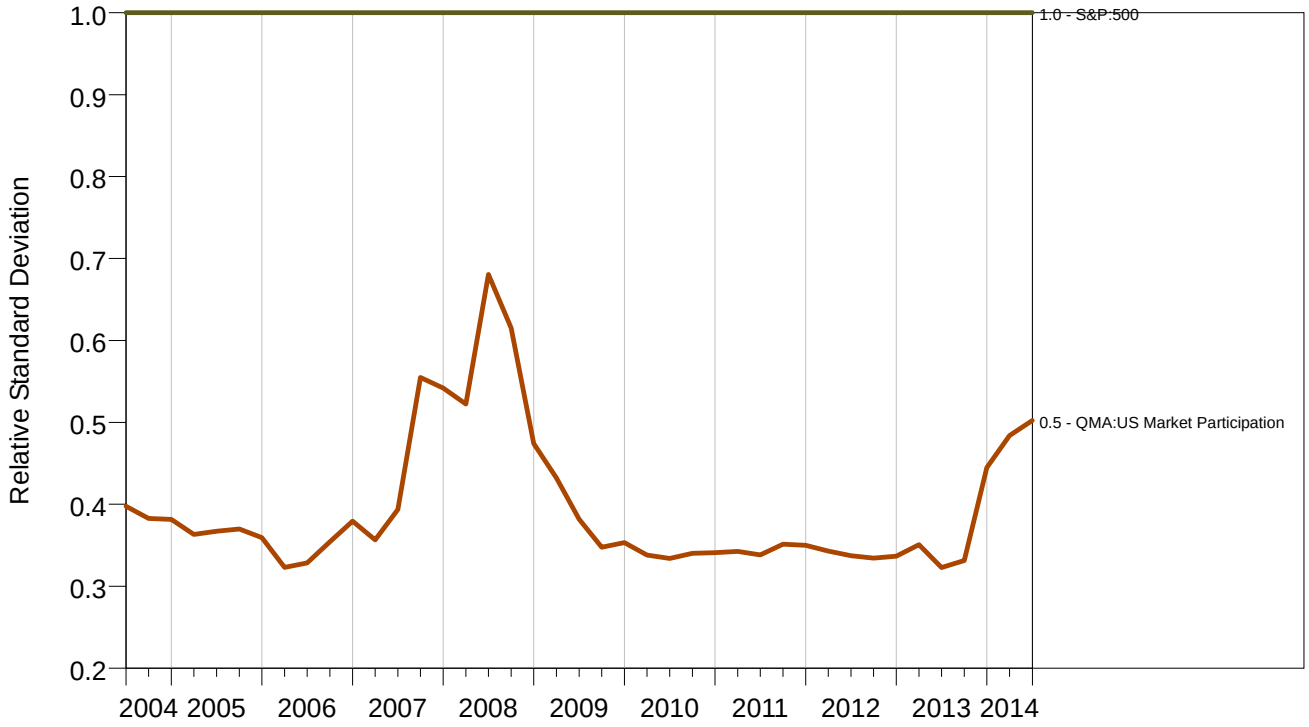
As shown in Chart 6, rolling 5-year performance relative to the S&P 500 steadily declines in strong up markets and recovers during and following down markets, which is to be expected given the philosophy and process:

Chart 6
Rolling 20 Quarter Relative Returns
Relative To S&P:500
for 10 Years Ended June 30, 2014



While QMA does not consider standard deviation to be the primary measure of risk for MPS, the relative 5-year rolling volatility (as shown in Chart 7) is significantly less than the S&P 500:

Chart 7
Rolling 20 Quarter Relative Standard Deviation
Relative To S&P:500
for 10 Years Ended June 30, 2014



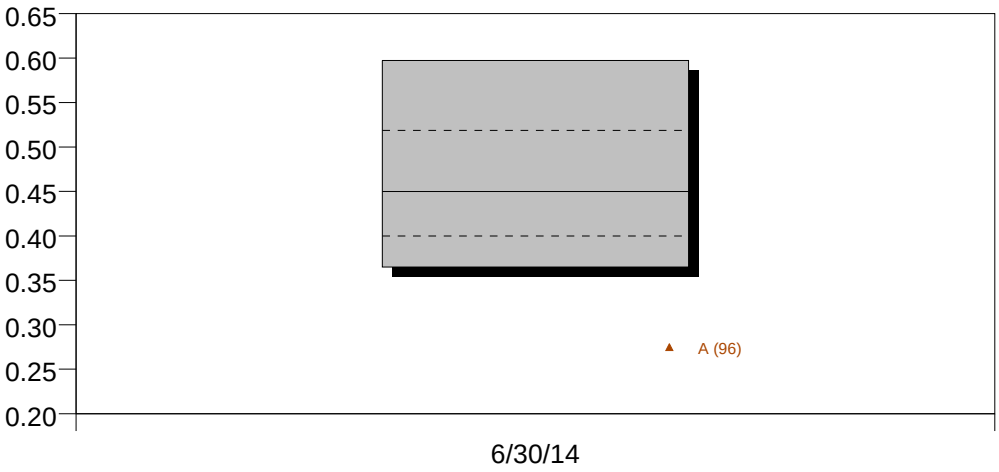
Fees & Vehicle

QMA offers the MPS strategy with the following fee schedule for ARMB:

- First $50 million: 0.30%
- Above $50 million: 0.25%

Chart 8 below plots the QMA fee against the Large Cap Core universe:

Chart 8
Effective Annual Fee
for a $100,000,000 Mandate
for Periods Ended June 30, 2014
Group: CAI Large Cap Core Style



10th Percentile	0.60
25th Percentile	0.52
Median	0.45
75th Percentile	0.40
90th Percentile	0.37
QMA: US Market Participation ▲ A	0.28

The strategy is offered in a Separate Account structure with daily liquidity.

Summary Comments

QMA uses a disciplined, quantitative model to build the portfolio. The process and asset allocation is dynamic and adjusted to match the market conditions and constraints of the portfolio. QMA has demonstrated the ability to successfully manage the portfolio given the following:

- The overall performance and volatility of the MPS portfolio conforms to the stated goals and expectations of the management team, particularly in market drawdowns.
- Experience managing the fund for over 22 years with a stable team and firm.

We agree that this QMA strategy can be characterized as either a defensive or conservative equity strategy and believe it may be a good fit for ARMB's "Alternative Equity" allocation.

Dana Brown
Senior Vice President

Mark R. Wood, CFA
Vice President

September 4, 2014

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ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: KKR Lending Partners II — ACTION: X

DATE: December 4, 2014 — INFORMATION: ____

BACKGROUND:

KKR is an asset management firm with close to $100 billion under management across both private and public markets. The firm employs approximately 600 executives across the globe investing in private equity, infrastructure, energy, real estate, hedge funds, and credit strategies. KKR has been involved in private direct lending since 2005 and raised their first direct lending fund in 2011. Private direct lending seeks to provide strong risk adjusted returns by lending to middle-market companies. The financing market for mid-sized companies is underserved since the borrowers are generally too small to access public debt markets and their traditional financing sources have not been available since the financial crisis of 2008. This supply-demand imbalance results in the ability to structure floating rate loans with a significant yield and spread premium to traded bank loans along with seniority and superior covenant protection. KKR's bank loan investments have a weighted average coupon of Libor + 725 basis points and KKR's fund investments have generated an 11.4% IRR through September 30, 2014. Significantly, KKR has had no defaults in its predecessor fund and only one default in the strategy since 2005.

STATUS:

In July and August of 2014, ARMB staff met with KKR in their offices in San Francisco to conduct due diligence on the direct lending strategy. Staff finds the opportunity and KKR's resources and approach compelling. An emphasis on first lien, floating rate debt should deliver competitive returns while avoiding adverse price changes due to rising interest rates. Staff directed Callan to conduct a review of the strategy. In July 2014, Callan completed their analysis and concluded that KKR's asset management platform is robust and deeply resourced and that KKR's direct lending team is experienced and positioned to compete in the direct lending space.

RECOMMENDATION:

That the Alaska Retirement Management Board commit $100 million to KKR Lending Partners II, L.P., subject to successful contract negotiations. The KKR Lending Partners II investment will be managed within the Private Equity asset class.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: SSgA Managed Volatility Strategy — ACTION: ____

DATE: December 4, 2014 — INFORMATION: **X**

BACKGROUND:

Resolution 2014-12, Delegation of Investment Authority grants the Chief Investment Officer the authority to contract with current ARMB investment managers in good standing in amounts up to one percent of total ARMB defined benefit assets per single investment. This authority includes investment contracts, limited partnerships, commingled funds and joint venture investment relationships with the current investment managers in all asset classes, in a manner consistent with the Board approved Investment Guidelines.

As of September 30, 2014, State Street Global Advisors (SSgA) is an ARMB manager in good standing managing approximately $4.1 billion of ARMB funds across U.S. and Non-U.S. equity index strategies.

At the October 2014 ARMB Education Conference, SSgA presented the concept of Advanced Beta. SSgA's Advanced Beta strategies attempt to capture the returns driven by well-known factors that are often targeted by active managers such as valuation, volatility, quality, size, and momentum while retaining passive investment characteristics such as transparency, consistency, low cost, and liquidity. An investor selects a strategy's factors and weighting scheme determining the portfolio's structure based on the investor's goals and market environment.

STATUS:

SSgA's U.S. Managed Volatility Strategy utilizes a proprietary quantitative investment process to select a portfolio of securities that it expects to exhibit lower volatility than the Index. The Strategy favors securities with low exposure to market risk factors and low security-specific risk. SSgA implements risk constraints for security, industry, sector, and size either on an absolute or a benchmark-relative basis.

When considering historical performance, an investment in the U.S. Managed Volatility Strategy would have had a positive impact on ARMB's domestic large-cap and small-cap public equity portfolios by reducing volatility and maximum drawdown. It is the intent of staff to work with SSgA to invest a Managed Volatility strategy in the ARMB large-cap and small-cap domestic equity portfolios.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Apollo Aviation Group Investment ACTION: X

DATE: December 4, 2014 INFORMATION:

BACKGROUND:

Apollo Aviation Group (Apollo) provided a presentation to the Alaska Retirement Management Board (ARMB) at its October 2014 education conference. The presentation focused on the commercial aircraft leasing market and the firm's approach to investing in this market.

Apollo is currently marketing a limited partnership investment opportunity, known as SASOF III. SASOF III is Apollo Aviation's third institutionally-focused private equity fund focused on commercial aircraft leasing and part-out investment strategies. The fund will seek to generate attractive risk-adjusted returns that exhibit low correlation to the broader market by acquiring a portfolio of mid-life aircraft and mature flight equipment, with or without attached leases, using leverage where available and appropriate.

Following the ARMB presentation, staff contacted Apollo to learn more about the commercial aircraft leasing market and SASOF III. Staff conducted operational and investment due diligence on the firm, including an on-site visit to Apollo, and visits to an aircraft tear-down facility and an airline parts distribution center. The CIO also requested that Callan Associates perform due diligence on the fund.

STATUS:

SASOF III is anticipated to be marketing this fund into early 2015.

RECOMMENDATION:

Subject to a favorable opinion from Callan Associates, authorize staff to engage in contract negotiations to invest up to $50 million in SASOF III.

State of Alaska Retirement Systems

Actuarial Presentation to the Alaska Retirement Management Board
December 5, 2014

buckconsultants

xerox

Agenda

Information Requested at September ARM Board Meeting

- Impact of Actuarial Assumption and Methodology Changes
- Development of Investment Return Assumption – 2010 vs. 2014
- Development of FY16 Contribution Rates
- Summary of Additional State Assistance Contributions – Level % vs. Level $

30-year Projections

- PERS DB and DCR Projected Payroll
- PERS Level Percent of Pay Amortization
- PERS Level Dollar Amortization
- TRS DB and DCR Projected Payroll
- TRS Level Percent of Pay Amortization
- TRS Level Dollar Amortization

Questions?

Information Requested at September, 2014 ARM Board Meeting

buckconsultants

xerox

PERS Impact of Actuarial Assumption and Methodology Changes

State of Alaska

Public Employees' Retirement System (PERS)

Summary of the Impact of Actuarial Assumption and Funding Method Changes on FY16 Funding Measures

	Unfunded Liability at June 30, 2015 (in thousands)		FY16 Funding Ratio		FY16 Employer/State DB Contribution Rate		FY16 State Assistance Amount (in thousands)	
	Amount	Change	Rate	Change	Rate	Change	Amount	Change
June 30, 2013 Valuation	$ 7,203,643	n/a	66.5%	n/a	40.28%	n/a	$ 557,680	n/a
With **Elimination of Two-Year Lag**	$ 7,203,643	$ -	66.5%	0.0%	36.25%	-4.03%	$ 459,495	$ (98,185)
With Elimination of Two-Year Lag and **Re-initialize Asset Smoothing at June 30, 2014 at Fair Value**	$ 7,146,369	$ (57,274)	66.7%	0.2%	36.04%	-0.21%	$ 454,379	$ (5,116)
With Elimination of Two-Year Lag, Re-initialize Asset Smoothing, and **$3B Appropriation (All SB 119 Changes)**	$ 6,657,511	$ (488,858)	69.0%	2.3%	34.30%	-1.74%	$ 411,986	$ (42,393)
With All SB 119 and **HB 385 Changes (amortize unfunded liability over 25 years using level % of total payroll)**	$ 6,657,511	$ -	69.0%	0.0%	21.90%	-12.40%	$ 109,973	$ (302,013)
With All SB 119 and HB 385 Changes with **17.7% ROR and Actual Benefit Payments in FY14**	$ 5,343,189	$ (1,314,322)	75.2%	6.2%	18.43%	-3.47%	$ 25,336	$ (84,637)
With All SB 119 and HB 385 Changes with FY14 17.7% ROR, Actual Benefit Payments and **Experience Study Assumption Changes**	$ 6,358,260	$ 1,015,071	71.8%	-3.4%	22.58%	4.15%	$ 126,521	$ 101,185

TRS Impact of Actuarial Assumption and Methodology Changes

State of Alaska

Teachers' Retirement System (TRS)

Summary of the Impact of Actuarial Assumption and Funding Method Changes on FY16 Funding Measures

	Unfunded Liability at June 30, 2015 (in thousands)		FY16 Funding Ratio		FY16 Employer/State DB Contribution Rate		FY16 State Assistance Amount (in thousands)	
	Amount	Change	Rate	Change	Rate	Change	Amount	Change
June 30, 2013 Valuation	$ 4,331,491	n/a	57.4%	n/a	69.24%	n/a	$ 478,628	n/a
With **Elimination of Two-Year Lag**	$ 4,331,491	$ -	57.4%	0.0%	64.28%	-4.96%	$ 440,011	$ (38,617)
With Elimination of Two-Year Lag and **Re-initialize Asset Smoothing at June 30, 2014 at Fair Value**	$ 4,284,467	$ (47,024)	57.8%	0.4%	63.75%	-0.53%	$ 435,884	$ (4,127)
With Elimination of Two-Year Lag, Re-initialize Asset Smoothing, and **$3B Appropriation (All SB 119 Changes)**	$ 2,658,727	$ (1,625,740)	73.8%	16.0%	45.63%	-18.12%	$ 294,806	$ (141,078)
With All SB 119 and **HB 385 Changes (amortize unfunded liability over 25 years using level % of total payroll)**	$ 2,658,727	$ -	73.8%	0.0%	26.11%	-19.52%	$ 142,774	$ (152,032)
With All SB 119 and HB 385 Changes with **17.7% ROR and Actual Benefit Payments in FY14**	$ 2,111,500	$ (547,227)	79.3%	5.5%	21.58%	-4.53%	$ 107,571	$ (35,203)
With All SB 119 and HB 385 Changes with FY14 17.7% ROR, Actual Benefit Payments and **Experience Study Assumption Changes**	$ 2,408,841	$ 297,341	77.0%	-2.3%	24.48%	2.90%	$ 130,108	$ 22,537

Combined PERS/TRS Impact of Actuarial Assumption and Methodology Changes

State of Alaska

PERS and TRS Total

Summary of the Impact of Actuarial Assumption and Funding Method Changes on FY16 Funding Measures

	Unfunded Liability at June 30, 2015 (in thousands)		FY16 State Assistance Amount (in thousands)	
	Amount	Change	Amount	Change
June 30, 2013 Valuation	$ 11,535,134	n/a	$ 1,036,308	n/a
With **Elimination of Two-Year Lag**	$ 11,535,134	$ -	$ 899,506	$ (136,802)
With Elimination of Two-Year Lag and **Re-initialize Asset Smoothing at June 30, 2014 at Fair Value**	$ 11,430,836	$ (104,298)	$ 890,263	$ (9,243)
With Elimination of Two-Year Lag, Re-initialize Asset Smoothing, and **$3B Appropriation (All SB 119 Changes)**	$ 9,316,238	$ (2,114,598)	$ 706,792	$ (183,471)
With All SB 119 and **HB 385 Changes (amortize unfunded liability over 25 years using level % of total payroll)**	$ 9,316,238	$ -	$ 252,747	$ (454,045)
With All SB 119 and HB 385 Changes with **17.7% ROR and Actual Benefit Payments in FY14**	$ 7,454,689	$ (1,861,549)	$ 132,907	$ (119,840)
With All SB 119 and HB 385 Changes with FY14 17.7% ROR, Actual Benefit Payments and **Experience Study Assumption Changes**	$ 8,767,101	$ 1,312,412	$ 256,629	$ 123,722

Development of Investment Return Assumption Experience Analysis – 2010 vs. 2014

State of Alaska - PERS, TRS, & JRS

Comparative Summary of Investment Return Assumption Development using the Building Block Method - Current and Prior Experience Analysis

	2009 Development of Investment Rate of Return Based on FY10 Allocation Policy and Expected Returns				2014 Development of Investment Rate of Return-Estimated Based on FY15 Allocation Policy and GEMS Expected Returns		
Asset Class	**Policy Allocation Target**	**Arith Mean Real ROR by Asset Class**	**Arith Mean Real ROR for Portfolio**	**Standard Deviation**	**Policy Allocation Target**	**Arith Mean Real ROR by Asset Class**	**Arith Mean Real ROR for Portfolio**
Cash	0%	0.70%	0.00%	2.80%	3%	0.24%	0.01%
Fixed Income	20%	2.05%	0.41%	5.50%	12%	1.39%	0.17%
Domestic Equity	30%	6.77%	2.03%	18.50%	26%	8.10%	2.11%
International Equity	22%	7.50%	1.65%	21.00%	25%	8.52%	2.13%
Absolute Return	5%	4.80%	0.24%	12.50%	5%	4.62%	0.23%
Private Equity	7%	10.86%	0.76%	32.00%	9%	12.01%	1.08%
Alternative Equity	0%	8.50%	0.00%	0.00%	3%	4.62%	0.14%
Real Assets	16%	3.63%	0.58%	11.50%	17%	5.31%	0.90%
Total Real ROR	100%		5.67%		100%		6.76%
Inflation			3.50% *				3.12%
Nominal Return			9.17%				9.88%
Standard Deviation			12.69%				11.91%
Real Geometric Mean			4.91%				6.05%
Inflation			3.50% *				3.12%
Nominal ROR, gross			8.41%				9.17%
Expenses			-0.30%				-0.28%
Nominal ROR, net of expenses			8.11%				8.89%

* Inflation rate used in 2009 Buck Experience Analysis. Inflation rate was changed to 3.12% based on Callan study.

New Roll-Forward Procedure for PERS

Projected Accrued Liability, Assets, and Funding Ratio to June 30, 2015 ($'s in millions)

	Pension	Healthcare	Total
Accrued Liability			
6/30/2013 Total Accrued Liability	$ 12,477,057	$ 8,306,459	$ 20,783,516
6/30/2013 Normal Cost	194,319	95,874	290,193
FY14 Actual Benefit Payments	**(651,926)**	**(358,024)**	(1,009,950)
Interest during FY14	985,959	656,946	1,642,905
6/30/2014 Total Accrued Liability	$ 13,005,409	$ 8,701,255	$ 21,706,664
6/30/2014 Normal Cost	179,320	85,236	264,556
FY15 Expected Benefit Payments	(705,863)	(420,646)	(1,126,509)
Interest during FY15	1,024,731	685,013	1,709,744
6/30/2015 Total Accrued Liability	$ 13,503,597	$ 9,050,858	$ 22,554,455
Assets			
6/30/2013 Total Fair Value of Assets	$ 6,694,482	$ 5,829,571	$ 12,524,053
FY14 Expected EE/ER Contributions	315,694	228,263	543,957
FY14 State Assistance	176,794	135,679	312,473
FY14 Expected Benefit Payments	(651,926)	(358,024)	(1,009,950)
Investment Return during FY14 of **17.7%**	1,180,045	1,040,033	2,220,078
6/30/2014 Total Actuarial Value of Assets	$ 7,715,089	$ 6,875,522	$ 14,590,611
FY15 Expected EE/ER Contributions	387,951	154,076	542,027
FY15 State Assistance	1,000,000	-	1,000,000
FY15 Expected Benefit Payments	(705,863)	(420,646)	(1,126,509)
Expected Investment Return during FY15	651,886	538,180	1,190,066
6/30/2015 Total Actuarial Value of Assets	$ 9,049,063	$ 7,147,132	$ 16,196,195
6/30/2015 Unfunded Liability	$ 4,454,534	$ 1,903,726	$ 6,358,260
6/30/2015 Funding Ratio	67.0%	79.0%	71.8%

New Roll-Forward Procedure for PERS

Contribution Rates, Amounts, and Additional State Contribution for FY16

($'s in millions)

	Pension	Healthcare	Total
FY16 Expected Annual Salary			
DB			$ 1,310,919
DCR			1,125,437
Total			$ 2,436,356
FY16 Employer/State Actuarial Contributions			
Total Normal Cost	$ 165,301	$ 76,062	$ 241,363
24-year Amortization Payment, Level %	286,710	122,505	409,215
Total Contribution	$ 452,011	$ 198,567	$ 650,578
Member Contributions	(100,378)	-	(100,378)
Er/State Cont	$ 351,633	$ 198,567	$ 550,200
Er/State Cont %	14.43%	8.15%	22.58%

FY16 Total Additional State Contribution	Rate	Amount
Total Actuarial Contribution for DB Plan	22.58%	$ 550,200
DCR Contribution	4.61%	112,319
Total Required Contribution	27.19%	$ 662,519
Total Limited Employer Contribution	-22.00%	(535,998)
Additional State Contribution for FY16	5.19%	$ 126,521

New Roll-Forward Procedure for TRS

Projected Accrued Liability, Assets, and Funding Ratio to June 30, 2015 ($'s in millions)

	Pension	Healthcare	Total
Accrued Liability			
6/30/2013 Total Accrued Liability	$ 6,748,125	$ 3,091,681	$ 9,839,806
6/30/2013 Normal Cost	67,825	23,934	91,759
FY14 Actual Benefit Payments	**(399,003)**	**(117,866)**	(516,869)
Interest during FY14	528,291	244,232	772,523
6/30/2014 Total Accrued Liability	$ 6,945,238	$ 3,241,981	$ 10,187,219
6/30/2014 Normal Cost	63,760	21,902	85,662
FY15 Expected Benefit Payments	(430,132)	(152,206)	(582,338)
Interest during FY15	542,410	254,631	797,041
6/30/2015 Total Accrued Liability	$ 7,121,276	$ 3,366,308	$ 10,487,584
Assets			
6/30/2013 Total Fair Value of Assets	$ 3,279,130	$ 1,866,421	$ 5,145,551
FY14 Expected EE/ER Contributions	82,873	34,937	117,810
FY14 State Assistance	208,891	107,956	316,847
FY14 Expected Benefit Payments	(399,003)	(117,866)	(516,869)
Investment Return during FY14 of **17.7%**	584,276	339,839	924,115
6/30/2014 Total Actuarial Value of Assets	$ 3,756,167	$ 2,231,287	$ 5,987,454
FY15 Expected EE/ER Contributions	87,920	27,941	115,861
FY15 State Assistance	1,662,700	337,300	2,000,000
FY15 Expected Benefit Payments	(430,132)	(152,206)	(582,338)
Expected Investment Return during FY15	367,947	189,819	557,766
6/30/2015 Total Actuarial Value of Assets	$ 5,444,602	$ 2,634,141	$ 8,078,743
6/30/2015 Unfunded Liability	$ 1,676,674	$ 732,167	$ 2,408,841
6/30/2015 Funding Ratio	76.5%	78.3%	77.0%

New Roll-Forward Procedure for TRS

Contribution Rates, Amounts, and Additional State Contribution for FY16

($'s in millions)

FY16 Expected Annual Salary	Total
DB	$ 468,515
DCR	310,061
Total	$ 778,576

FY16 Employer/State Actuarial Contributions	Pension	Healthcare	Total
Total Normal Cost	$ 59,741	$ 20,002	$ 79,743
24-year Amortization Payment, Level %	107,974	47,150	155,124
Total Contribution	$ 167,715	$ 67,152	$ 234,867
Member Contributions	(44,301)	-	(44,301)
Er/State Cont	$ 123,414	$ 67,152	$ 190,566
Er/State Cont %	15.85%	8.62%	24.48%

FY16 Total Additional State Contribution	Rate	Amount
Total Actuarial Contribution for DB Plan	24.48%	$ 190,566
DCR Contribution	4.79%	37,331
Total Required Contribution	29.27%	$ 227,897
Total Limited Employer Contribution	-12.56%	(97,789)
Additional State Contribution for FY16	16.71%	$ 130,108

Summary of Additional State Assistance Contributions for PERS and TRS

State of Alaska PERS and TRS
Financial Projections (in Thousands)
Based on 2013 Actuarial Valuation Results Projected Forward, Considering Changes under HB 385 and SB 119
Amortization over Closed 25 year period from FY15, Actuarial Asset Value Re-initialized to Fair Value, 2-Year Lag Eliminated, and New Assumptions
Summary of Changes in Additional State Assistance Using Amortization Based on Level % of Pay vs. Level Dollar

Fiscal	Currently Budgeted State Assistance			Amortization using Level Dollar			Change in State Assistance		
Year End	PERS	TRS	Total	PERS	TRS	Total	PERS	TRS	Total
2014	$ 312,473	$ 316,847	$ 629,320	$ 312,473	$ 316,847	$ 629,320	$ 0	$ 0	$ 0
2015	1,000,000	2,000,000	3,000,000	1,000,000	2,000,000	3,000,000	0	0	0
2016	126,521	130,108	256,629	294,764	194,841	489,605	168,243	64,733	232,976
2017	120,827	133,352	254,179	275,855	191,227	467,082	155,028	57,875	212,903
2018	120,852	139,410	260,262	258,679	190,683	449,362	137,827	51,273	189,100
2019	122,673	145,777	268,450	243,078	190,322	433,400	120,405	44,545	164,950
2020	125,839	152,723	278,562	227,592	190,283	417,875	101,753	37,560	139,313
2021	129,656	160,005	289,661	212,470	190,327	402,797	82,814	30,322	113,136
2022	133,625	167,390	301,015	196,359	190,311	386,670	62,734	22,921	85,655
2023	138,383	175,016	313,399	180,748	190,071	370,819	42,365	15,055	57,420
2024	144,704	183,608	328,312	165,510	190,880	356,390	20,806	7,272	28,078
2025	152,248	193,062	345,310	151,573	192,047	343,620	(675)	(1,015)	(1,690)
2026	160,049	201,792	361,841	135,911	192,156	328,067	(24,138)	(9,636)	(33,774)
2027	167,883	210,909	378,792	119,619	192,192	311,811	(48,264)	(18,717)	(66,981)
2028	175,796	220,529	396,325	102,752	192,457	295,209	(73,044)	(28,072)	(101,116)
2029	185,326	230,116	415,442	86,049	192,281	278,330	(99,277)	(37,835)	(137,112)
2030	195,936	240,581	436,517	69,313	192,554	261,867	(126,623)	(48,027)	(174,650)
2031	207,538	250,675	458,213	52,093	192,145	244,238	(155,445)	(58,530)	(213,975)
2032	218,798	261,495	480,293	33,297	191,996	225,293	(185,501)	(69,499)	(255,000)
2033	231,876	272,441	504,317	15,057	191,483	206,540	(216,819)	(80,958)	(297,777)
2034	245,123	284,064	529,187	0	190,855	190,855	(245,123)	(93,209)	(338,332)
2035	259,444	295,806	555,250	0	190,084	190,084	(259,444)	(105,722)	(365,166)
2036	273,793	308,072	581,865	0	188,718	188,718	(273,793)	(119,354)	(393,147)
2037	294,620	320,740	615,360	0	186,721	186,721	(294,620)	(134,019)	(428,639)
2038	317,706	333,900	651,606	0	183,622	183,622	(317,706)	(150,278)	(467,984)
2039	392,922	350,263	743,185	0	175,853	175,853	(392,922)	(174,410)	(567,332)
2040	0	0	0	0	0	0	0	0	0
Totals 2015 & After:	$ 5,642,138	$ 7,361,834	$ 13,003,972	$ 3,820,719	$ 6,564,109	$ 10,384,828	$ (1,821,419)	$ (797,725)	$ (2,619,144)

PERS 30-year Projections under Level Percent of Pay and Level Dollar Amortization Methodology

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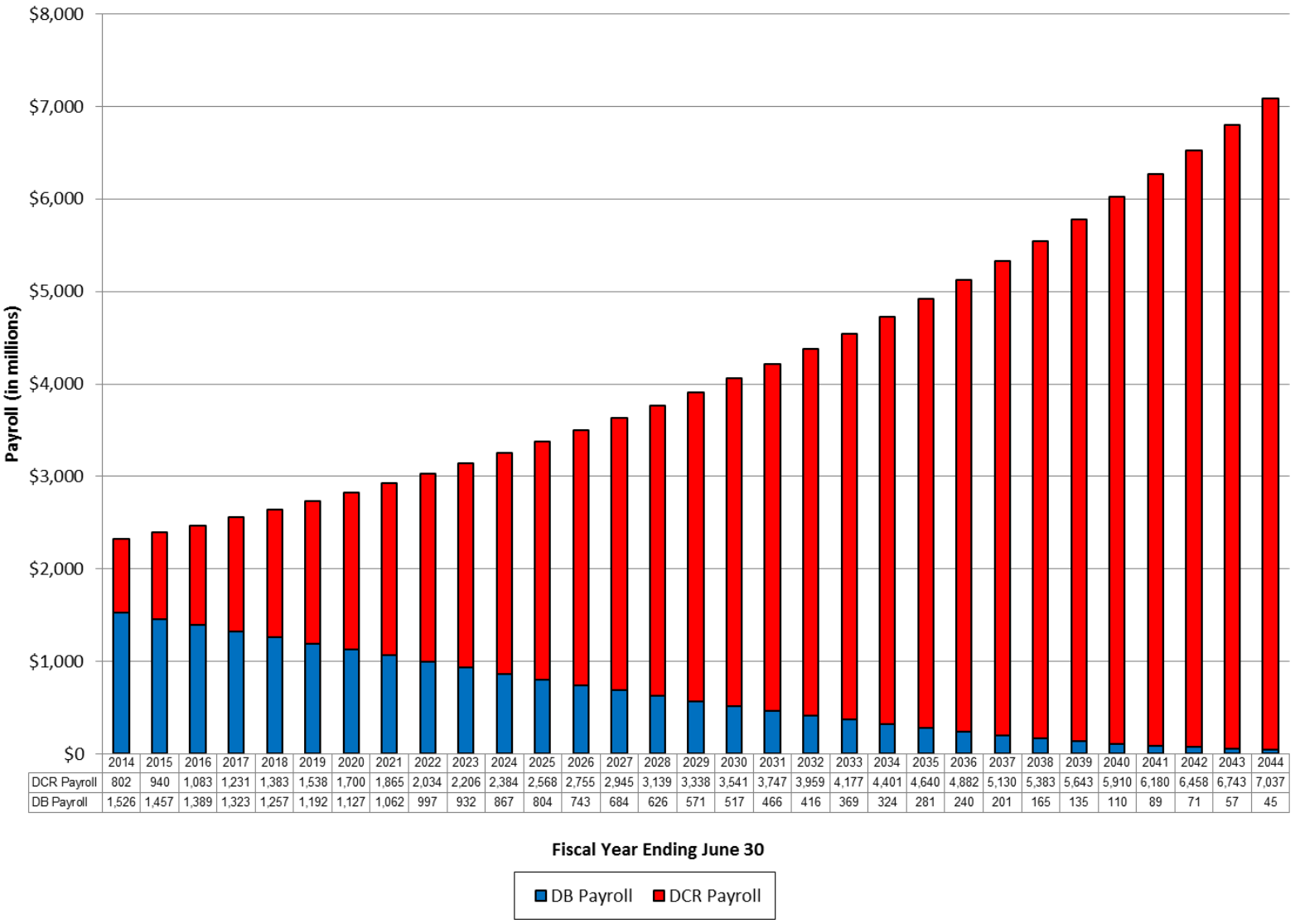
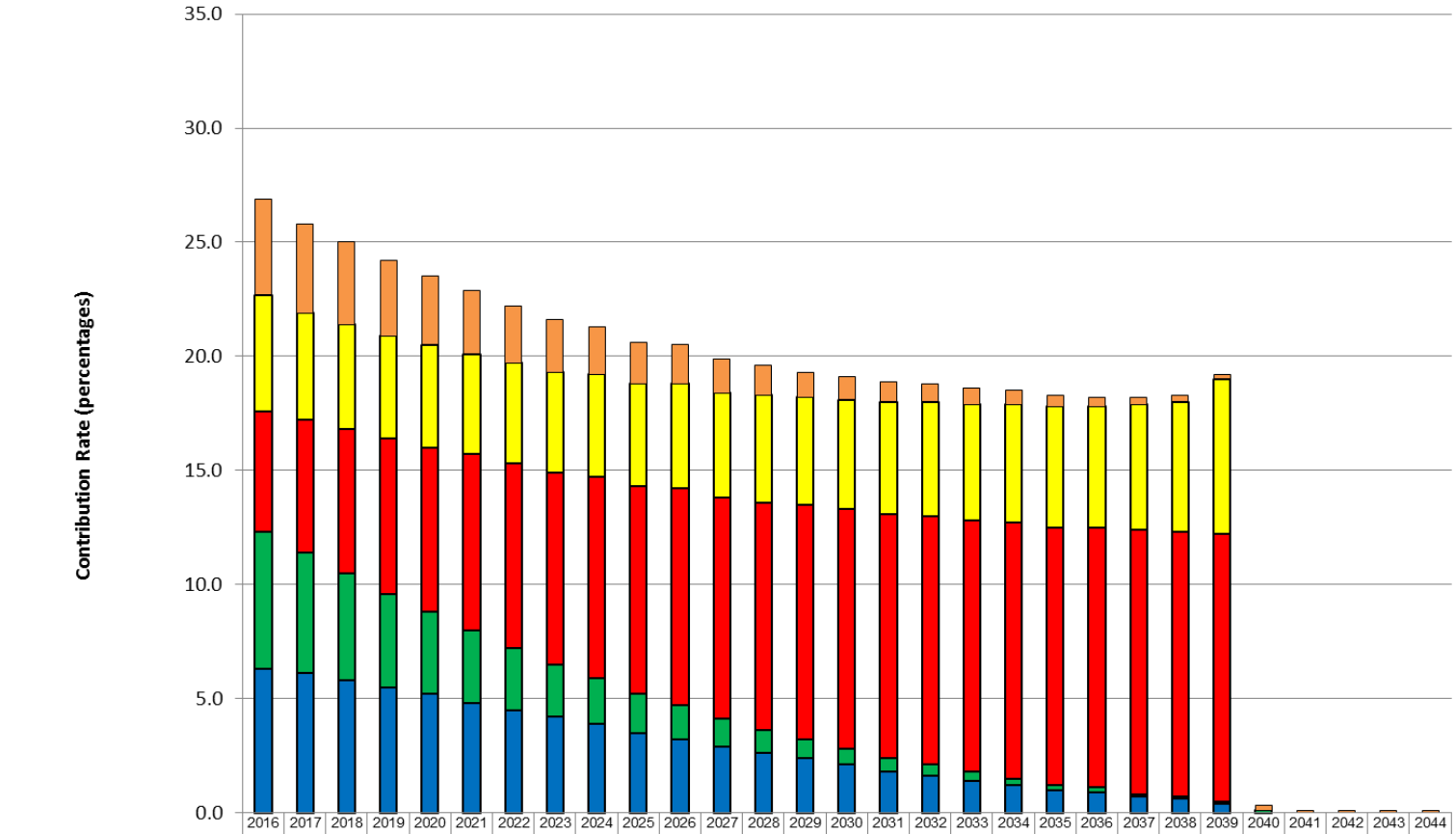
PERS DB and DCR Payroll



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
DCR Payroll	802	940	1,083	1,231	1,383	1,538	1,700	1,865	2,034	2,206	2,384	2,568	2,755	2,945	3,139	3,338	3,541	3,747	3,959	4,177	4,401	4,640	4,882	5,130	5,383	5,643	5,910	6,180	6,458	6,743	7,037
DB Payroll	1,526	1,457	1,389	1,323	1,257	1,192	1,127	1,062	997	932	867	804	743	684	626	571	517	466	416	369	324	281	240	201	165	135	110	89	71	57	45

PERS Level Percent of Pay
Expected Contribution Rates



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
DB EE Contributions	4.2	3.9	3.6	3.3	3.0	2.8	2.5	2.3	2.1	1.8	1.7	1.5	1.3	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1
State Assistance	5.1	4.7	4.6	4.5	4.5	4.4	4.4	4.4	4.5	4.5	4.6	4.6	4.7	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.3	5.5	5.7	6.8	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DCR Pay	5.3	5.8	6.3	6.8	7.2	7.7	8.1	8.4	8.8	9.1	9.5	9.7	10.0	10.3	10.5	10.7	10.9	11.0	11.2	11.3	11.4	11.6	11.6	11.7	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DB Pay-NC	6.0	5.3	4.7	4.1	3.6	3.2	2.7	2.3	2.0	1.7	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
DB ER Contributions on DB Pay-Unf	6.3	6.1	5.8	5.5	5.2	4.8	4.5	4.2	3.9	3.5	3.2	2.9	2.6	2.4	2.1	1.8	1.6	1.4	1.2	1.0	0.9	0.7	0.6	0.4	0.0	0.0	0.0	0.0	0.0

Fiscal Year Ending June 30

DB ER Contributions on DB Pay-Unf | DB ER Contributions on DB Pay-NC | DB ER Contributions on DCR Pay | State Assistance | DB EE Contributions

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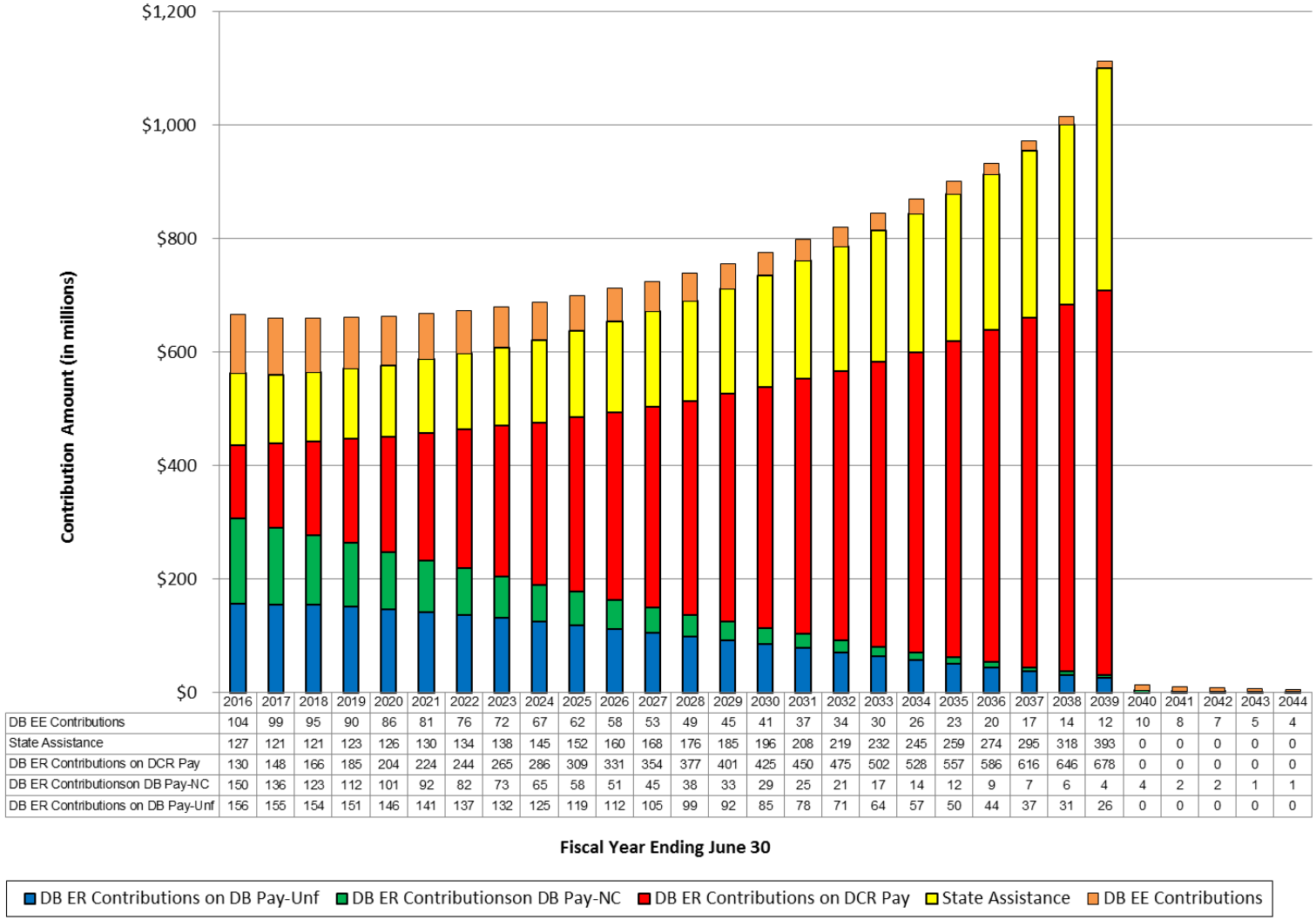
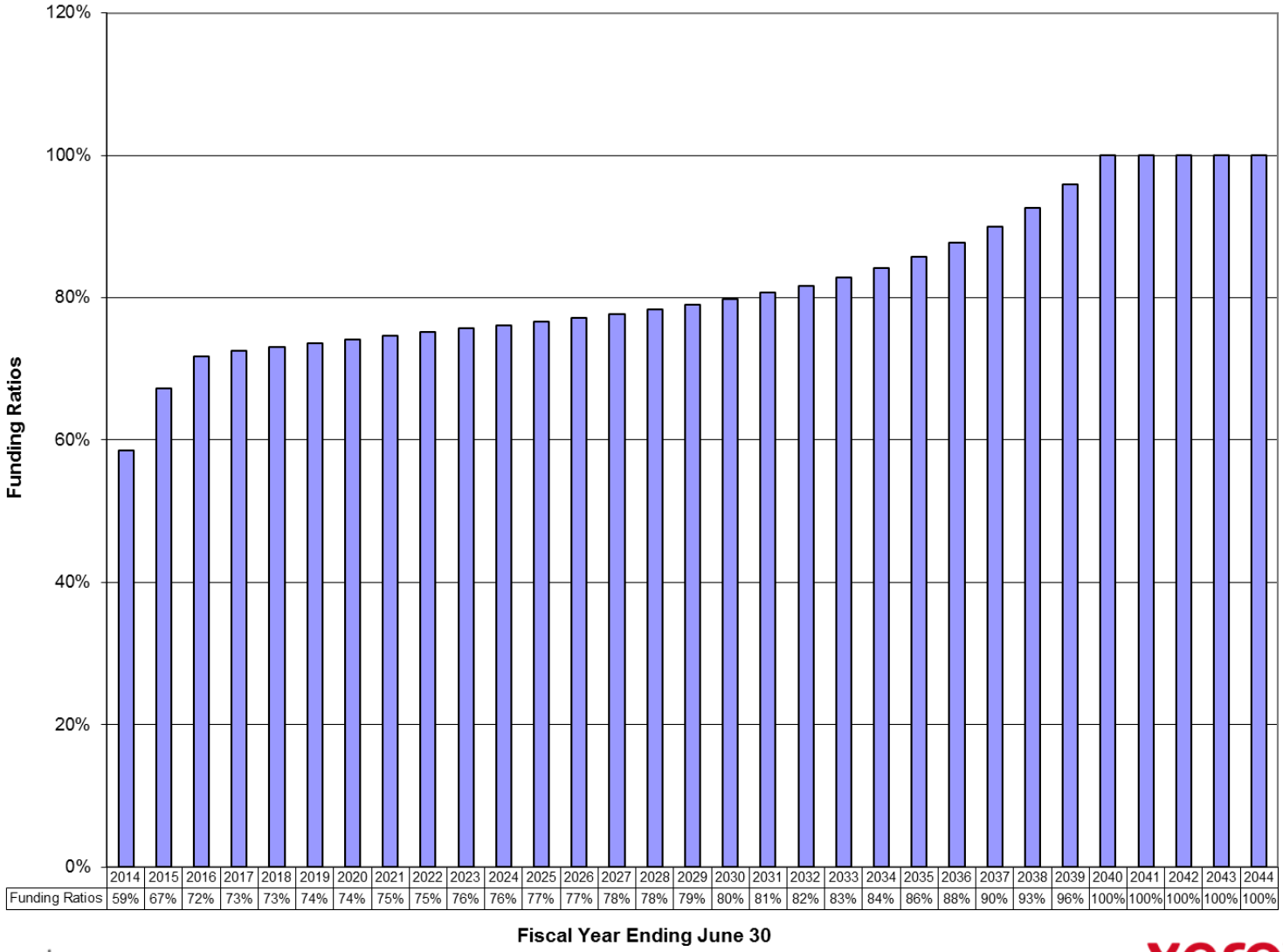
PERS Level Percent of Pay
Expected Contribution Amounts



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
DB EE Contributions	104	99	95	90	86	81	76	72	67	62	58	53	49	45	41	37	34	30	26	23	20	17	14	12	10	8	7	5	4
State Assistance	127	121	121	123	126	130	134	138	145	152	160	168	176	185	196	208	219	232	245	259	274	295	318	393	0	0	0	0	0
DB ER Contributions on DCR Pay	130	148	166	185	204	224	244	265	286	309	331	354	377	401	425	450	475	502	528	557	586	616	646	678	0	0	0	0	0
DB ER Contributionson DB Pay-NC	150	136	123	112	101	92	82	73	65	58	51	45	38	33	29	25	21	17	14	12	9	7	6	4	4	2	2	1	1
DB ER Contributions on DB Pay-Unf	156	155	154	151	146	141	137	132	125	119	112	105	99	92	85	78	71	64	57	50	44	37	31	26	0	0	0	0	0

PERS Level Percent of Pay Funding Ratio



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Funding Ratios	59%	67%	72%	73%	73%	74%	74%	75%	75%	76%	76%	77%	77%	78%	78%	79%	80%	81%	82%	83%	84%	86%	88%	90%	93%	96%	100%	100%	100%	100%	100%

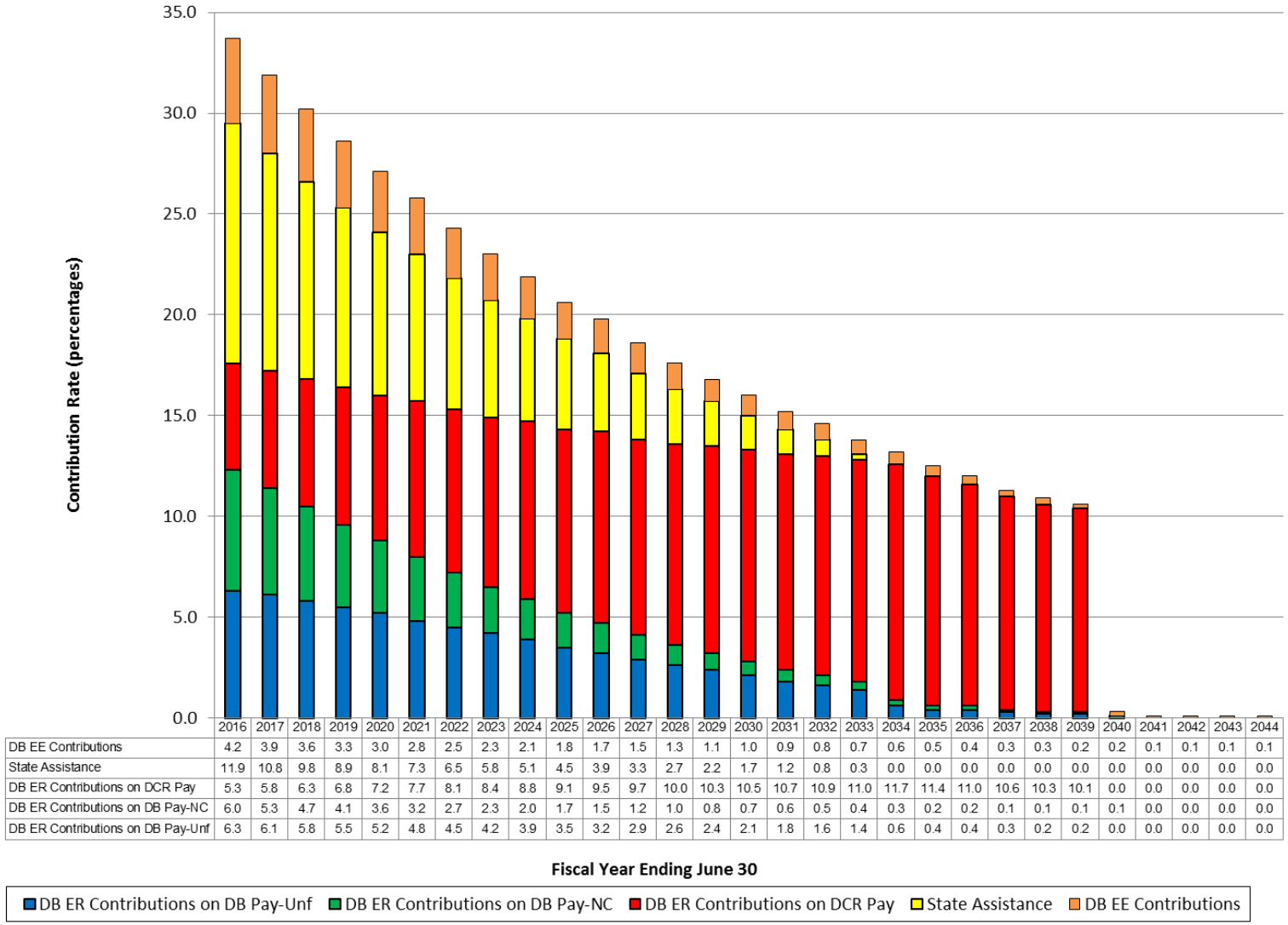
PERS Level Percent of Pay Financial Projections

State of Alaska PERS
Financial Projections (in Thousands)
Based on 2013 Actuarial Valuation Results Projected Forward, Considering Changes under HB 385 and SB 119
Level % of Pay Amortization over Closed 25 year period from FY15, Actuarial Asset Value Re-initialized to Fair Value, 2-Year Lag Eliminated
New Assumptions with Final FY16 State Budgeted Contributions

FY14 Investment Return: 17.70%

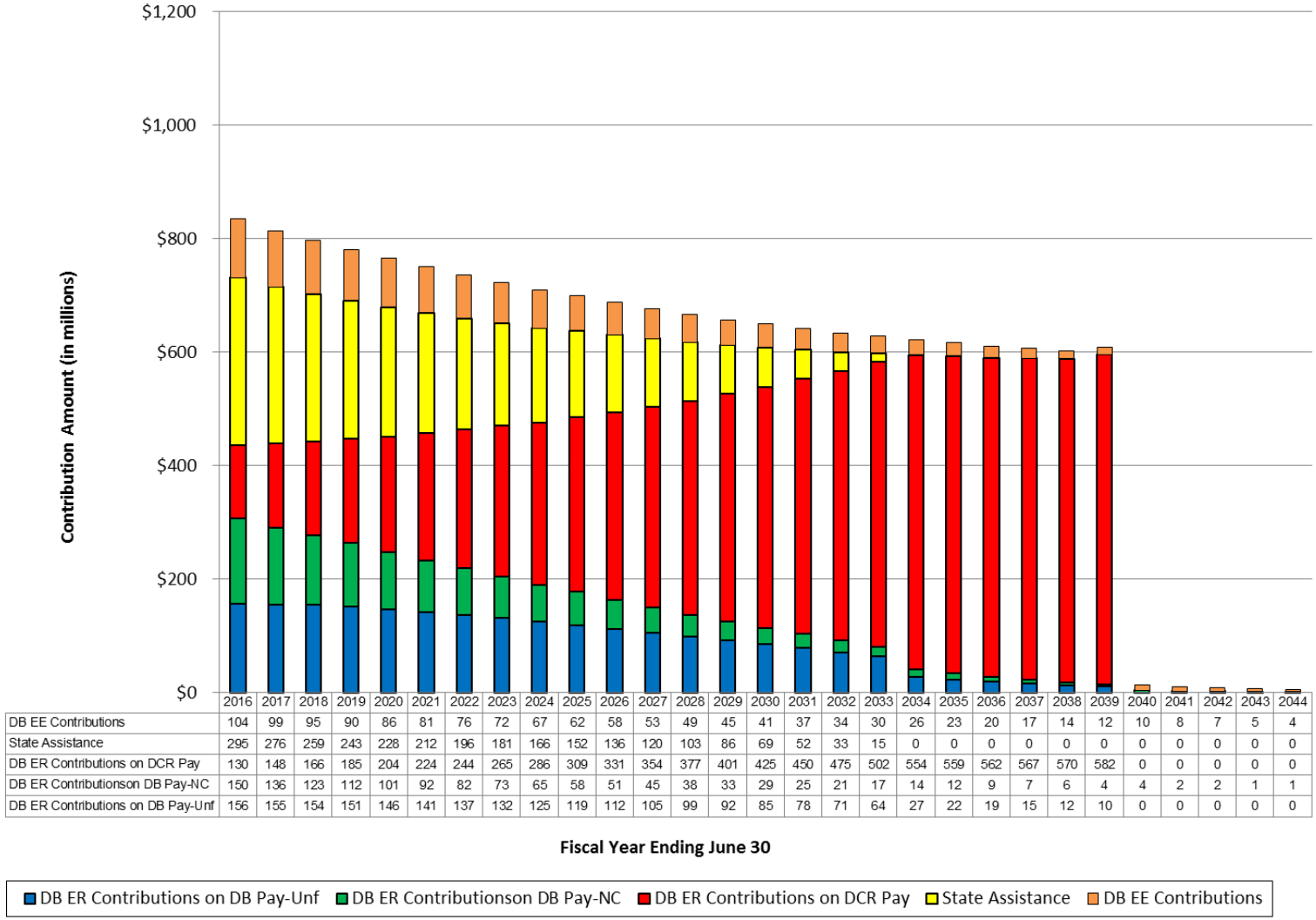
Valuation Amounts on July 1 (Beginning of Fiscal Year)					Flow Amounts During Following 12 Months													
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	DB Salaries	DCR Salaries	Total Salaries	Employer/State Ctb Rate	E'r Normal Cost Contribs	E'r Contribs to Unfunded Liability	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets
2014	$12,162,626	$20,783,516	58.5%	($8,620,890)	$1,526,211	$802,061	$2,328,272	32.31%	$189,056	$240,494	$429,550	$312,473	$114,407	$856,430	$1,009,950	$2,220,078	$361,427	$14,590,611
2015	14,590,611	21,706,664	67.2%	(7,116,053)	1,457,189	939,834	2,397,023	59.47%	163,477	262,011	425,488	1,000,000	116,539	1,542,027	1,126,509	1,190,066	0	16,196,195
2016	16,196,195	22,554,455	71.8%	(6,358,260)	1,389,346	1,083,108	2,472,454	22.75%	149,583	286,263	435,846	126,521	113,662	676,029	1,209,593	1,275,884	0	16,938,515
2017	16,938,515	23,359,985	72.5%	(6,421,470)	1,322,879	1,231,138	2,554,017	21.92%	135,874	303,140	439,014	120,827	109,354	669,195	1,296,728	1,331,061	0	17,642,043
2018	17,642,043	24,140,378	73.1%	(6,498,335)	1,257,490	1,382,875	2,640,365	21.35%	122,777	320,089	442,866	120,852	105,243	668,961	1,378,596	1,383,850	0	18,316,258
2019	18,316,258	24,879,116	73.6%	(6,562,858)	1,192,057	1,538,229	2,730,286	20.87%	111,669	335,469	447,138	122,673	101,023	670,834	1,456,119	1,434,635	0	18,965,608
2020	18,965,608	25,580,228	74.1%	(6,614,620)	1,126,762	1,699,698	2,826,460	20.45%	101,470	350,702	452,172	125,839	97,058	675,069	1,537,457	1,483,415	0	19,586,635
2021	19,586,635	26,237,373	74.7%	(6,650,738)	1,061,585	1,864,721	2,926,306	20.07%	92,179	365,475	457,654	129,656	92,696	680,006	1,627,135	1,529,629	0	20,169,135
2022	20,169,135	26,837,884	75.2%	(6,668,749)	996,833	2,033,778	3,030,611	19.71%	82,433	381,275	463,708	133,625	88,535	685,868	1,714,320	1,572,910	0	20,713,593
2023	20,713,593	27,381,753	75.6%	(6,668,160)	931,707	2,206,463	3,138,170	19.39%	73,433	396,675	470,108	138,383	84,578	693,069	1,805,323	1,613,069	0	21,214,408
2024	21,214,408	27,861,202	76.1%	(6,646,794)	867,367	2,383,682	3,251,049	19.13%	65,346	411,876	477,222	144,704	66,972	688,898	1,889,155	1,649,660	0	21,663,811
2025	21,663,811	28,277,182	76.6%	(6,613,371)	804,324	2,568,170	3,372,494	18.91%	58,007	427,484	485,491	152,248	62,391	700,130	1,958,467	1,683,410	0	22,088,884
2026	22,088,884	28,629,787	77.2%	(6,540,903)	743,359	2,755,002	3,498,361	18.71%	51,426	443,068	494,494	160,049	57,723	712,266	2,052,350	1,714,213	0	22,463,013
2027	22,463,013	28,898,426	77.7%	(6,435,413)	683,731	2,945,148	3,628,879	18.52%	44,998	459,187	504,185	167,883	53,345	725,413	2,129,652	1,741,688	0	22,800,462
2028	22,800,462	29,097,966	78.4%	(6,297,504)	625,789	3,139,375	3,765,164	18.34%	38,405	476,330	514,735	175,796	49,324	739,855	2,216,214	1,765,888	0	23,089,991
2029	23,089,991	29,211,092	79.0%	(6,121,101)	570,654	3,337,868	3,908,522	18.21%	33,222	493,194	526,416	185,326	44,948	756,690	2,288,311	1,787,031	0	23,345,401
2030	23,345,401	29,249,477	79.8%	(5,904,076)	517,113	3,541,332	4,058,445	18.11%	28,815	510,233	539,048	195,936	40,990	775,974	2,357,203	1,805,720	0	23,569,892
2031	23,569,892	29,209,030	80.7%	(5,639,138)	465,836	3,746,762	4,212,598	18.04%	24,854	527,561	552,415	207,538	37,071	797,024	2,435,393	1,821,650	0	23,753,173
2032	23,753,173	29,074,113	81.7%	(5,320,940)	416,329	3,958,674	4,375,003	17.96%	20,563	546,390	566,953	218,798	33,688	819,439	2,514,252	1,834,294	0	23,892,654
2033	23,892,654	28,839,943	82.8%	(4,947,289)	368,927	4,176,546	4,545,473	17.92%	17,273	565,400	582,673	231,876	30,000	844,549	2,576,848	1,844,306	0	24,004,661
2034	24,004,661	28,509,185	84.2%	(4,504,524)	323,718	4,401,206	4,724,924	17.88%	14,175	585,518	599,693	245,123	26,460	871,276	2,618,960	1,853,062	0	24,110,039
2035	24,110,039	28,105,964	85.8%	(3,995,925)	280,896	4,639,906	4,920,802	17.85%	11,810	607,109	618,919	259,444	23,128	901,491	2,666,319	1,861,246	0	24,206,457
2036	24,206,457	27,608,428	87.7%	(3,401,971)	239,741	4,882,341	5,122,082	17.82%	8,708	630,254	638,962	273,793	20,488	933,243	2,703,033	1,869,227	0	24,305,894
2037	24,305,894	27,033,127	89.9%	(2,727,233)	200,520	5,129,709	5,330,229	17.91%	7,462	652,562	660,024	294,620	17,057	971,701	2,751,936	1,877,458	0	24,403,117
2038	24,403,117	26,351,835	92.6%	(1,948,718)	164,914	5,383,165	5,548,079	18.03%	5,548	677,065	682,613	317,706	14,425	1,014,744	2,767,643	1,887,197	0	24,537,415
2039	24,537,415	25,597,950	95.9%	(1,060,535)	134,719	5,643,057	5,777,776	19.04%	4,044	703,123	707,167	392,922	12,133	1,112,222	2,756,063	1,905,324	0	24,798,898
2040	24,798,898	24,791,443	100.0%	7,455	109,630	5,909,797	6,019,427	0.06%	3,612	0	3,612	0	9,631	13,243	2,747,331	1,867,482	0	23,932,292
2041	23,932,292	23,925,967	100.0%	6,325	88,749	6,179,644	6,268,393	0.03%	1,881	0	1,881	0	8,149	10,030	2,749,998	1,797,914	0	22,990,238
2042	22,990,238	22,985,189	100.0%	5,049	71,415	6,457,654	6,529,069	0.03%	1,959	0	1,959	0	6,529	8,488	2,705,355	1,724,390	0	22,017,761
2043	22,017,761	22,013,552	100.0%	4,209	57,012	6,742,831	6,799,843	0.01%	680	0	680	0	5,440	6,120	2,659,797	1,648,438	0	21,012,522
2044	21,012,522	21,009,663	100.0%	2,859	45,219	7,037,350	7,082,569	0.01%	708	0	708	0	4,250	4,958	2,597,368	1,570,631	0	19,990,743
										Totals 2015 & After:	$ 13,193,844	$ 5,642,138	$1,532,830	$20,368,812			

PERS Level Dollar
Expected Contribution Rates



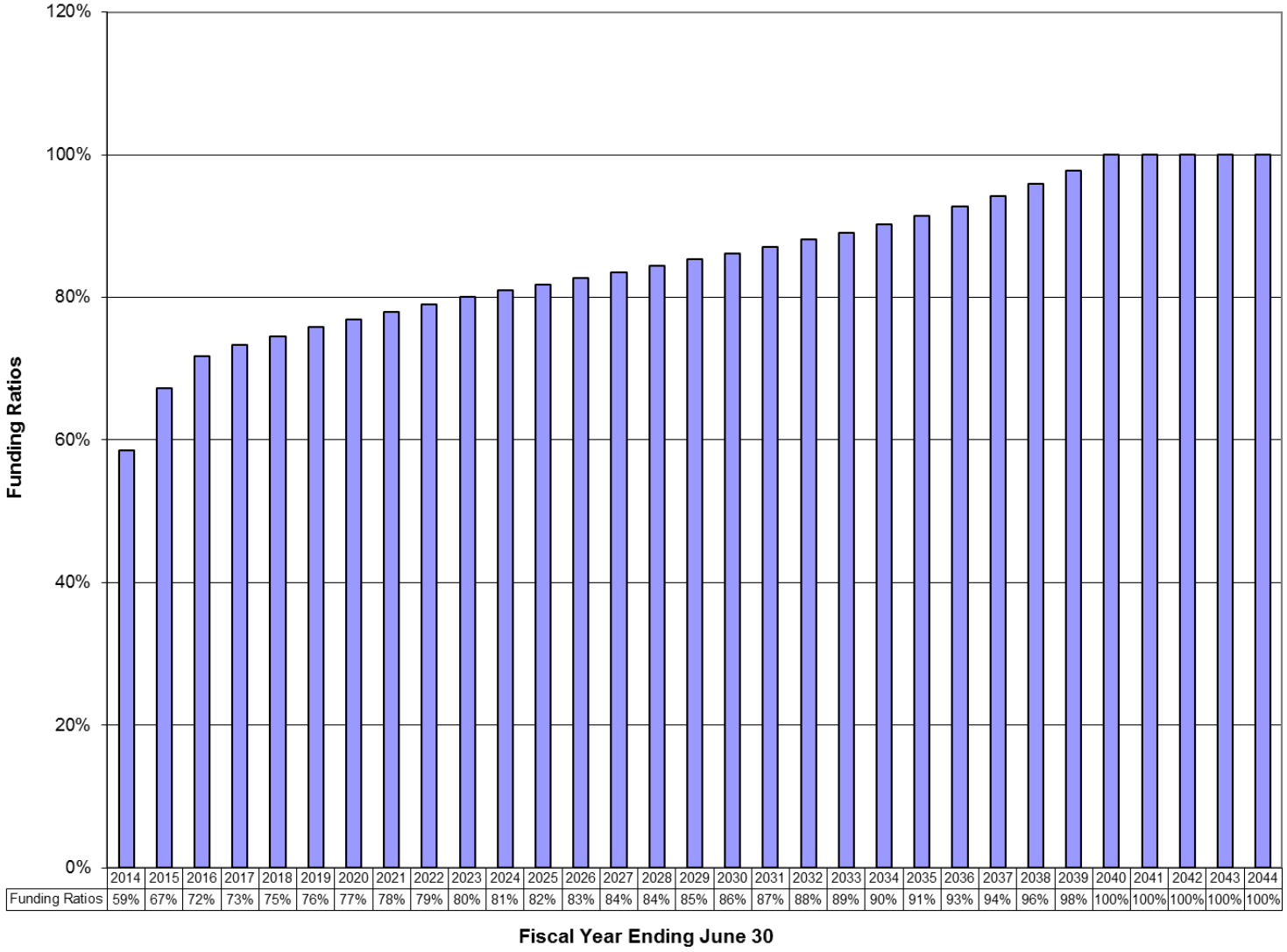
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
DB EE Contributions	4.2	3.9	3.6	3.3	3.0	2.8	2.5	2.3	2.1	1.8	1.7	1.5	1.3	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1
State Assistance	11.9	10.8	9.8	8.9	8.1	7.3	6.5	5.8	5.1	4.5	3.9	3.3	2.7	2.2	1.7	1.2	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DCR Pay	5.3	5.8	6.3	6.8	7.2	7.7	8.1	8.4	8.8	9.1	9.5	9.7	10.0	10.3	10.5	10.7	10.9	11.0	11.7	11.4	11.0	10.6	10.3	10.1	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DB Pay-NC	6.0	5.3	4.7	4.1	3.6	3.2	2.7	2.3	2.0	1.7	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
DB ER Contributions on DB Pay-Unf	6.3	6.1	5.8	5.5	5.2	4.8	4.5	4.2	3.9	3.5	3.2	2.9	2.6	2.4	2.1	1.8	1.6	1.4	0.6	0.4	0.4	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0

PERS Level Dollar
Expected Contribution Amounts



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
DB EE Contributions	104	99	95	90	86	81	76	72	67	62	58	53	49	45	41	37	34	30	26	23	20	17	14	12	10	8	7	5	4
State Assistance	295	276	259	243	228	212	196	181	166	152	136	120	103	86	69	52	33	15	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DCR Pay	130	148	166	185	204	224	244	265	286	309	331	354	377	401	425	450	475	502	554	559	562	567	570	582	0	0	0	0	0
DB ER Contributionson DB Pay-NC	150	136	123	112	101	92	82	73	65	58	51	45	38	33	29	25	21	17	14	12	9	7	6	4	4	2	2	1	1
DB ER Contributions on DB Pay-Unf	156	155	154	151	146	141	137	132	125	119	112	105	99	92	85	78	71	64	27	22	19	15	12	10	0	0	0	0	0

PERS Level Dollar Funding Ratio



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Funding Ratios	59%	67%	72%	73%	75%	76%	77%	78%	79%	80%	81%	82%	83%	84%	84%	85%	86%	87%	88%	89%	90%	91%	93%	94%	96%	98%	100%	100%	100%	100%	100%

PERS Level Dollar Financial Projections

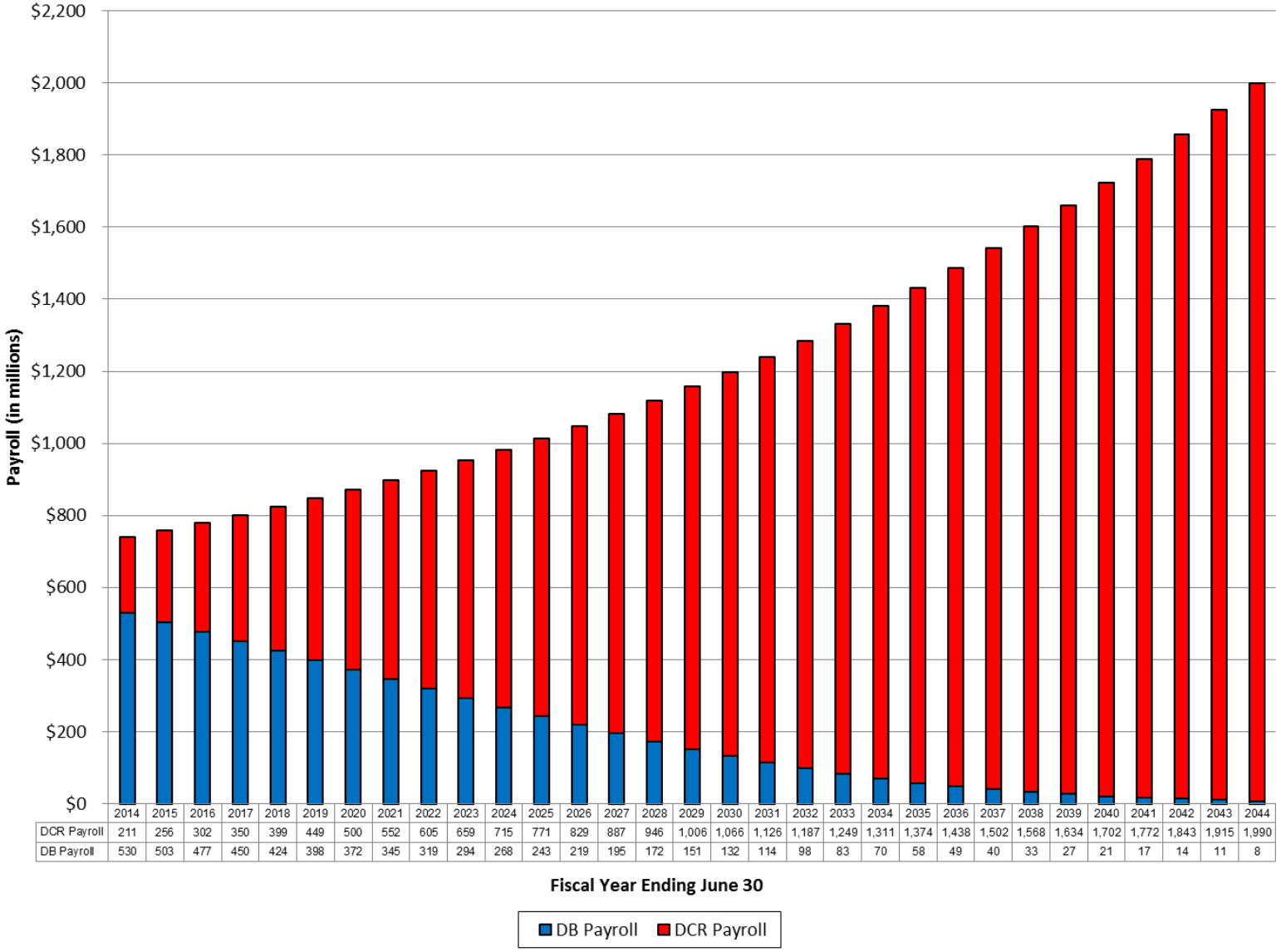
State of Alaska PERS
Financial Projections (in Thousands)
Based on 2013 Actuarial Valuation Results Projected Forward, Considering Changes under HB 385 and SB 119
Level Dollar Amortization over Closed 25 year period from FY15, Actuarial Asset Value Re-initialized to Fair Value, 2-Year Lag Eliminated
New Assumptions with Final FY16 State Budgeted Contributions

FY14 Investment Return: 17.70%

	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months													
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	DB Salaries	DCR Salaries	Total Salaries	Employer/State Ctb Rate	E'r Normal Cost Contribs	E'r Contribs to Unfunded Liability	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets
2014	$12,162,626	$20,783,516	58.5%	($8,620,890)	$1,526,211	$802,061	$2,328,272	32.31%	$189,056	$240,494	$429,550	$312,473	$114,407	$856,430	$1,009,950	$2,220,078	$361,427	$14,590,611
2015	14,590,611	21,706,664	67.2%	(7,116,053)	1,457,189	939,834	2,397,023	81.57%	163,477	262,011	425,488	1,000,000	116,539	1,542,027	1,126,509	1,190,066	0	16,196,195
2016	16,196,195	22,554,455	71.8%	(6,358,260)	1,389,346	1,083,108	2,472,454	29.55%	149,583	286,263	435,846	294,764	113,662	844,272	1,209,593	1,289,344	0	17,120,218
2017	17,120,218	23,359,985	73.3%	(6,239,767)	1,322,879	1,231,138	2,554,017	27.99%	135,874	303,140	439,014	275,855	109,354	824,223	1,296,728	1,357,999	0	18,005,712
2018	18,005,712	24,140,378	74.6%	(6,134,666)	1,257,490	1,382,875	2,640,365	26.57%	122,777	320,089	442,866	258,679	105,243	806,788	1,378,596	1,423,969	0	18,857,873
2019	18,857,873	24,879,116	75.8%	(6,021,243)	1,192,057	1,538,229	2,730,286	25.28%	111,669	335,469	447,138	243,078	101,023	791,239	1,456,119	1,487,596	0	19,680,589
2020	19,680,589	25,580,228	76.9%	(5,899,639)	1,126,762	1,699,698	2,826,460	24.05%	101,470	350,702	452,172	227,592	97,058	776,822	1,537,457	1,548,754	0	20,468,708
2021	20,468,708	26,237,373	78.0%	(5,768,665)	1,061,585	1,864,721	2,926,306	22.90%	92,179	365,475	457,654	212,470	92,696	762,820	1,627,135	1,606,820	0	21,211,213
2022	21,211,213	26,837,884	79.0%	(5,626,671)	996,833	2,033,778	3,030,611	21.78%	82,433	381,275	463,708	196,359	88,535	748,602	1,714,320	1,661,295	0	21,906,790
2023	21,906,790	27,381,753	80.0%	(5,474,963)	931,707	2,206,463	3,138,170	20.74%	73,433	396,675	470,108	180,748	84,578	735,434	1,805,323	1,711,914	0	22,548,815
2024	22,548,815	27,861,202	80.9%	(5,312,387)	867,367	2,383,682	3,251,049	19.77%	65,346	411,876	477,222	165,510	66,972	709,704	1,889,155	1,758,077	0	23,127,441
2025	23,127,441	28,277,182	81.8%	(5,149,741)	804,324	2,568,170	3,372,494	18.89%	58,007	427,484	485,491	151,573	62,391	699,455	1,958,467	1,800,446	0	23,668,875
2026	23,668,875	28,629,787	82.7%	(4,960,912)	743,359	2,755,002	3,498,361	18.02%	51,426	443,068	494,494	135,911	57,723	688,128	2,052,350	1,838,681	0	24,143,334
2027	24,143,334	28,898,426	83.5%	(4,755,092)	683,731	2,945,148	3,628,879	17.19%	44,998	459,187	504,185	119,619	53,345	677,149	2,129,652	1,872,253	0	24,563,084
2028	24,563,084	29,097,966	84.4%	(4,534,882)	625,789	3,139,375	3,765,164	16.40%	38,405	476,330	514,735	102,752	49,324	666,811	2,216,214	1,901,055	0	24,914,736
2029	24,914,736	29,211,092	85.3%	(4,296,356)	570,654	3,337,868	3,908,522	15.67%	33,222	493,194	526,416	86,049	44,948	657,413	2,288,311	1,925,068	0	25,208,906
2030	25,208,906	29,249,477	86.2%	(4,040,571)	517,113	3,541,332	4,058,445	14.99%	28,815	510,233	539,048	69,313	40,990	649,351	2,357,203	1,944,670	0	25,445,724
2031	25,445,724	29,209,030	87.1%	(3,763,306)	465,836	3,746,762	4,212,598	14.35%	24,854	527,561	552,415	52,093	37,071	641,579	2,435,393	1,959,281	0	25,611,191
2032	25,611,191	29,074,113	88.1%	(3,462,922)	416,329	3,958,674	4,375,003	13.72%	20,563	546,390	566,953	33,297	33,688	633,938	2,514,252	1,968,095	0	25,698,972
2033	25,698,972	28,839,943	89.1%	(3,140,971)	368,927	4,176,546	4,545,473	13.15%	17,273	565,400	582,673	15,057	30,000	627,730	2,576,848	1,971,466	0	25,721,320
2034	25,721,320	28,509,185	90.2%	(2,787,865)	323,718	4,401,206	4,724,924	12.58%	14,175	580,220	594,395	0	26,460	620,855	2,618,960	1,970,577	0	25,693,792
2035	25,693,792	28,105,964	91.4%	(2,412,172)	280,896	4,639,906	4,920,802	12.05%	11,810	581,147	592,957	0	23,128	616,085	2,666,319	1,966,172	0	25,609,730
2036	25,609,730	27,608,428	92.8%	(1,998,698)	239,741	4,882,341	5,122,082	11.51%	8,708	580,844	589,552	0	20,488	610,040	2,703,033	1,957,647	0	25,474,384
2037	25,474,384	27,033,127	94.2%	(1,558,743)	200,520	5,129,709	5,330,229	11.06%	7,462	582,061	589,523	0	17,057	606,580	2,751,936	1,944,602	0	25,273,630
2038	25,273,630	26,351,835	95.9%	(1,078,205)	164,914	5,383,165	5,548,079	10.59%	5,548	581,994	587,542	0	14,425	601,967	2,767,643	1,927,692	0	25,035,646
2039	25,035,646	25,597,950	97.8%	(562,304)	134,719	5,643,057	5,777,776	10.32%	4,044	592,222	596,266	0	12,133	608,399	2,756,063	1,909,398	0	24,797,380
2040	24,797,380	24,791,443	100.0%	5,937	109,630	5,909,797	6,019,427	0.06%	3,612	0	3,612	0	9,631	13,243	2,747,331	1,867,361	0	23,930,653
2041	23,930,653	23,925,967	100.0%	4,686	88,749	6,179,644	6,268,393	0.03%	1,881	0	1,881	0	8,149	10,030	2,749,998	1,797,783	0	22,988,468
2042	22,988,468	22,985,189	100.0%	3,279	71,415	6,457,654	6,529,069	0.03%	1,959	0	1,959	0	6,529	8,488	2,705,355	1,724,248	0	22,015,849
2043	22,015,849	22,013,552	100.0%	2,297	57,012	6,742,831	6,799,843	0.01%	680	0	680	0	5,440	6,120	2,659,797	1,648,285	0	21,010,457
2044	21,010,457	21,009,663	100.0%	794	45,219	7,037,350	7,082,569	0.01%	708	0	708	0	4,250	4,958	2,597,368	1,570,465	0	19,988,512
										Totals 2015 & After:	$ 12,836,701	$ 3,820,719	$1,532,830	$18,190,250			

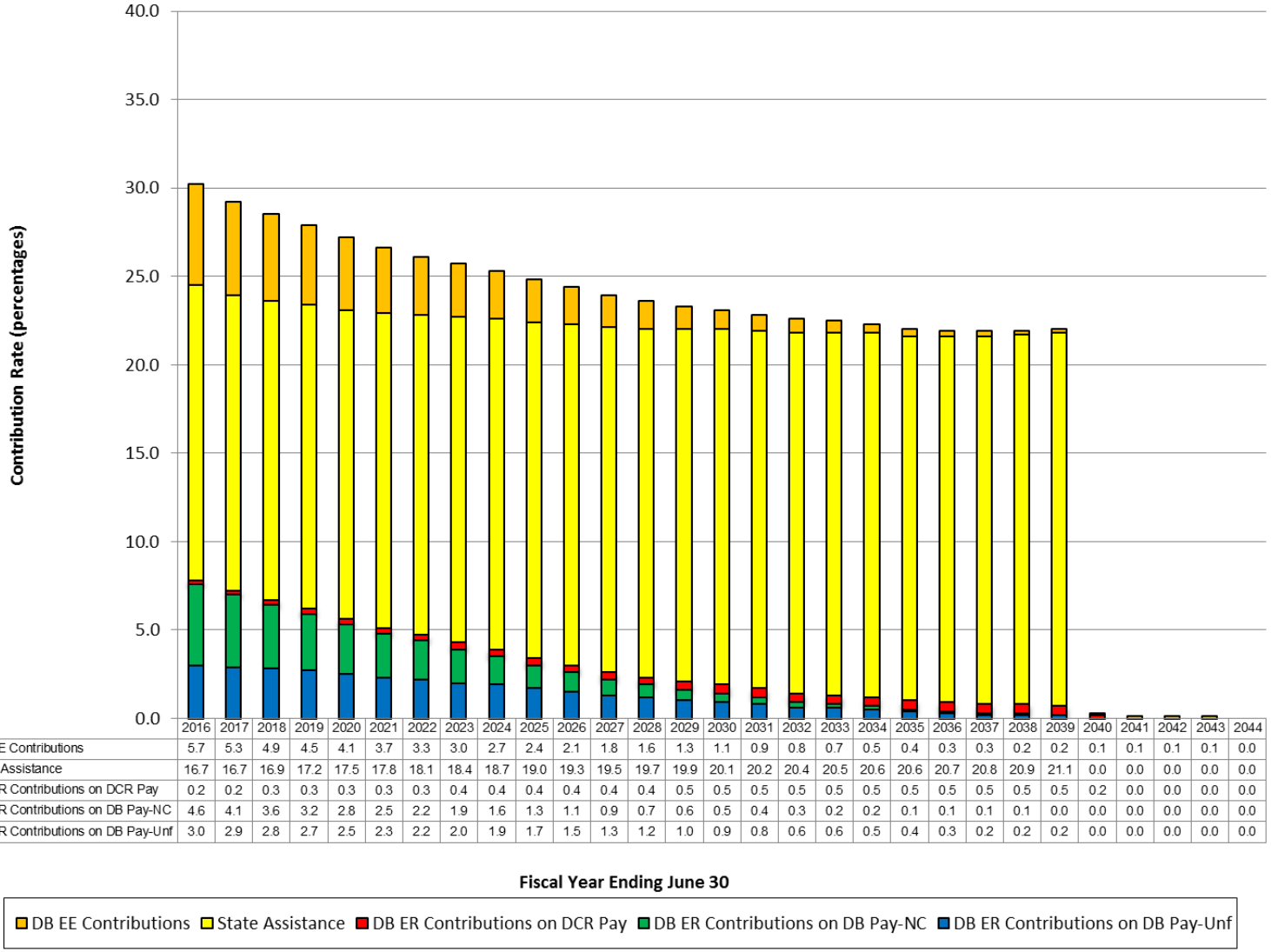
TRS 30-year Projections based on Level Percent of Pay and Level Dollar Amortization Methodology

TRS DB and DCR Payroll



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
DCR Payroll	211	256	302	350	399	449	500	552	605	659	715	771	829	887	946	1,006	1,066	1,126	1,187	1,249	1,311	1,374	1,438	1,502	1,568	1,634	1,702	1,772	1,843	1,915	1,990
DB Payroll	530	503	477	450	424	398	372	345	319	294	268	243	219	195	172	151	132	114	98	83	70	58	49	40	33	27	21	17	14	11	8

TRS Level Percent of Pay
Expected Contribution Rates

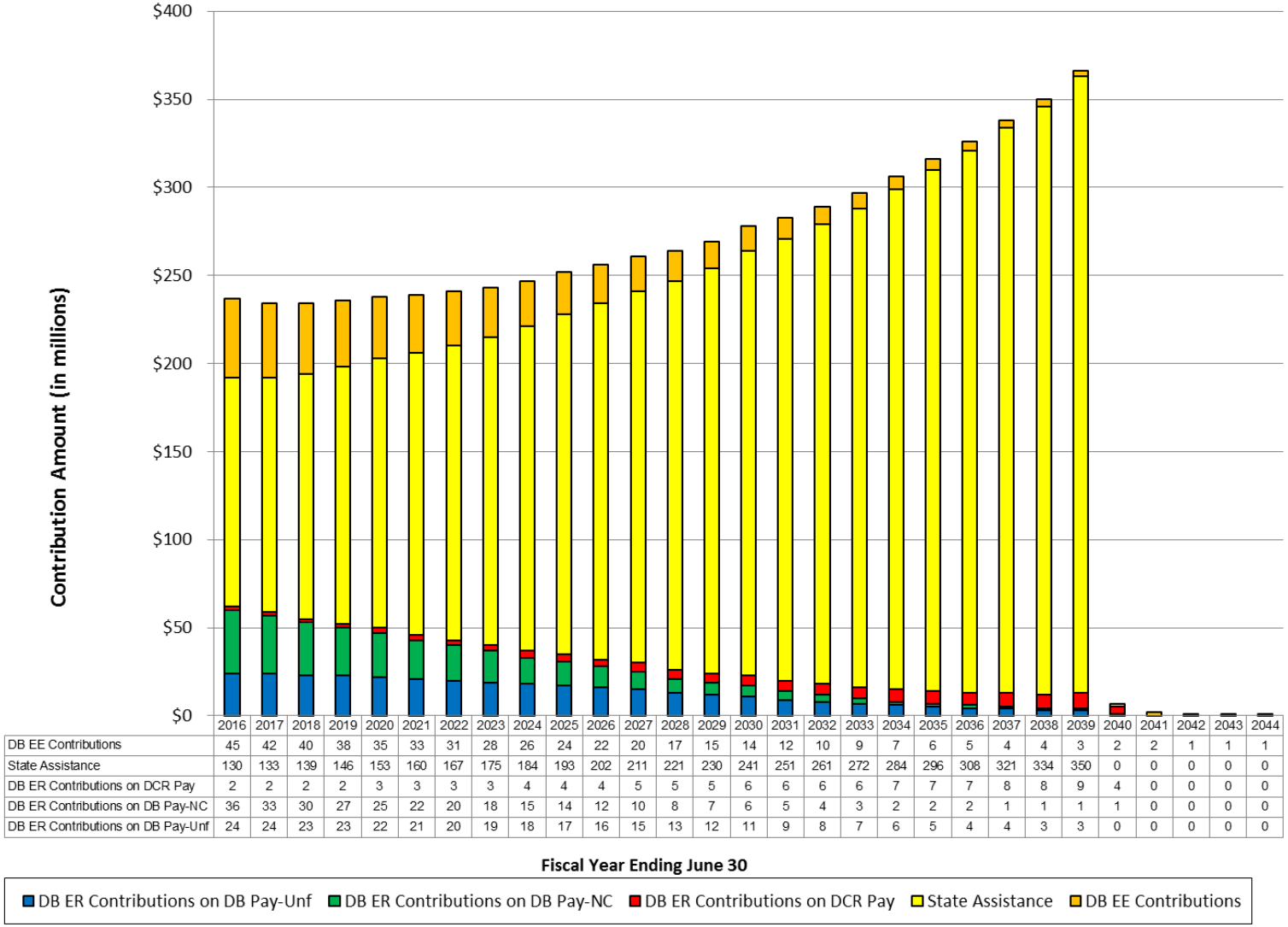


	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
DB EE Contributions	5.7	5.3	4.9	4.5	4.1	3.7	3.3	3.0	2.7	2.4	2.1	1.8	1.6	1.3	1.1	0.9	0.8	0.7	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0
State Assistance	16.7	16.7	16.9	17.2	17.5	17.8	18.1	18.4	18.7	19.0	19.3	19.5	19.7	19.9	20.1	20.2	20.4	20.5	20.6	20.6	20.7	20.8	20.9	21.1	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DCR Pay	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2	0.0	0.0	0.0	0.0
DB ER Contributions on DB Pay-NC	4.6	4.1	3.6	3.2	2.8	2.5	2.2	1.9	1.6	1.3	1.1	0.9	0.7	0.6	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DB Pay-Unf	3.0	2.9	2.8	2.7	2.5	2.3	2.2	2.0	1.9	1.7	1.5	1.3	1.2	1.0	0.9	0.8	0.6	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0

buckconsultants

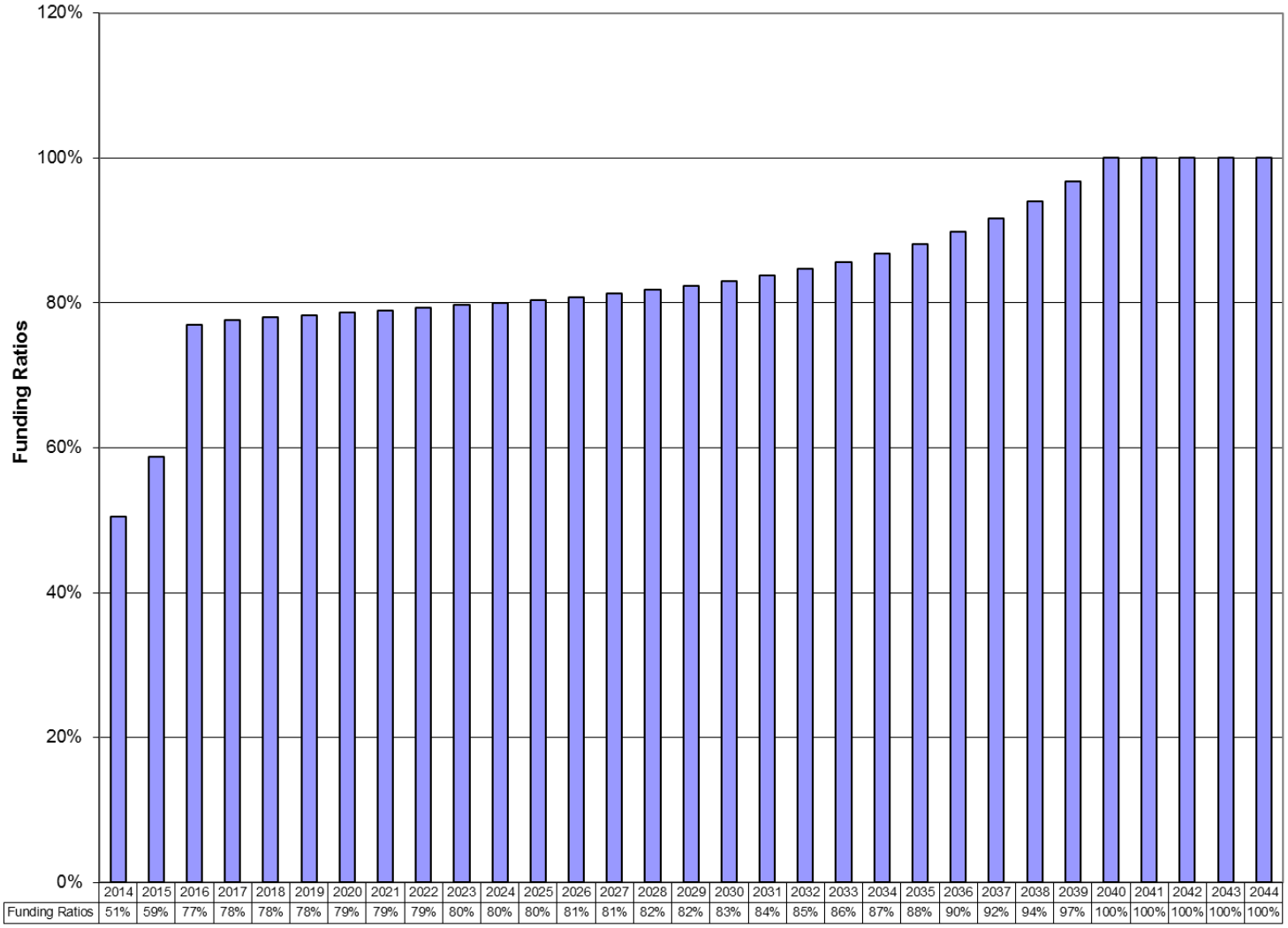
xerox

TRS Level Percent of Pay
Expected Contribution Amounts



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
DB EE Contributions	45	42	40	38	35	33	31	28	26	24	22	20	17	15	14	12	10	9	7	6	5	4	4	3	2	2	1	1	1
State Assistance	130	133	139	146	153	160	167	175	184	193	202	211	221	230	241	251	261	272	284	296	308	321	334	350	0	0	0	0	0
DB ER Contributions on DCR Pay	2	2	2	2	3	3	3	3	4	4	4	5	5	5	6	6	6	6	7	7	7	8	8	9	4	0	0	0	0
DB ER Contributions on DB Pay-NC	36	33	30	27	25	22	20	18	15	14	12	10	8	7	6	5	4	3	2	2	2	1	1	1	1	0	0	0	0
DB ER Contributions on DB Pay-Unf	24	24	23	23	22	21	20	19	18	17	16	15	13	12	11	9	8	7	6	5	4	4	3	3	0	0	0	0	0

TRS Level Percent of Pay Funding Ratio



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Funding Ratios	51%	59%	77%	78%	78%	78%	79%	79%	79%	80%	80%	80%	81%	81%	82%	82%	83%	84%	85%	86%	87%	88%	90%	92%	94%	97%	100%	100%	100%	100%	100%

Fiscal Year Ending June 30

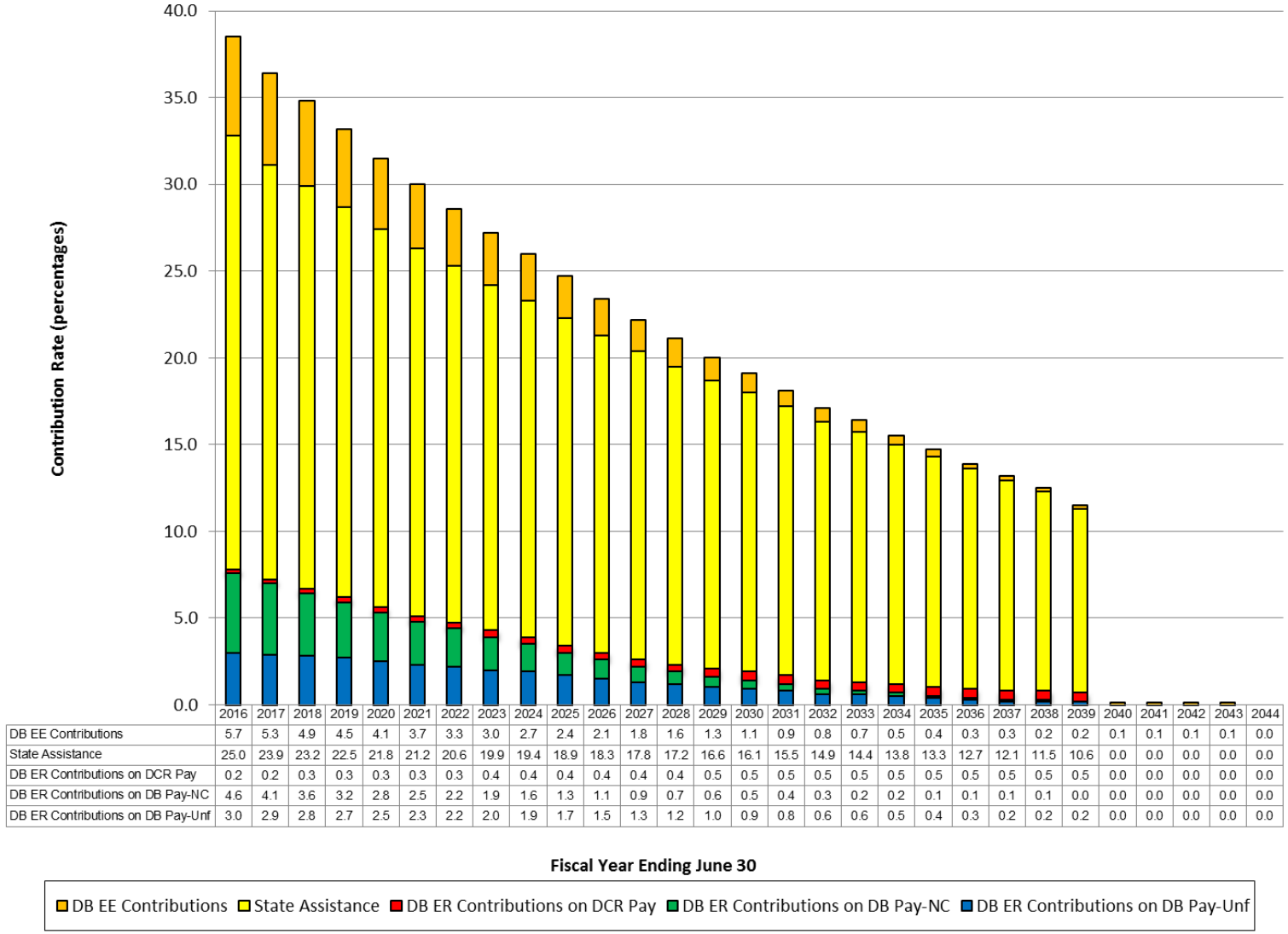
TRS Level Percent of Pay Financial Projections

State of Alaska TRS
Financial Projections (in Thousands)
Based on 2013 Actuarial Valuation Results Projected Forward, Considering Changes under HB 385 and SB 119
Level % of Pay Amortization over Closed 25 year period from FY15, Assets Re-initialized to Fair Value, 2-Year Lag Eliminated
New Assumptions with Final FY16 State Budgeted Contributions

FY14 Investment Return 17.70%

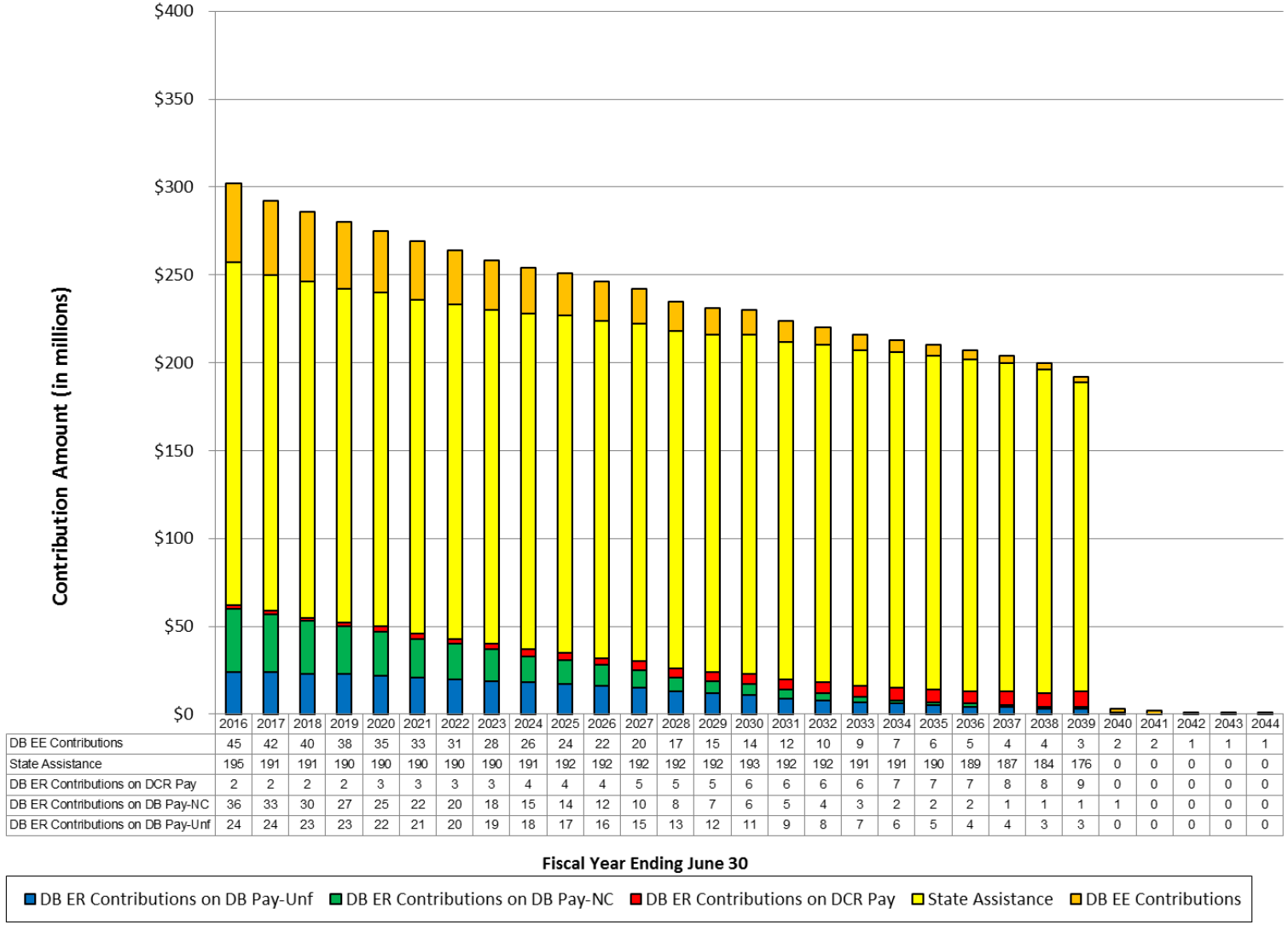
Valuation Amounts on July 1 (Beginning of Fiscal Year)					Flow Amounts During Following 12 Months													
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	DB Salaries	DCR Salaries	Total Salaries	Employer/State Ctb Rate	E'r Normal Cost Contribs	E'r Contribs to Unfunded Liability	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets
2014	$4,974,076	$9,839,806	50.6%	($4,865,730)	$529,536	$211,442	$740,978	50.10%	$48,830	$18,226	$67,056	$316,847	$51,187	$435,090	$516,869	$924,115	$171,042	$5,987,454
2015	5,987,454	10,187,219	58.8%	(4,199,765)	503,235	256,098	759,333	271.80%	48,597	15,290	63,887	2,000,000	51,974	2,115,861	582,338	557,766	0	8,078,743
2016	8,078,743	10,487,584	77.0%	(2,408,841)	476,863	302,426	779,289	24.58%	36,159	25,308	61,467	130,108	50,063	241,638	612,959	634,991	0	8,342,413
2017	8,342,413	10,746,676	77.6%	(2,404,263)	450,173	350,311	800,484	23.95%	32,980	25,384	58,364	133,352	47,998	239,714	646,231	654,725	0	8,590,621
2018	8,590,621	11,018,830	78.0%	(2,428,209)	423,854	399,147	823,001	23.66%	29,957	25,355	55,312	139,410	45,903	240,625	676,250	673,586	0	8,828,582
2019	8,828,582	11,274,510	78.3%	(2,445,928)	397,824	449,026	846,850	23.39%	27,269	25,032	52,301	145,777	43,855	241,933	703,431	691,777	0	9,058,861
2020	9,058,861	11,519,332	78.6%	(2,460,471)	371,680	499,783	871,463	23.18%	24,750	24,532	49,282	152,723	41,828	243,833	733,219	709,289	0	9,278,764
2021	9,278,764	11,748,067	79.0%	(2,469,303)	345,274	551,817	897,091	22.99%	22,338	23,898	46,236	160,005	39,748	245,989	769,769	725,707	0	9,480,691
2022	9,480,691	11,952,348	79.3%	(2,471,657)	319,231	604,996	924,227	22.79%	19,871	23,370	43,241	167,390	37,721	248,352	803,534	740,818	0	9,666,327
2023	9,666,327	12,129,351	79.7%	(2,463,024)	293,779	659,063	952,842	22.60%	17,628	22,698	40,326	175,016	28,490	243,832	832,306	754,577	0	9,832,430
2024	9,832,430	12,288,123	80.0%	(2,455,693)	268,189	714,505	982,694	22.49%	15,428	21,972	37,400	183,608	26,238	247,246	861,452	767,109	0	9,985,333
2025	9,985,333	12,426,232	80.4%	(2,440,899)	243,251	771,114	1,014,365	22.44%	13,592	20,970	34,562	193,062	23,939	251,563	885,838	778,858	0	10,129,916
2026	10,129,916	12,536,950	80.8%	(2,407,034)	218,790	828,660	1,047,450	22.30%	11,627	20,162	31,789	201,792	21,787	255,368	918,335	789,546	0	10,256,495
2027	10,256,495	12,617,728	81.3%	(2,361,233)	194,653	887,273	1,081,926	22.18%	9,846	19,216	29,062	210,909	19,583	259,554	958,891	798,482	0	10,355,640
2028	10,355,640	12,660,608	81.8%	(2,304,968)	172,075	946,365	1,118,440	22.09%	8,276	18,258	26,534	220,529	17,448	264,511	988,930	805,722	0	10,436,943
2029	10,436,943	12,668,708	82.4%	(2,231,765)	151,026	1,006,007	1,157,033	21.98%	6,942	17,258	24,200	230,116	15,389	269,705	1,014,010	811,753	0	10,504,391
2030	10,504,391	12,650,498	83.0%	(2,146,107)	131,578	1,066,100	1,197,678	21.93%	5,869	16,201	22,070	240,581	13,534	276,185	1,039,607	816,740	0	10,557,709
2031	10,557,709	12,598,275	83.8%	(2,040,566)	113,804	1,126,240	1,240,044	21.84%	4,836	15,315	20,151	250,675	11,780	282,606	1,080,504	819,928	0	10,579,739
2032	10,579,739	12,498,358	84.6%	(1,918,619)	97,574	1,187,064	1,284,638	21.79%	3,982	14,446	18,428	261,495	10,149	290,072	1,106,344	821,325	0	10,584,792
2033	10,584,792	12,361,001	85.6%	(1,776,209)	82,882	1,248,661	1,331,543	21.73%	3,063	13,840	16,903	272,441	8,788	298,132	1,119,365	821,937	0	10,585,496
2034	10,585,496	12,196,938	86.8%	(1,611,442)	69,811	1,311,064	1,380,875	21.70%	2,486	13,100	15,586	284,064	7,457	307,107	1,133,954	822,198	0	10,580,847
2035	10,580,847	12,002,413	88.2%	(1,421,566)	58,434	1,374,116	1,432,550	21.66%	2,006	12,478	14,484	295,806	6,303	316,593	1,146,061	822,162	0	10,573,541
2036	10,573,541	11,777,854	89.8%	(1,204,313)	48,549	1,437,799	1,486,348	21.64%	1,635	11,939	13,574	308,072	5,202	326,848	1,150,936	822,272	0	10,571,725
2037	10,571,725	11,528,663	91.7%	(956,938)	40,050	1,502,168	1,542,218	21.63%	1,234	11,608	12,842	320,740	4,318	337,900	1,161,101	822,644	0	10,571,168
2038	10,571,168	11,247,591	94.0%	(676,423)	32,781	1,567,632	1,600,413	21.63%	960	11,309	12,269	333,900	3,521	349,690	1,162,120	823,555	0	10,582,293
2039	10,582,293	10,941,789	96.7%	(359,496)	26,634	1,634,414	1,661,048	21.80%	664	11,181	11,845	350,263	2,990	365,098	1,155,557	825,996	0	10,617,830
2040	10,617,830	10,617,399	100.0%	431	21,471	1,702,444	1,723,915	0.25%	517	3,793	4,310	0	2,413	6,723	1,147,870	800,827	0	10,277,510
2041	10,277,510	10,274,242	100.0%	3,268	17,178	1,771,709	1,788,887	0.02%	358	0	358	0	1,968	2,326	1,139,767	773,774	0	9,913,843
2042	9,913,843	9,911,381	100.0%	2,462	13,624	1,842,622	1,856,246	0.02%	371	0	371	0	1,485	1,856	1,114,234	745,749	0	9,547,214
2043	9,547,214	9,545,484	100.0%	1,730	10,719	1,915,410	1,926,129	0.01%	193	0	193	0	1,156	1,349	1,093,214	717,294	0	9,172,643
2044	9,172,643	9,171,723	100.0%	920	8,380	1,990,270	1,998,650	0.01%	200	0	200	0	999	1,199	1,071,260	688,257	0	8,790,839
										Total from 2015 & After:	$817,547	$7,361,834	$594,027	$8,773,408				

TRS Level Dollar
Expected Contribution Rates



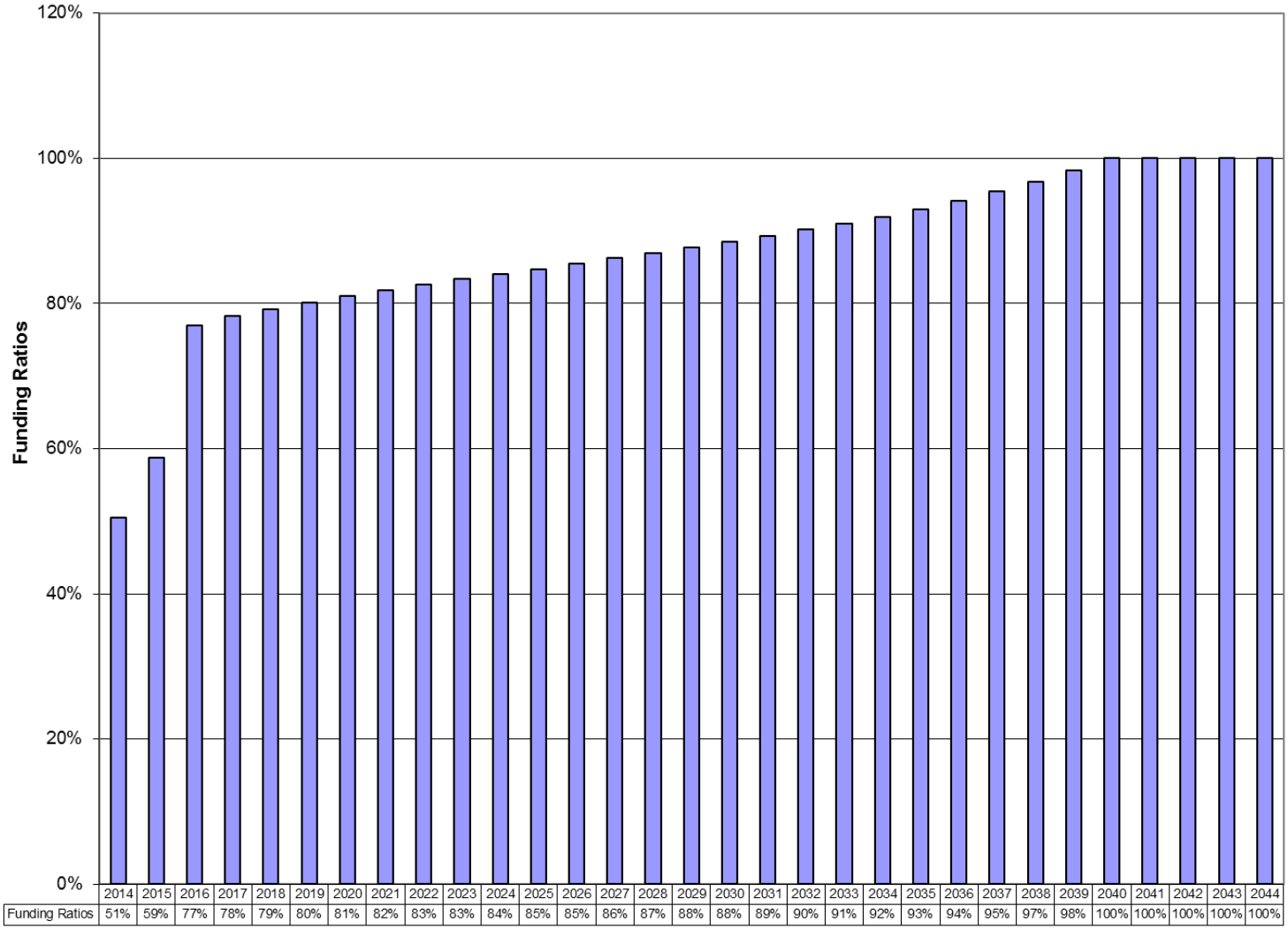
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
DB EE Contributions	5.7	5.3	4.9	4.5	4.1	3.7	3.3	3.0	2.7	2.4	2.1	1.8	1.6	1.3	1.1	0.9	0.8	0.7	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0
State Assistance	25.0	23.9	23.2	22.5	21.8	21.2	20.6	19.9	19.4	18.9	18.3	17.8	17.2	16.6	16.1	15.5	14.9	14.4	13.8	13.3	12.7	12.1	11.5	10.6	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DCR Pay	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DB Pay-NC	4.6	4.1	3.6	3.2	2.8	2.5	2.2	1.9	1.6	1.3	1.1	0.9	0.7	0.6	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DB Pay-Unf	3.0	2.9	2.8	2.7	2.5	2.3	2.2	2.0	1.9	1.7	1.5	1.3	1.2	1.0	0.9	0.8	0.6	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0

TRS Level Dollar
Expected Contribution Amounts



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
DB EE Contributions	45	42	40	38	35	33	31	28	26	24	22	20	17	15	14	12	10	9	7	6	5	4	4	3	2	2	1	1	1
State Assistance	195	191	191	190	190	190	190	190	191	192	192	192	192	192	193	192	192	191	191	190	189	187	184	176	0	0	0	0	0
DB ER Contributions on DCR Pay	2	2	2	2	3	3	3	3	4	4	4	5	5	5	6	6	6	6	7	7	7	8	8	9	0	0	0	0	0
DB ER Contributions on DB Pay-NC	36	33	30	27	25	22	20	18	15	14	12	10	8	7	6	5	4	3	2	2	2	1	1	1	1	0	0	0	0
DB ER Contributions on DB Pay-Unf	24	24	23	23	22	21	20	19	18	17	16	15	13	12	11	9	8	7	6	5	4	4	3	3	0	0	0	0	0

TRS Level Dollar Funding Ratio



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Funding Ratios	51%	59%	77%	78%	79%	80%	81%	82%	83%	83%	84%	85%	85%	86%	87%	88%	88%	89%	90%	91%	92%	93%	94%	95%	97%	98%	100%	100%	100%	100%	100%

TRS Level Dollar Financial Projections

State of Alaska TRS
Financial Projections (in Thousands)
Based on 2013 Actuarial Valuation Results Projected Forward, Considering Changes under HB 385 and SB 119
Level Dollar Amortization over Closed 25 year period from FY15, Assets Re-initialized to Fair Value, 2-Year Lag Eliminated
New Assumptions with Final FY16 State Budgeted Contributions

FY14 Investment Return 17.70%

Valuation Amounts on July 1 (Beginning of Fiscal Year)					Flow Amounts During Following 12 Months													
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	DB Salaries	DCR Salaries	Total Salaries	Employer/State Ctb Rate	E'r Normal Cost Contribs	E'r Contribs to Unfunded Liability	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets
2014	$4,974,076	$9,839,806	50.6%	($4,865,730)	$529,536	$211,442	$740,978	50.10%	$48,830	$18,226	$67,056	$316,847	$51,187	$435,090	$516,869	$924,115	$171,042	$5,987,454
2015	5,987,454	10,187,219	58.8%	(4,199,765)	503,235	256,098	759,333	329.70%	48,597	15,290	63,887	2,000,000	51,974	2,115,861	582,338	557,766	0	8,078,743
2016	8,078,743	10,487,584	77.0%	(2,408,841)	476,863	302,426	779,289	32.89%	36,159	25,308	61,467	194,841	50,063	306,371	612,959	640,169	0	8,412,324
2017	8,412,324	10,746,676	78.3%	(2,334,352)	450,173	350,311	800,484	31.18%	32,980	25,384	58,364	191,227	47,998	297,589	646,231	664,948	0	8,728,630
2018	8,728,630	11,018,830	79.2%	(2,290,200)	423,854	399,147	823,001	29.89%	29,957	25,355	55,312	190,683	45,903	291,898	676,250	688,729	0	9,033,007
2019	9,033,007	11,274,510	80.1%	(2,241,503)	397,824	449,026	846,850	28.65%	27,269	25,032	52,301	190,322	43,855	286,478	703,431	711,695	0	9,327,749
2020	9,327,749	11,519,332	81.0%	(2,191,583)	371,680	499,783	871,463	27.49%	24,750	24,532	49,282	190,283	41,828	281,393	733,219	733,805	0	9,609,728
2021	9,609,728	11,748,067	81.8%	(2,138,339)	345,274	551,817	897,091	26.37%	22,338	23,898	46,236	190,327	39,748	276,311	769,769	754,610	0	9,870,880
2022	9,870,880	11,952,348	82.6%	(2,081,468)	319,231	604,996	924,227	25.27%	19,871	23,370	43,241	190,311	37,721	271,273	803,534	773,866	0	10,112,485
2023	10,112,485	12,129,351	83.4%	(2,016,866)	293,779	659,063	952,842	24.18%	17,628	22,698	40,326	190,071	28,490	258,887	832,306	791,474	0	10,330,540
2024	10,330,540	12,288,123	84.1%	(1,957,583)	268,189	714,505	982,694	23.23%	15,428	21,972	37,400	190,880	26,238	254,518	861,452	807,540	0	10,531,146
2025	10,531,146	12,426,232	84.7%	(1,895,086)	243,251	771,114	1,014,365	22.34%	13,592	20,970	34,562	192,047	23,939	250,548	885,838	822,442	0	10,718,298
2026	10,718,298	12,536,950	85.5%	(1,818,652)	218,790	828,660	1,047,450	21.38%	11,627	20,162	31,789	192,156	21,787	245,732	918,335	835,846	0	10,881,541
2027	10,881,541	12,617,728	86.2%	(1,736,187)	194,653	887,273	1,081,926	20.45%	9,846	19,216	29,062	192,192	19,583	240,837	958,891	846,989	0	11,010,476
2028	11,010,476	12,660,608	87.0%	(1,650,132)	172,075	946,365	1,118,440	19.58%	8,276	18,258	26,534	192,457	17,448	236,439	988,930	855,863	0	11,113,848
2029	11,113,848	12,668,708	87.7%	(1,554,860)	151,026	1,006,007	1,157,033	18.71%	6,942	17,258	24,200	192,281	15,389	231,870	1,014,010	862,879	0	11,194,587
2030	11,194,587	12,650,498	88.5%	(1,455,911)	131,578	1,066,100	1,197,678	17.92%	5,869	16,201	22,070	192,554	13,534	228,158	1,039,607	868,114	0	11,251,252
2031	11,251,252	12,598,275	89.3%	(1,347,023)	113,804	1,126,240	1,240,044	17.12%	4,836	15,315	20,151	192,145	11,780	224,076	1,080,504	870,729	0	11,265,553
2032	11,265,553	12,498,358	90.1%	(1,232,805)	97,574	1,187,064	1,284,638	16.38%	3,982	14,446	18,428	191,996	10,149	220,573	1,106,344	870,630	0	11,250,412
2033	11,250,412	12,361,001	91.0%	(1,110,589)	82,882	1,248,661	1,331,543	15.65%	3,063	13,840	16,903	191,483	8,788	217,174	1,119,365	868,710	0	11,216,931
2034	11,216,931	12,196,938	92.0%	(980,007)	69,811	1,311,064	1,380,875	14.95%	2,486	13,100	15,586	190,855	7,457	213,898	1,133,954	865,256	0	11,162,131
2035	11,162,131	12,002,413	93.0%	(840,282)	58,434	1,374,116	1,432,550	14.28%	2,006	12,478	14,484	190,084	6,303	210,871	1,146,061	860,207	0	11,087,148
2036	11,087,148	11,777,854	94.1%	(690,706)	48,549	1,437,799	1,486,348	13.61%	1,635	11,939	13,574	188,718	5,202	207,494	1,150,936	853,812	0	10,997,518
2037	10,997,518	11,528,663	95.4%	(531,145)	40,050	1,502,168	1,542,218	12.94%	1,234	11,608	12,842	186,721	4,318	203,881	1,161,101	845,986	0	10,886,284
2038	10,886,284	11,247,591	96.8%	(361,307)	32,781	1,567,632	1,600,413	12.24%	960	11,309	12,269	183,622	3,521	199,412	1,162,120	836,742	0	10,760,318
2039	10,760,318	10,941,789	98.3%	(181,471)	26,634	1,634,414	1,661,048	11.30%	664	11,181	11,845	175,853	2,990	190,688	1,155,557	826,286	0	10,621,735
2040	10,621,735	10,617,399	100.0%	4,336	21,471	1,702,444	1,723,915	0.03%	517	0	517	0	2,413	2,930	1,147,870	800,991	0	10,277,786
2041	10,277,786	10,274,242	100.0%	3,544	17,178	1,771,709	1,788,887	0.02%	358	0	358	0	1,968	2,326	1,139,767	773,796	0	9,914,141
2042	9,914,141	9,911,381	100.0%	2,760	13,624	1,842,622	1,856,246	0.02%	371	0	371	0	1,485	1,856	1,114,234	745,773	0	9,547,536
2043	9,547,536	9,545,484	100.0%	2,052	10,719	1,915,410	1,926,129	0.01%	193	0	193	0	1,156	1,349	1,093,214	717,319	0	9,172,990
2044	9,172,990	9,171,723	100.0%	1,267	8,380	1,990,270	1,998,650	0.01%	200	0	200	0	999	1,199	1,071,260	688,284	0	8,791,213
										Total from 2015 & After:	$813,754	$6,564,109	$594,027	$7,971,890				

Questions?

Disclosures

- The analysis in this presentation were developed for the Alaska Retirement Management Board and State of Alaska Staff by Buck Consultants, LLC using generally accepted actuarial principles and techniques in accordance with all applicable Actuarial Standards of Practice (ASOPs).
- The calculations and projections are based on member and financial data, current Board policies, actuarial assumptions and methods, and plan provisions summarized in the 2013 actuarial valuation reports of the Alaska Retirement Systems. Measurements assume actuarial assumptions are exactly realized by future experience, including an investment rate of return of 8.0%.
- No third party recipient of Buck's work product should rely upon Buck's work product absent involvement of Buck or without our approval.
- Future actuarial measurements may differ significantly from the current and projected measurements presented in this report due to such factors as: plan experience different from that anticipated by the economic and demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law. Due to the limited scope of this report, an analysis of the potential range of such future measurements has not been performed.
- David Slishinsky is a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. He is an Associate of the Society of Actuaries, an Enrolled Actuary, and a Fellow of the Conference of Consulting Actuaries. We are available to answer any questions on the material contained in the report, or to provide explanations or further details as may be appropriate.

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State of Alaska

Public Employees' Retirement System And Teachers' Retirement System

Actuarial Experience Study For The Period July 1, 2009 To June 30, 2013

November 2014

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Document Version: 1.0 (July 2014)

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November 7, 2014

Board of Trustees
Alaska Retirement Management Board
Department of Administration
Division of Retirement and Benefits
P.O. Box 110203
Juneau, AK 99811-0203

Dear Members of the Board:

We are submitting our report on the results of the actuarial investigation of the demographic and economic experience of active members and retirees of the State of Alaska Public Employees' Retirement System (PERS) and the Teachers' Retirement System (TRS) for the four-year period July 1, 2009 to June 30, 2013.

The experience investigation was prepared in accordance with generally accepted actuarial practices and best practices, which suggest that the actuary periodically undertake an experience investigation into the mortality, service and compensation experience of the members and retirees of the Systems and that these investigations take place at least every 4 to 6 years. Taking into account the result of such investigation, the Board of Trustees shall adopt for the retirement Systems such mortality, service, and other tables as shall be deemed necessary and shall adopt an actuarial cost method that is in conformity with generally accepted actuarial principles and practices for measuring pension obligations.

The attached report describes the actuarial process employed and identifies the results of the study.

Summary of Recommendations

The results of the experience analysis show that for many assumptions the actual experience of the Systems has deviated from what was expected based on the current assumptions. We recommend that the assumptions be modified in order to better reflect actual experience and future expectations.

A detailed analysis is included in this report. The Table of Contents, which immediately precedes, outlines the material contained in the report.

We would be pleased to discuss the report in detail upon request. We presented the results of this report to the Board at your September meeting. The undersigned is a member of the American Academy of Actuaries and the Society of Actuaries, is fully qualified to provide actuarial services to the State of Alaska and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. We are available to answer questions regarding this report.

Sincerely,

David H. Slishinsky, FCA, ASA, EA, MAAA
Principal, Consulting Actuary

The undersigned actuary is a member of the American Academy of Actuaries and the Society of Actuaries and is responsible for all assumptions related to the average annual per capita health claims cost and the healthcare cost trend rates, and hereby affirms her qualification to render opinions in such matters, in accordance with the Qualification Standards of the American Academy of Actuaries.

Melissa Bissett, FSA, MAAA
Senior Consultant, Health & Productivity

Disclosure: Use of this report for any other purposes or by anyone other than the Alaska Retirement Management Board members and State of Alaska staff may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck Consultants' written consent.

Introduction

Assumptions are a key element in an actuarial valuation. In order to perform an actuarial valuation of the assets and liabilities of the Systems, the actuary must first adopt assumptions with respect to each of the following:

1. Investment return on the Systems' funds over the period benefits to current members will be paid, including inflation during the same period.
2. The relative increases in the salary of a member from the date of the valuation to the date of separation from active service.
3. The expected mortality rates among retired persons (healthy and disabled).
4. The probabilities of members separating from active service on account of withdrawal, death and disability.
5. The ages at which members will retire.
6. The rate at which separating members will elect to receive a refund of their contributions.
7. Assumptions related to number of dependents, marriage at retirement, age of spouse at retirement, etc.
8. Postemployment healthcare assumptions.

Actuarial assumptions are a critical component of an actuarial valuation. The actuarial valuation is the method by which the funding requirement is determined. Actuarial assumptions do not directly impact the total cost of a retirement program, but they are a key variable in determining the timing of that cost and the allocation between current contributions and future investment return. For example, overly conservative assumptions result in increased current cost and decreased future costs. Overly aggressive assumptions result in decreased current cost and increased future costs. The recommended changes in actuarial assumptions reflect both the most recent experience as well as future expected experience.

Based on Alaska Statute 37.10.220(a)(9), the Alaska Retirement Management Board requests an actuarial experience study at least every four years. The purpose of this study is to measure actual Systems experience since June 30, 2009, compare this experience to current assumptions and recommend changes to the assumptions. The last study was performed in 2009 for PERS and TRS and assumptions were adopted by the ARM Board in December 2010.

The objectives of this investigation are to:

- Determine appropriate rates to anticipate the following events among active members:
  - termination from employment;
  - mortality during active service;
  - disability retirement;
  - normal retirement;
  - early retirement; and
  - salary increases.

- Determine appropriate rates to anticipate mortality among retirements and disability retirements.

- Make recommendations regarding the adoption of refinements to the actuarial basis of the Systems, which are deemed appropriate by the actuary for adoption by the Board.

- Make recommendations regarding the development of postemployment healthcare methodology and assumptions.

Methodology

Data is supplied annually to the actuary by the State of Alaska Department of Administration, Retirement and Benefits Division, for purposes of the actuarial valuation report. This data includes demographic characteristics of the current and past membership, including any changes in the members' status or relationship with the Systems. The data also includes a salary history for active members. These demographic changes and salary history are the basis for the experience review.

Tabulations were compiled which show the distribution by age of the liability of members who were exposed during the four-year period to the events of termination from employment, retirement, death and disability. A member is considered exposed to an event if he meets the age and service requirements for that event. All tabulations have been weighted by the liability for each member. The assumed rates of occurrence for each event, which are currently used in the annual actuarial valuations, were then applied to the liability of members exposed to determine the liability of members expected to separate from service for each category.

The actual number of members who separated from service due to termination from employment, retirement, death or disability were then compared to the expected liability. In some instances, higher numbers of actual members compared to expected is favorable for the financial experience of the Systems and in others, this is unfavorable. Data is generally grouped by age in five year increments to provide statistically significant results.

The expected and actual salaries as of the end of each year were also compared to actual salaries as of the end of each previous year. The comparisons show an average annual total increase in both expected and actual salaries for the four-year period.

The results of the experience review are the basis for the actuary's recommendation of assumption changes. In recommending assumptions, the actuary must also take into account benefit changes. If a change in benefit levels or benefit eligibility was made during the analysis period, the actuary should consider the impact the change has on the data used in the analysis. There have been no significant changes in Alaska plan benefits during the analysis period.

In addition to comparing actual to expected experience and adjusting the results for special plan benefits and economic conditions, the actuary must consider future expectations of experience due to future plan changes or changes in the economy.

To summarize, the actuary's recommendation of assumptions is based on the following:

- comparison of actual to expected experience,
- adjustment for special plan benefits and past economic conditions, and
- adjustment for future plan changes and economic conditions.

Generally, actuarial assumptions are selected with a slight margin for adverse experience so that the financial strength of the Systems can be maintained.

Actuarial standard of practice No. 27

The Actuarial Standards Board standard entitled **Selection of Economic Assumptions for Measuring Pension Obligations**, was issued in 1996. This standard provides guidance to actuaries in selecting reasonable economic assumptions, and amplifies those provisions of Actuarial Standard of Practice No. 4, **Measuring Pension Obligations**, that relate to economic assumptions. In addition, this standard is meant to provide information to enhance non-actuaries' understanding of the process by which actuaries select these economic assumptions. Because the future is unpredictable with respect to economic contingencies, an actuary must use professional judgment to estimate possible future outcomes based on past experience and trends, and to select assumptions based on that judgment. According to the standard, an actuary's best-estimate assumption is generally represented by a range for each economic assumption, and select point from within that range. The methods described in Actuarial Standard of Practice No. 27 include the construction of assumption ranges, evaluation of reasonableness and consistency, and specific considerations that apply to individual assumptions.

Actuarial standard of practice No. 35

The Actuarial Standards Board standard entitled **Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations**, was issued in 1999. This standard expands upon and clarifies those sections of Actuarial Standard of Practice No. 4, **Measuring Pension Obligations**, which are not financial in nature. This standard provides guidelines for determining reasonable assumptions for use in a pension valuation. According to the standard, "A reasonable assumption is one that is expected to appropriately model the contingency being measured and is not anticipated to produce significant cumulative actuarial gains or losses over the measurement period." Improving computer technology has helped actuaries to collect and share data related to demographic assumptions, and this has enabled them to detail individually reasonable assumptions for specific factors. The methods described in Actuarial Standard of Practice No. 35 include the selection of assumptions, evaluation of reasonableness, and specific considerations that apply to individual assumptions.

The precepts of Actuarial Standard of Practice No.'s 4, 27 and 35 have been followed in the experience analysis investigation disclosed in this report.

Sections I, II and III show the results of this study. Section IV discusses the proposed funding method change. Section V illustrates the effect of recommended assumption changes on the June 30, 2013 valuations. The schedules in Section VI document the current and proposed actuarial assumptions.

Section 1 Demographic Assumptions

This section compares the actual experience with respect to the demographic assumptions over the last four years.

A. Mortality During Active Service and After Termination

The table below shows the liability for actual and expected member deaths during the four-year investigation period which ended June 30, 2013. “Current expected” means the expected deaths using current assumptions. “New expected” means the expected deaths using the new proposed assumptions. The experience for PERS and TRS was separated to study the mortality experience. Actual deaths greater than expected deaths indicates a conservative mortality assumption.

Pre-termination Mortality					
	Current Expected	Actual	A/CE	New Expected	A/NE
PERS Others					
Females	$10,460,523	$13,213,615	126%	$12,915,153	102%
Males	$21,706,465	$16,007,885	74%	$16,018,578	100%
PERS Peace Officer/Firefighter					
Females	$288,567	$257,389	89%	$345,421	75%
Males	$3,408,529	$705,099	21%	$2,434,826	29%
TRS					
Females	$6,928,529	$4,388,887	63%	$5,047,790	87%
Males	$4,933,426	$5,956,303	121%	$4,752,578	125%

Recommendation: The current expected mortality rates for PERS Others females and TRS males were lower than the actual experience. We have recommended a slight increase in the mortality rates. The current expected mortality rates for PERS Others males and TRS females during active service were higher than the actual experience, and we have recommended a decrease in the mortality rates to reflect this experience. We did not feel that there was enough credible data for the PERS Peace Officer/Firefighters to use to set their pre-termination mortality assumption. We recommend using the same tables as PERS Others. It is typical to see active service mortality lower than rates for a published table such as the current table.

Pre-termination Mortality		
	Current	Proposed
PERS Others	75% of the male and 55% of the female rates of the 1994 GAM Table, 1994 Base Year without margin projected to 2013 with Projection Scale AA	60% of the male and 65% of the female rates of the proposed post-termination healthy mortality
PERS Peace Officer / Firefighter	80% of the male and 60% of the female rates of the 1994 GAM Table, 1994 Base Year without margin projected to 2013 with Projection Scale AA	60% of the male and 65% of the female rates of the proposed post-termination healthy mortality
TRS	45% of the male and 55% of the female rates of the 1994 GAM Table, 1994 Base Year without margin projected to 2013 with Projection Scale AA	68% of the male and 65% of the female rates of the proposed post-termination healthy mortality

Post-termination Mortality					
	Current Expected	Actual	A/CE	New Expected	A/NE
PERS Others					
Females	$116,522,719	$107,178,124	92%	$98,938,054	108%
Males	$171,682,681	$164,795,831	96%	$149,501,553	110%
PERS Peace Officer/Firefighter					
Females	$4,955,801	$5,048,344	102%	$4,253,895	119%
Males	$41,217,252	$29,289,897	71%	$35,757,499	82%
TRS					
Females	$81,207,214	$76,282,978	94%	$69,783,251	109%
Males	$90,294,320	$92,569,372	103%	$84,317,526	110%

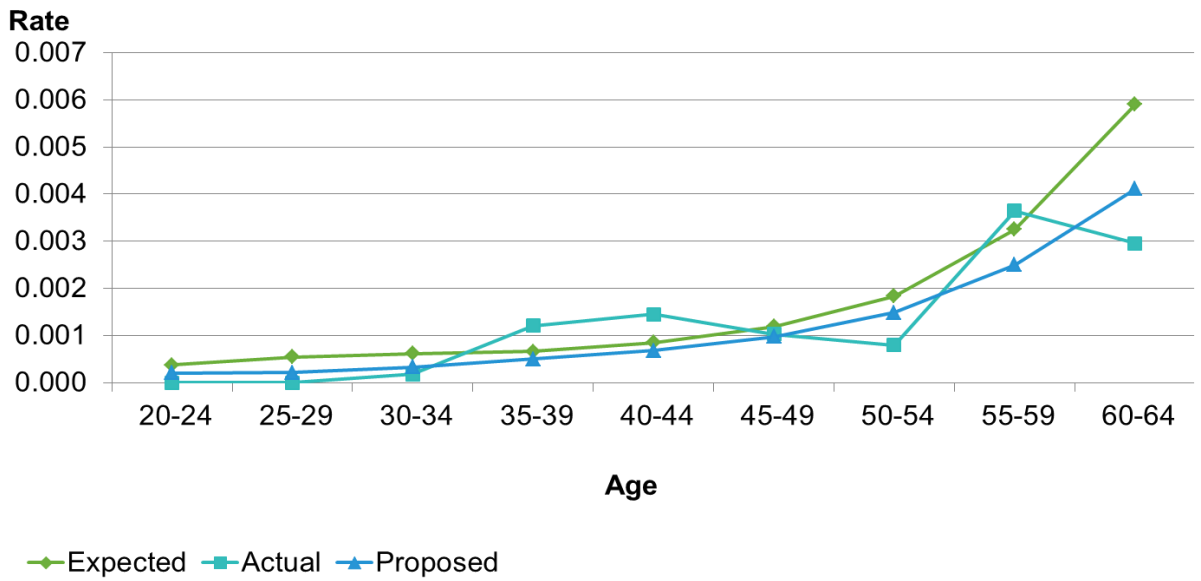
The mortality experience for all members except PERS Peace Officer/Firefighter females and TRS males during retirement was lower than we expected. A common way to apply an improvement to mortality rates is to apply a setback to a published table. A 1-year setback means that a 66-year old would have an expected rate of a 65-year old. A 1-year set-forward means that a 66-year old would have an expected rate of a 67-year old. Our analysis includes mortality of beneficiaries receiving survivor annuities.

Recommendation: The recommended rates include a margin for future life expectancy improvements. We will typically recommend a margin in proposed rates that results in 5% - 15% fewer expected deaths than actual experience to reflect expected future mortality improvement. We recommend lowering the rates for all groups.

Post-termination Mortality		
	Current	Proposed
PERS	1994 GAM Table, 1994 Base Year without margin projected to 2013 with Projection Scale AA, with 1-year set-forward for females	96% of all rates of RP-2000, 2000 Base Year projected to 2018 with Projection Scale BB
TRS	1994 GAM Table, 1994 Base Year without margin projected to 2013 with Projection Scale AA, with a 4-year setback for males and 3-year setback for females	94% of the male and 97% of the female rates of RP-2000, 2000 Base Year projected to 2018 with Projection Scale BB, with a 3-year setback for males and 4-year setback for females

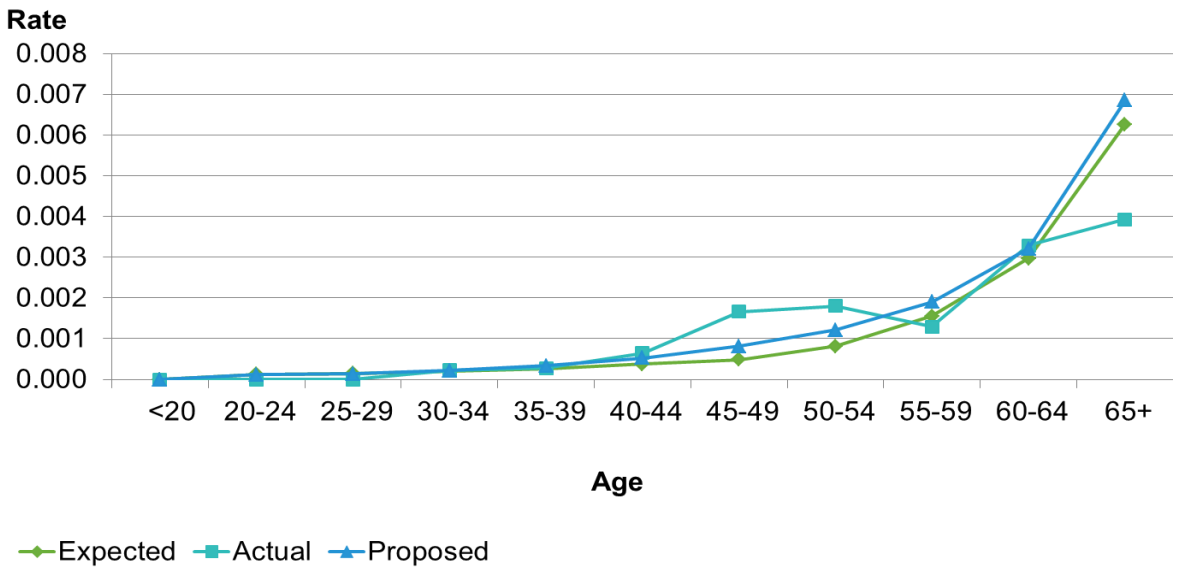
The graphs on the next pages compare the actual mortality rates for PERS and TRS to the old and new assumptions at each age.

PERS Others
Healthy Pre-termination Mortality
Female



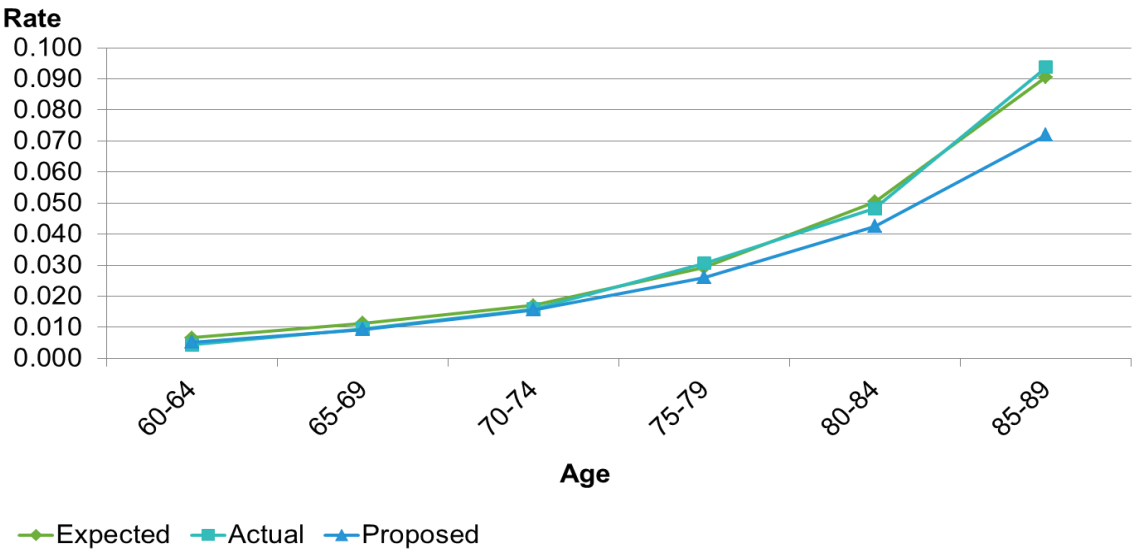
Experience:
Current % Actual Expected: 126.32%
Proposed % Actual/Expected: 102.31%

PERS Others
Healthy Pre-termination Mortality
Male



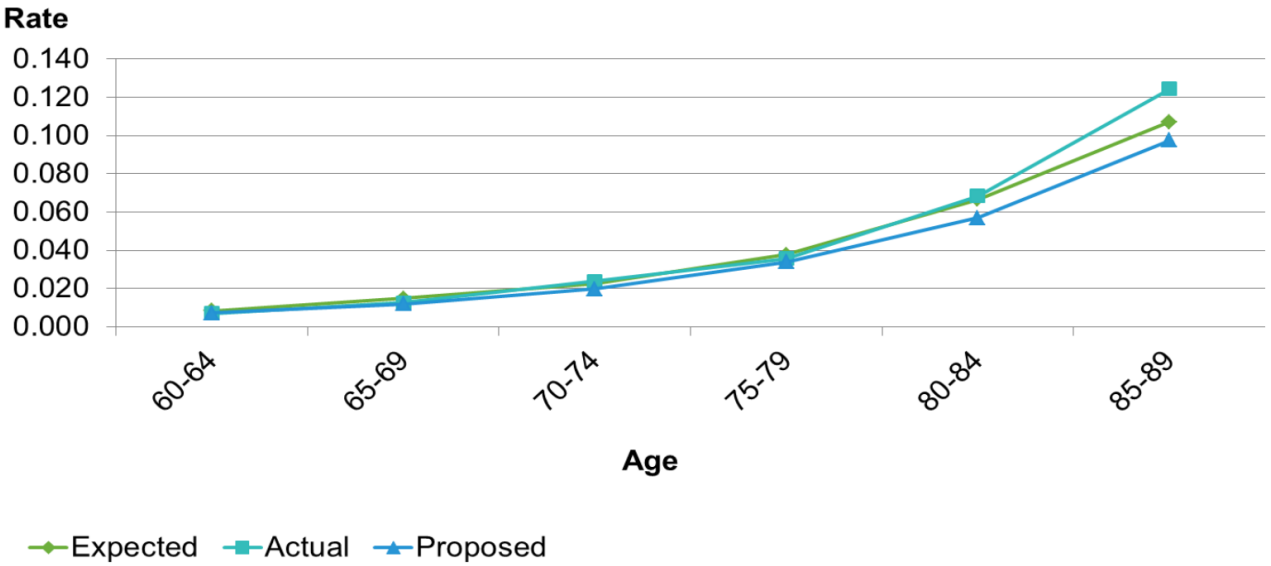
Experience:
Current % Actual Expected: 73.75%
Proposed % Actual/Expected: 99.93%

PERS Others
Healthy Post-termination Mortality
Female



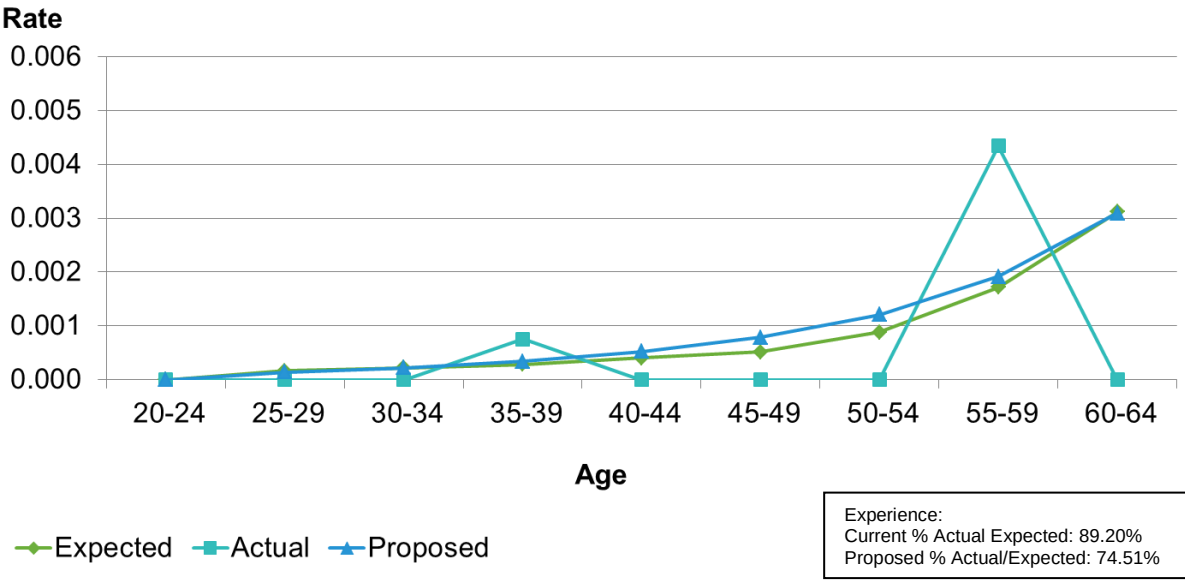
Experience:
Current % Actual Expected: 91.98%
Proposed % Actual/Expected: 108.33%

PERS Others
Healthy Post-termination Mortality
Male



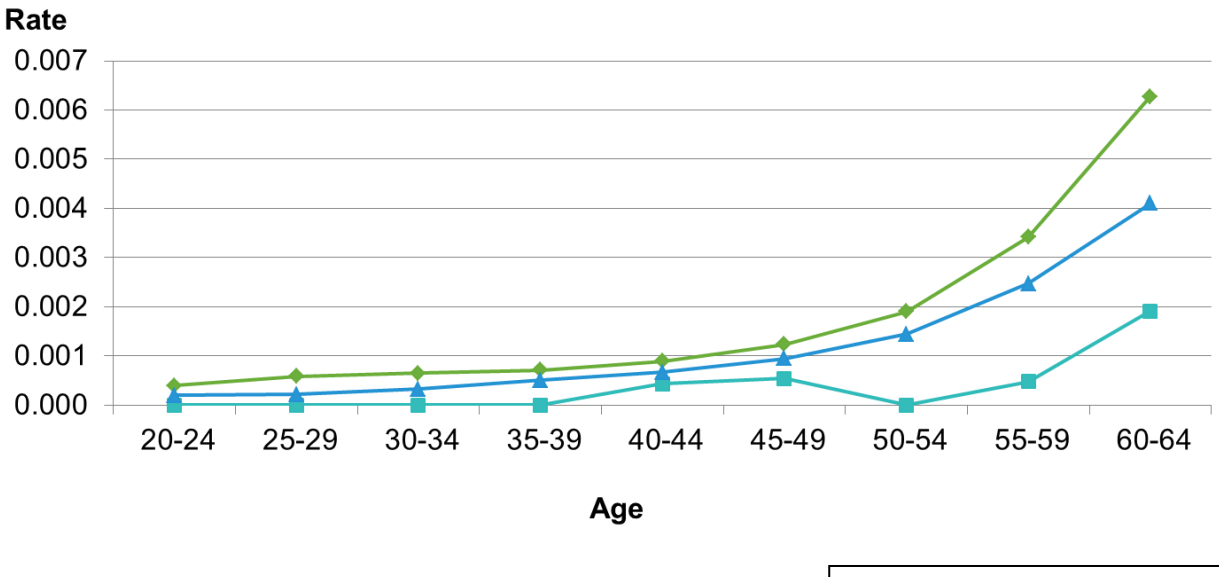
Experience:
Current % Actual Expected: 95.99%
Proposed % Actual/Expected: 110.23%

PERS Peace Officer / Firefighter
Healthy Pre-termination Mortality
Female



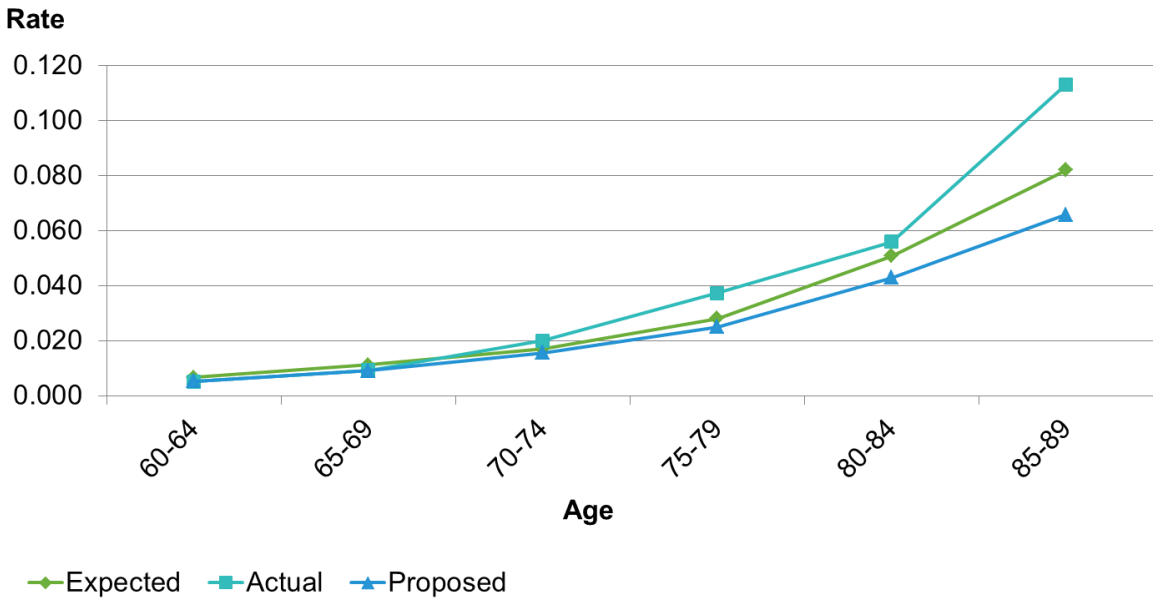
Experience:
Current % Actual Expected: 89.20%
Proposed % Actual/Expected: 74.51%

PERS Peace Officer / Firefighter
Healthy Pre-termination Mortality
Male



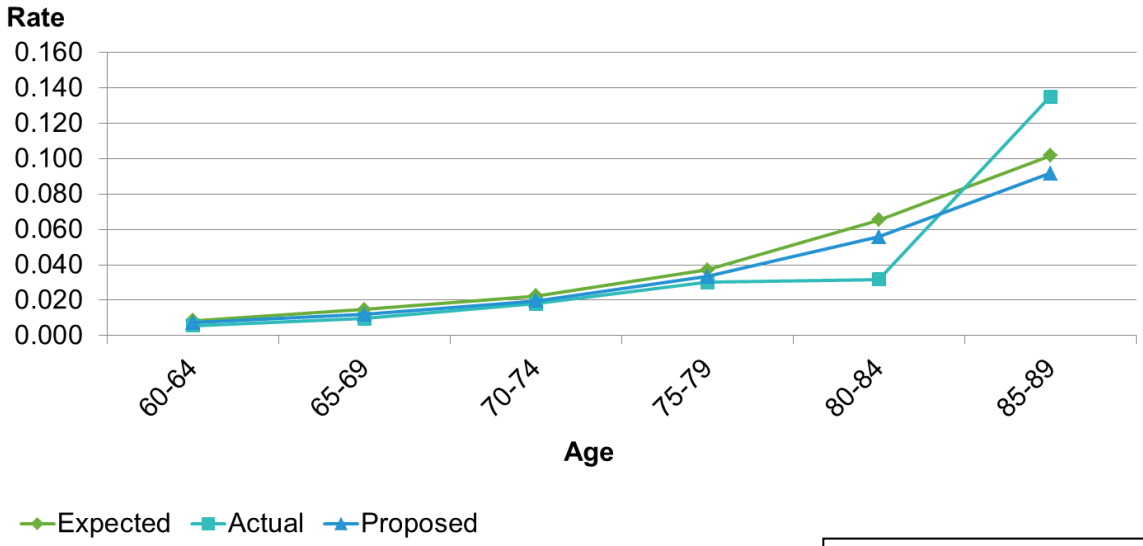
Experience:
Current % Actual Expected: 20.69%
Proposed % Actual/Expected: 28.96%

PERS Peace Officer / Firefighter
Healthy Post-termination Mortality
Female



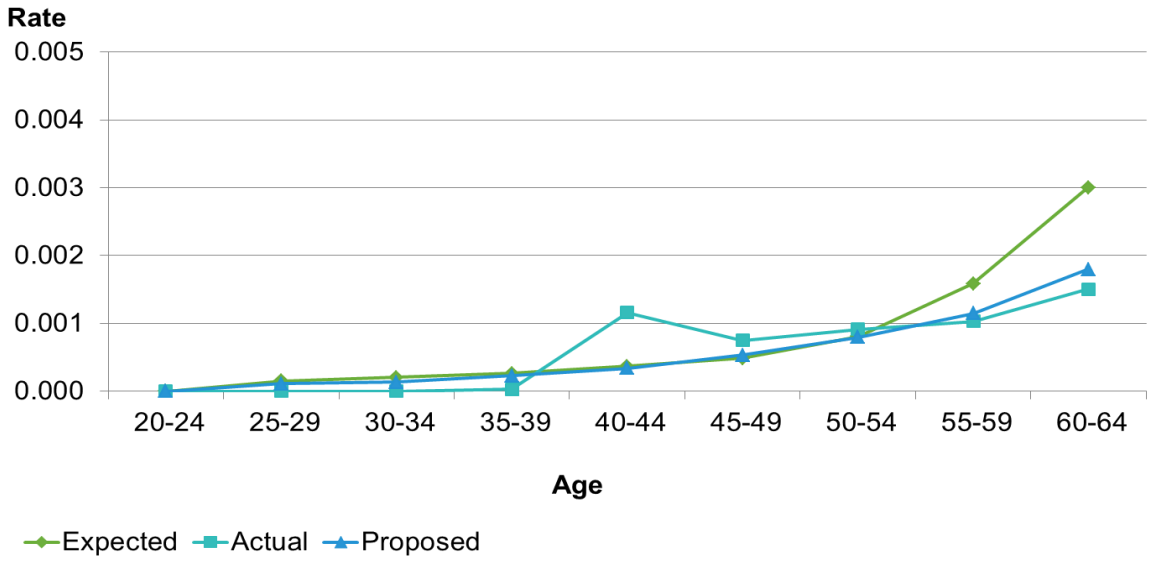
Experience:
Current % Actual Expected: 101.87%
Proposed % Actual/Expected: 118.68%

PERS Peace Officer / Firefighter
Healthy Post-termination Mortality
Male



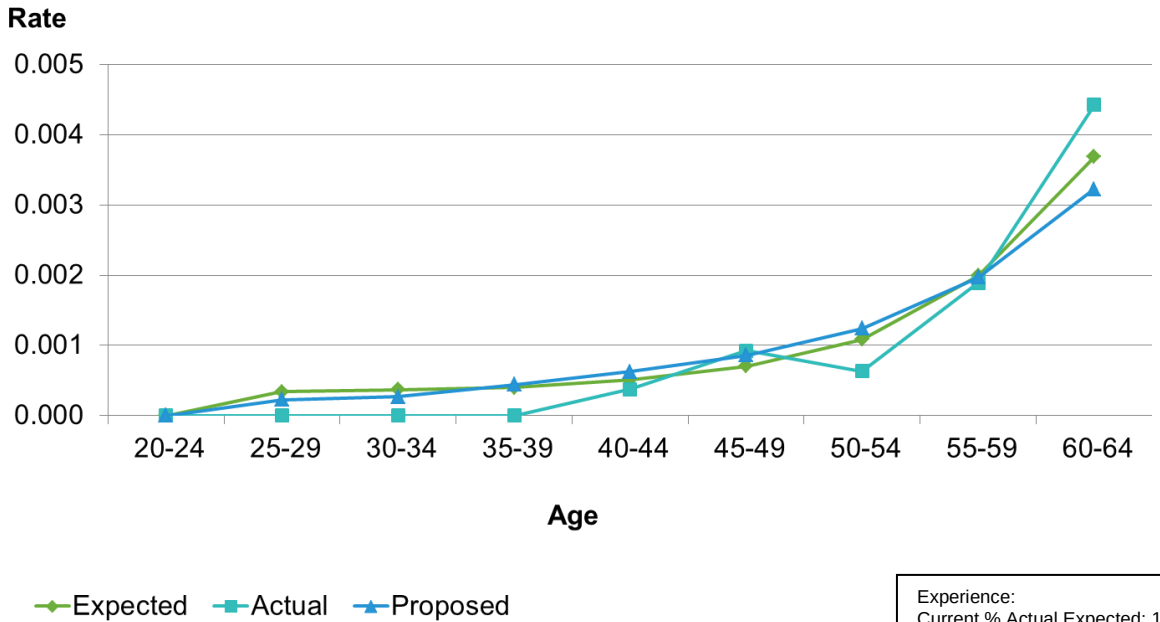
Experience:
Current % Actual Expected: 71.06%
Proposed % Actual/Expected: 81.91%

TRS
Healthy Pre-termination Mortality
Female



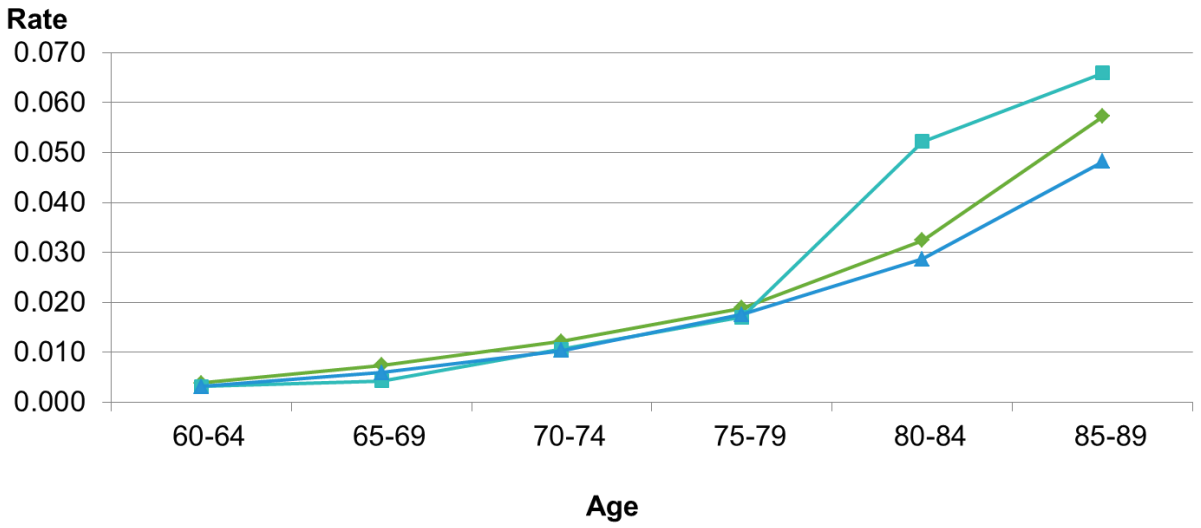
Experience:
Current % Actual Expected: 63.35%
Proposed % Actual/Expected: 86.95%

TRS
Healthy Pre-termination Mortality
Male



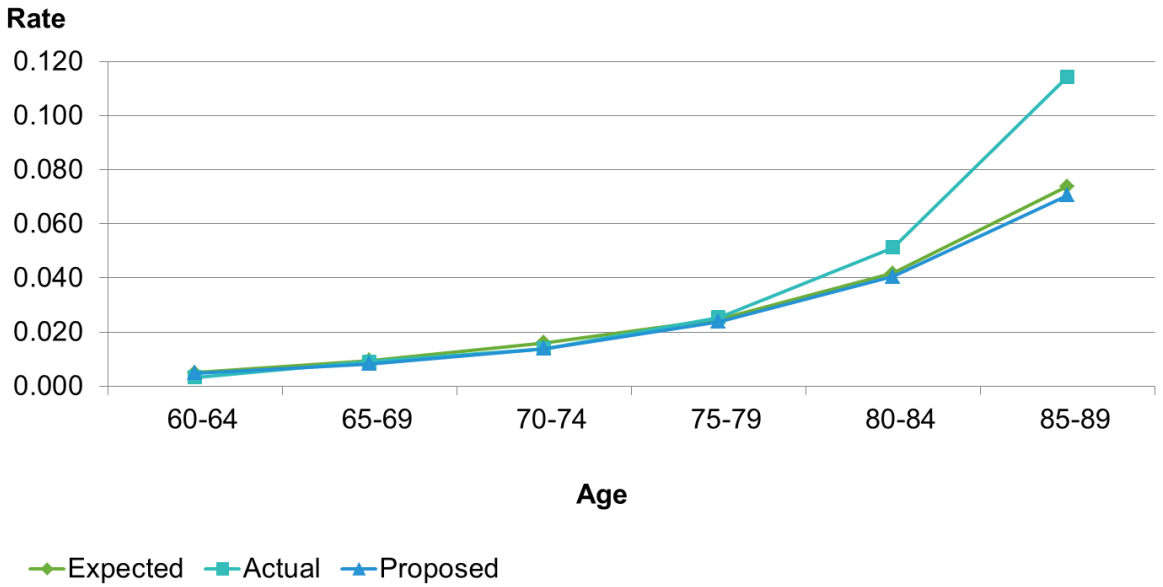
Experience:
Current % Actual Expected: 120.74%
Proposed % Actual/Expected: 125.33%

TRS
Healthy Post-termination Mortality
Female



Experience:
Current % Actual Expected: 93.94%
Proposed % Actual/Expected: 109.31%

TRS
Healthy Post-termination Mortality
Male



Experience:
Current % Actual Expected: 102.52%
Proposed % Actual/Expected: 109.79%

B. Mortality After Disability Retirement

The table below shows the liability of actual and expected member deaths during the study among disabled retirees. “Current expected” means the expected deaths using current assumptions. “New expected” means the expected deaths using the new proposed assumptions. Actual deaths greater than expected deaths indicates a conservative assumption.

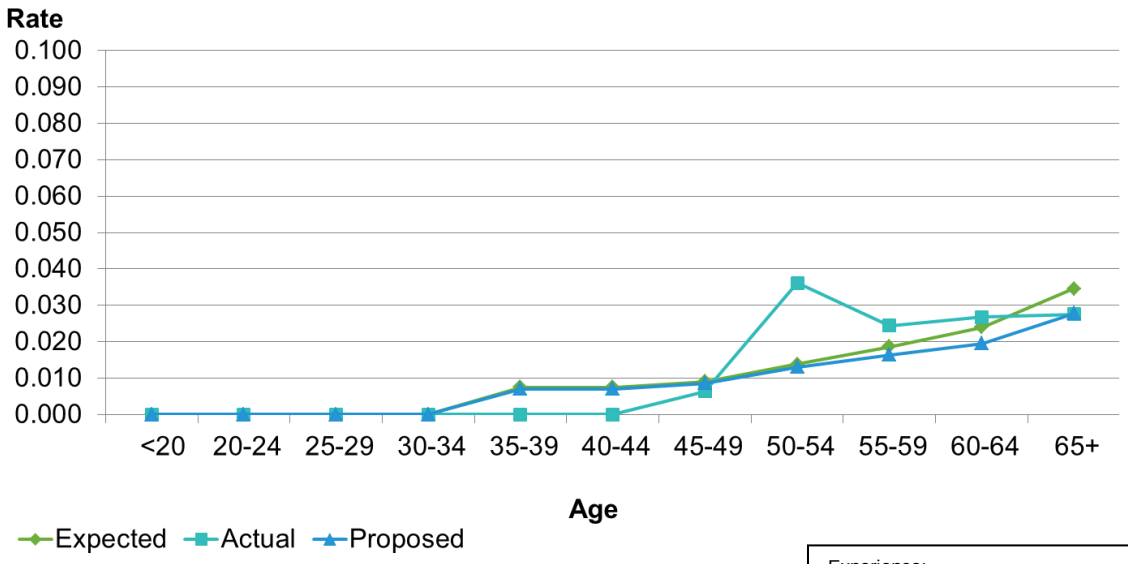
Post-retirement Disability Mortality					
	Current Expected	Actual	A/CE	New Expected	A/NE
PERS Others					
Females	$4,219,921	$5,203,847	123%	$3,589,571	145%
Males	$14,328,795	$6,642,723	46%	$12,371,997	54%
PERS Peace Officer/Firefighter					
Females	$541,860	$615,866	114%	$469,514	131%
Males	$6,010,520	$1,952,263	32%	$5,205,207	38%
TRS					
Females	$3,723,064	$3,464,865	93%	$3,086,033	112%
Males	$4,456,713	$2,136,011	48%	$3,639,312	59%

This assumption has very little impact on the valuation.

Recommendation: Since there are few disabled retirees, we have very little experience. Therefore, we recommend updating this table to a more current disabled mortality table.

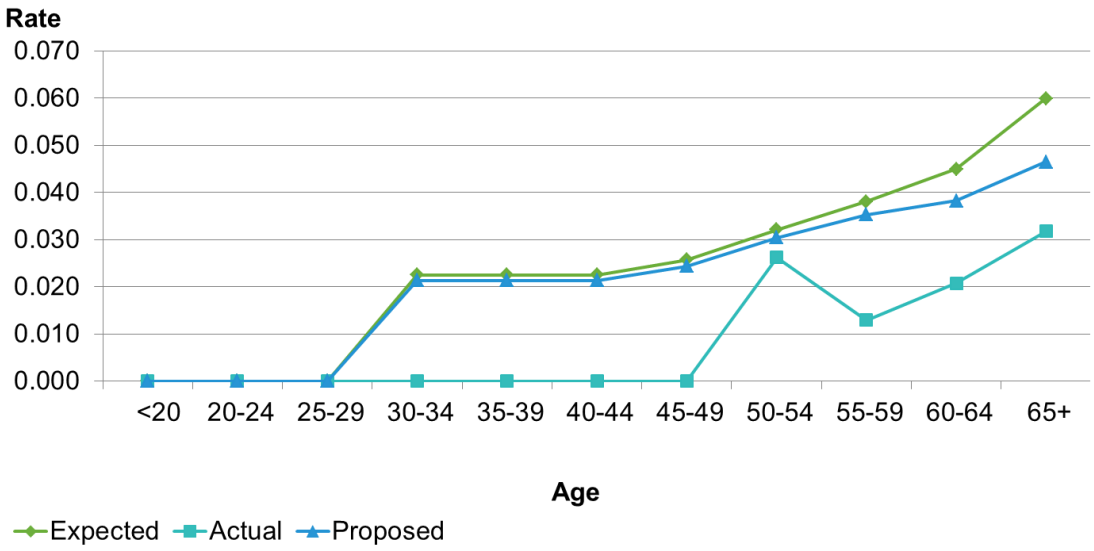
Post-retirement Disability Mortality		
	Current	Proposed
PERS	RP-2000 Disabled Retiree Table	RP-2000 Disabled Retiree Table, 2000 Base Year projected to 2018 with Projection Scale BB
TRS	RP-2000 Disabled Retiree Table	RP-2000 Disabled Retiree Table, 2000 Base Year projected to 2018 with Projection Scale BB

PERS Others
Disabled Mortality
Female



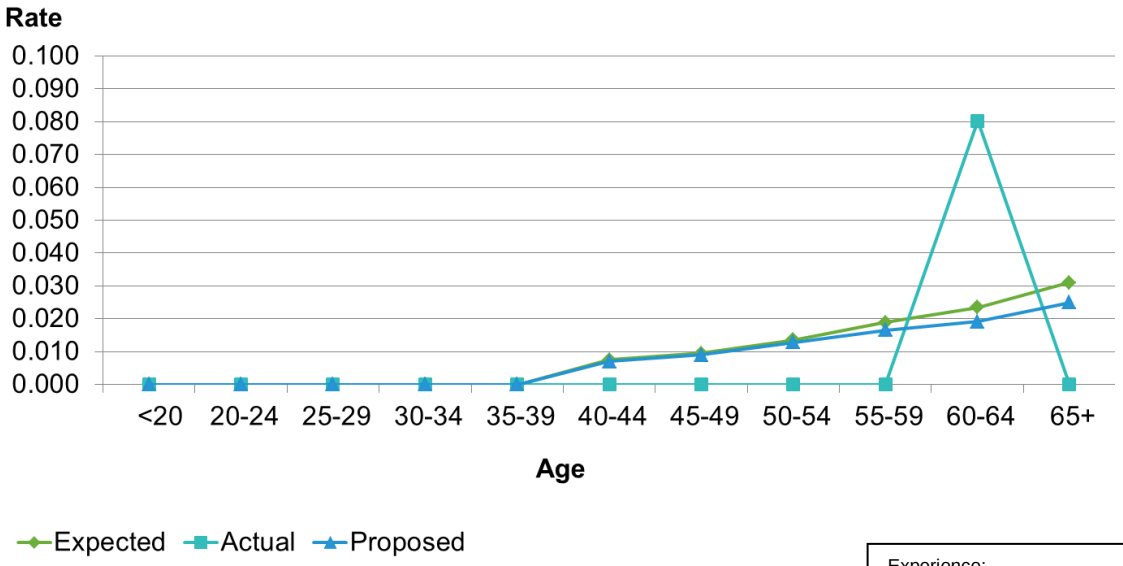
Experience:
Current % Actual Expected: 123.33%
Proposed % Actual/Expected: 144.97%

PERS Others
Disabled Mortality
Male



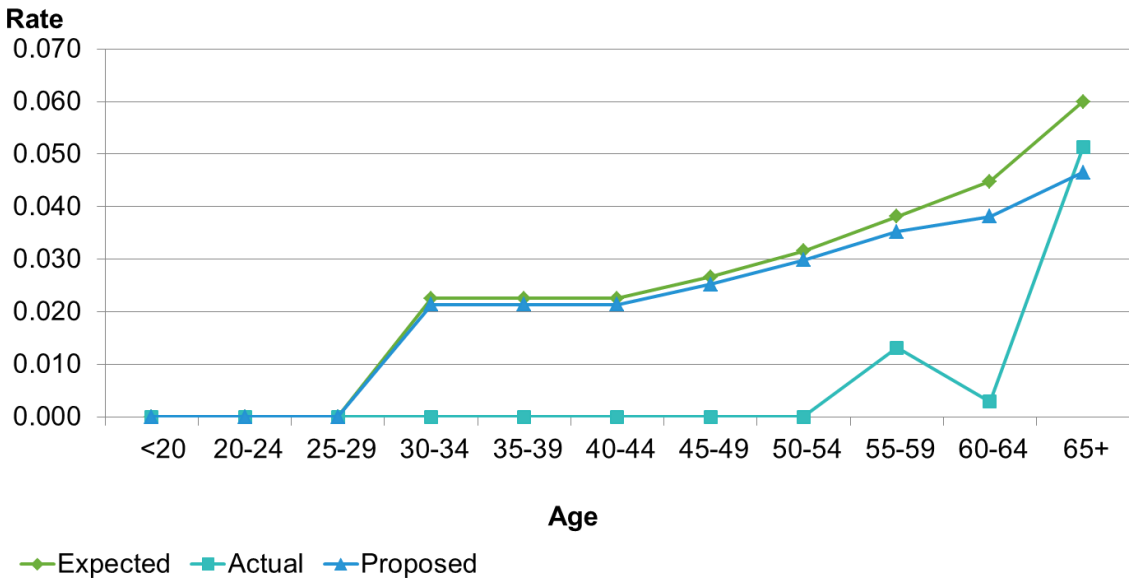
Experience:
Current % Actual Expected: 46.36%
Proposed % Actual/Expected: 53.69%

PERS Peace Officer / Firefighter
Disabled Mortality
Female



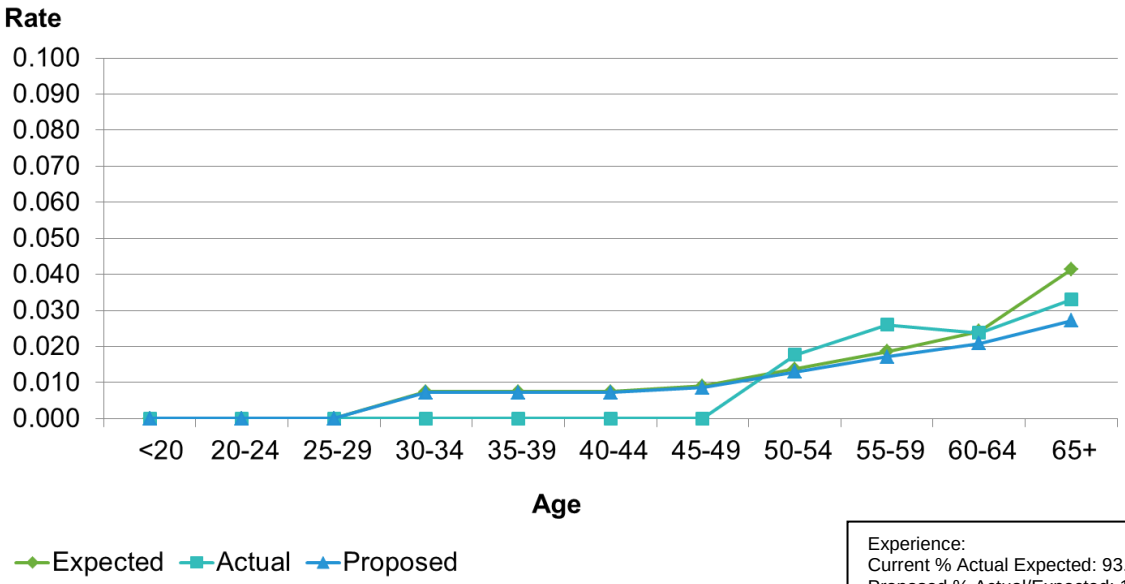
Experience:
Current % Actual Expected: 113.66%
Proposed % Actual/Expected: 131.17%

PERS Peace Officer / Firefighter
Disabled Mortality
Male



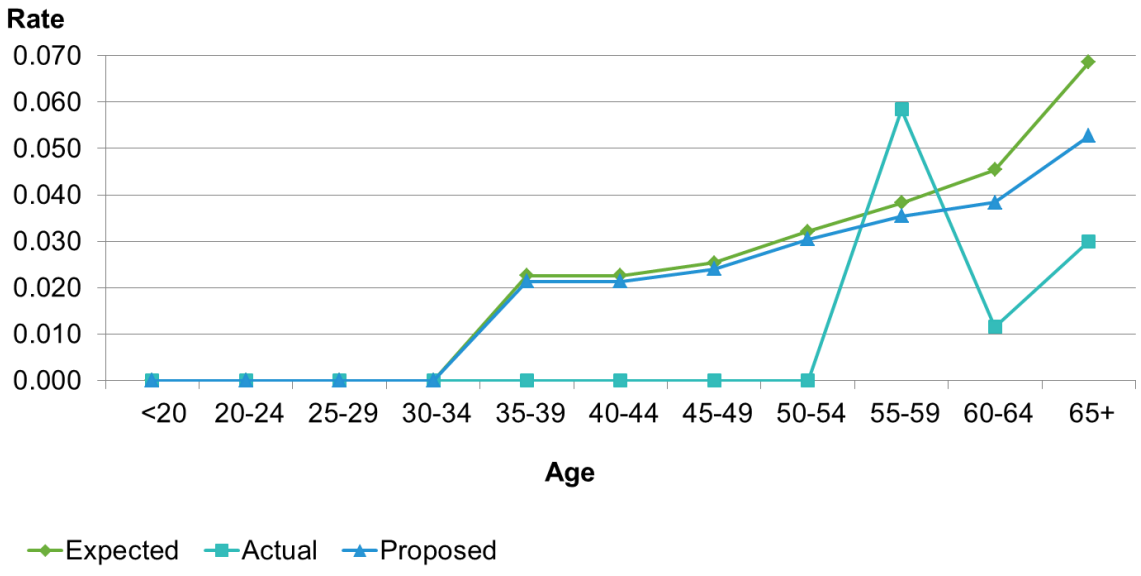
Experience:
Current % Actual Expected: 32.48%
Proposed % Actual/Expected: 37.51%

TRS
Disabled Mortality
Female



Experience:
Current % Actual Expected: 93.06%
Proposed % Actual/Expected: 112.28%

TRS
Disabled Mortality
Male



Experience:
Current % Actual Expected: 47.93%
Proposed % Actual/Expected: 58.69%

C. Withdrawal from Service Before Retirement

We reviewed the assumption for withdrawal from service before retirement. The assumption for withdrawal uses a "select and ultimate" table. During the select period (the first five years of an employee's career for PERS (eight years for TRS)), the withdrawal assumption is based on years of service and gender. After the select period (the "ultimate period"), the withdrawal assumptions are based on age and gender. Low withdrawal rates produce higher liabilities. Therefore, low termination rates are more conservative.

The tables below show the expected liability for members who terminated employment based on current assumptions, the actual number of withdrawals, and the expected number of withdrawals based on the proposed assumptions. "Current expected" means the expected withdrawals using current assumptions. "New expected" means the expected withdrawals using the new proposed assumptions. The results are as follows:

	Females					Males				
	Current Expected	Actual	A/CE	New Expected	A/NE	Current Expected	Actual	A/CE	New Expected	A/NE
PERS Others										
Years less than 5										
-Hire Age Under 35	$3,959,653	$3,273,287	83%	$3,168,812	103%	$3,459,369	$2,280,528	66%	$2,250,359	101%
-Hire Age Over 35	$11,114,337	$10,486,778	94%	$10,016,295	105%	$7,902,220	$6,533,791	83%	$6,392,737	102%
Years 5+	$195,863,691	$140,997,255	72%	$141,520,365	100%	$144,325,375	$109,659,404	76%	$109,863,641	100%
PERS – Peace Officer/Firefighter										
Years less than 5	$210,567	$260,027	123%	$222,607	117%	$1,337,713	$1,346,512	101%	$1,330,693	101%
Years 5+	$7,880,382	$6,586,366	84%	$6,288,338	105%	$42,337,767	$24,448,516	58%	$24,092,642	101%
TRS										
Years less than 8	$19,658,924	$20,913,391	106%	$19,658,924	106%	$8,030,908	$10,189,154	127%	$9,637,089	106%
Years 8+	$64,948,802	$55,589,718	86%	$58,716,377	95%	$35,165,661	$25,874,792	74%	$25,238,613	103%

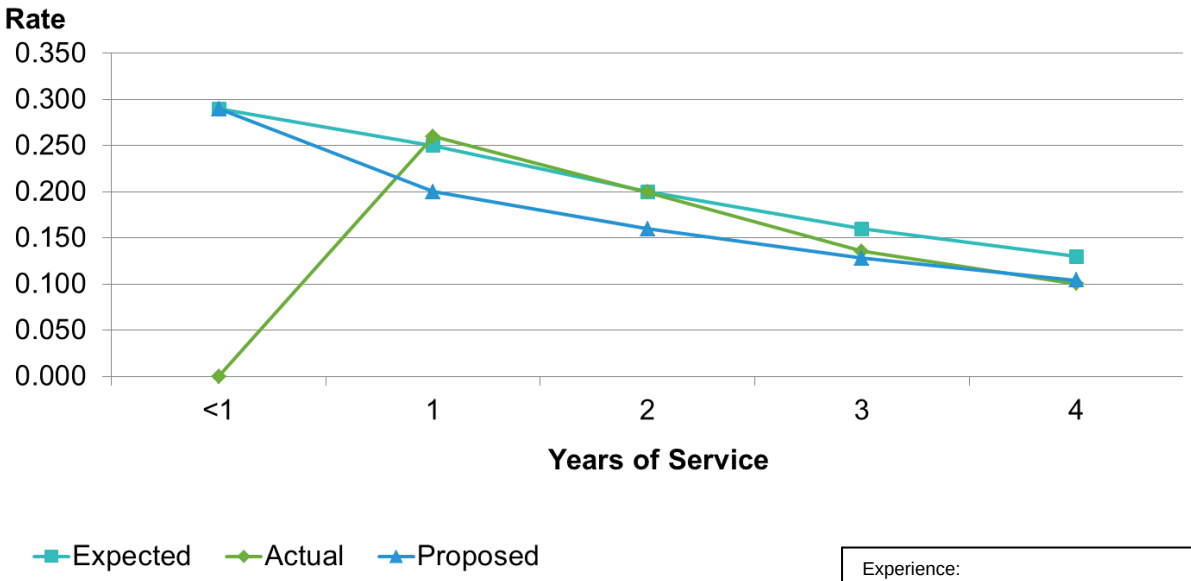
The current rates are based on the actual withdrawal experience from 2005 to 2009. Actual terminations exceeded expected terminations for nearly all groups except for PERS Others members. We typically recommend withdrawal rates with a margin for conservatism. This should offset actuarial losses that is often experienced due to new entrants with prior service or rehires who repay refunded contributions to reinstate prior service credit.

Recommendation: We recommend changing to sex-distinct rates for the select period rates and decreasing these select termination rates for all members except for PERS Pease Officer/Firefighter females and TRS members. We recommend no change to the TRS female select rates. We recommend decreasing most ultimate withdrawal rates. We believe the length of the select period is reasonable since it is tied to the vesting schedule.

Withdrawal from Service Before Retirement		
	Current	**Proposed**
PERS Others	• Unisex select rates in first 5 years grading down with different scales pre/post age 35 hires • Sex-distinct age based rates after first 5 years of service	• Generally lowered all rates • Sex-distinct rates for both select and ultimate rates • Select rates different for pre/post age 35 hires
PERS Peace Officer / Firefighter	• Unisex select rates in first 5 years grading down from 15% to 6% • Sex-distinct, age based rates after first 5 years of service	• Sex distinct select rates in first 5 years grading down from 15% to 6.5% • Decreased most ultimate rates
TRS	• Unisex select rates in first 8 years grading down from 17% to 6% • Sex-distinct age based rates after first 8 years of service	• Sex-distinct select rates in first 8 years grading down from 20% to 6% for males, no change to female rates • Decreased male and female ultimate rates for most ages

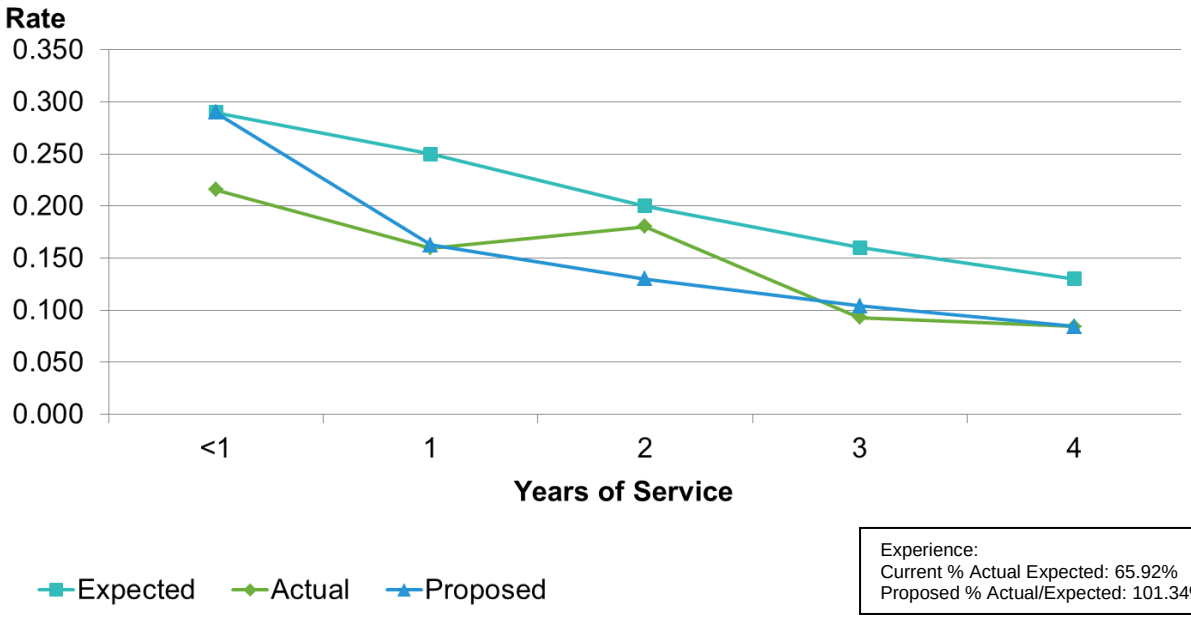
Graphs on the following pages show the “select and ultimate” experience and current and proposed assumptions.

PERS Others
Withdrawal Rates (Select)
Hire age under 35
Female



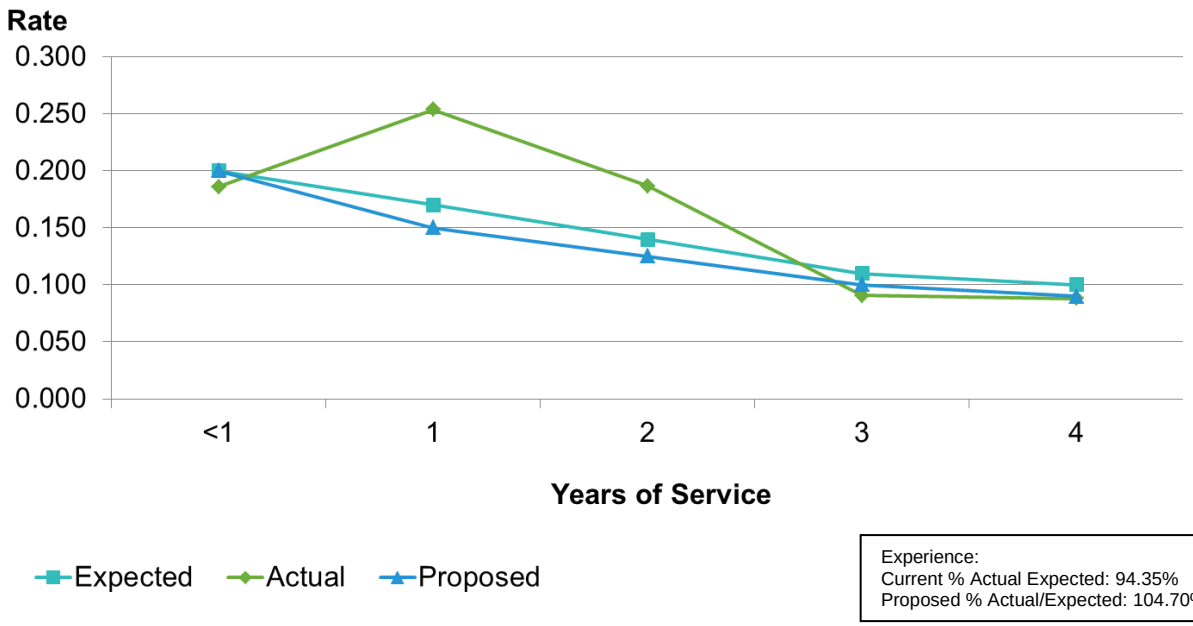
Experience:
Current % Actual Expected: 82.67%
Proposed % Actual/Expected: 103.30%

PERS Others
Withdrawal Rates (Select)
Hire age under 35
Male



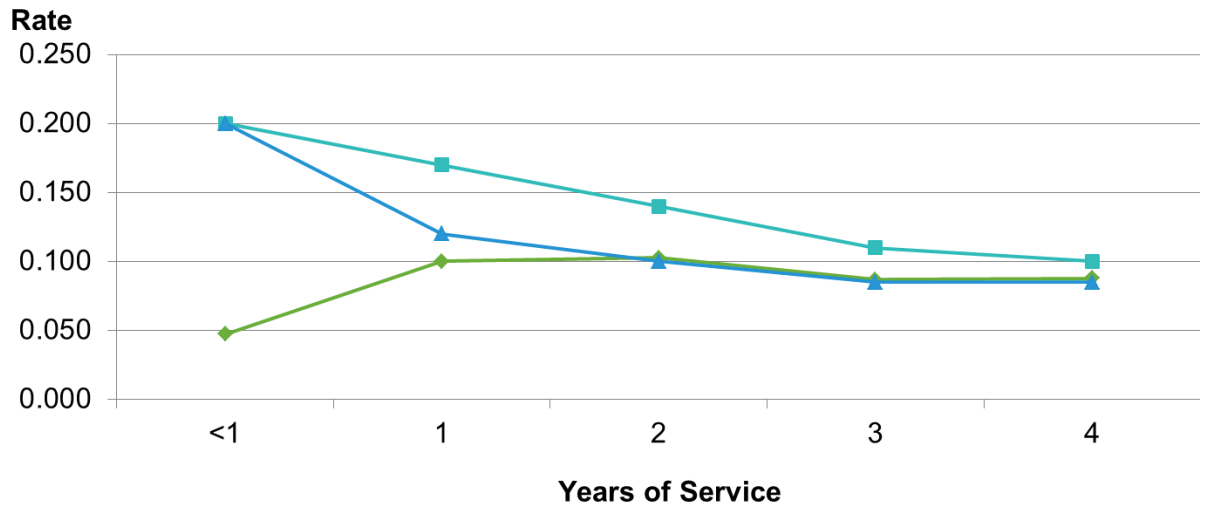
Experience:
Current % Actual Expected: 65.92%
Proposed % Actual/Expected: 101.34%

PERS Others
Withdrawal Rates (Select)
Hire age over 35
Female



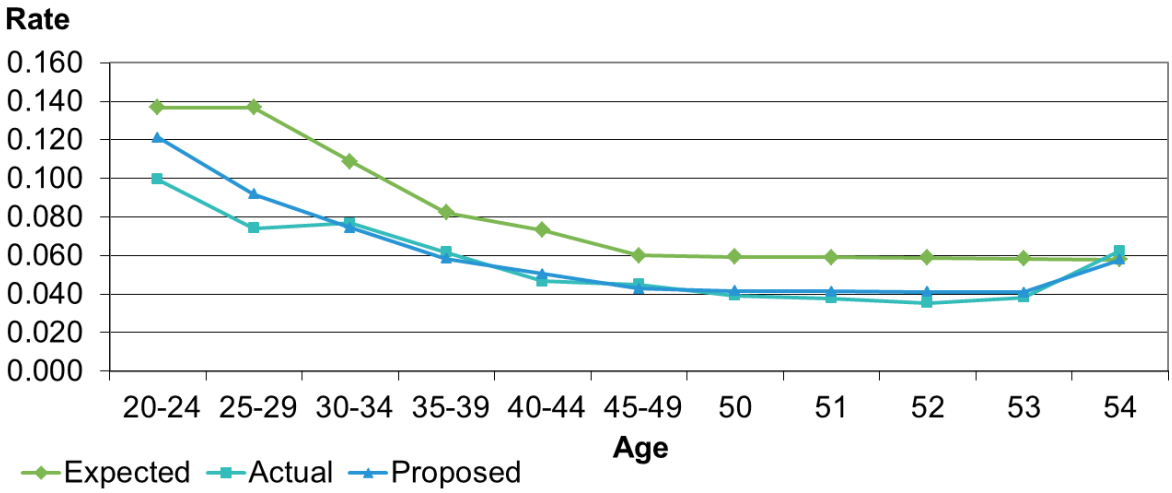
Experience:
Current % Actual Expected: 94.35%
Proposed % Actual/Expected: 104.70%

PERS Others
Withdrawal Rates (Select)
Hire age over 35
Male



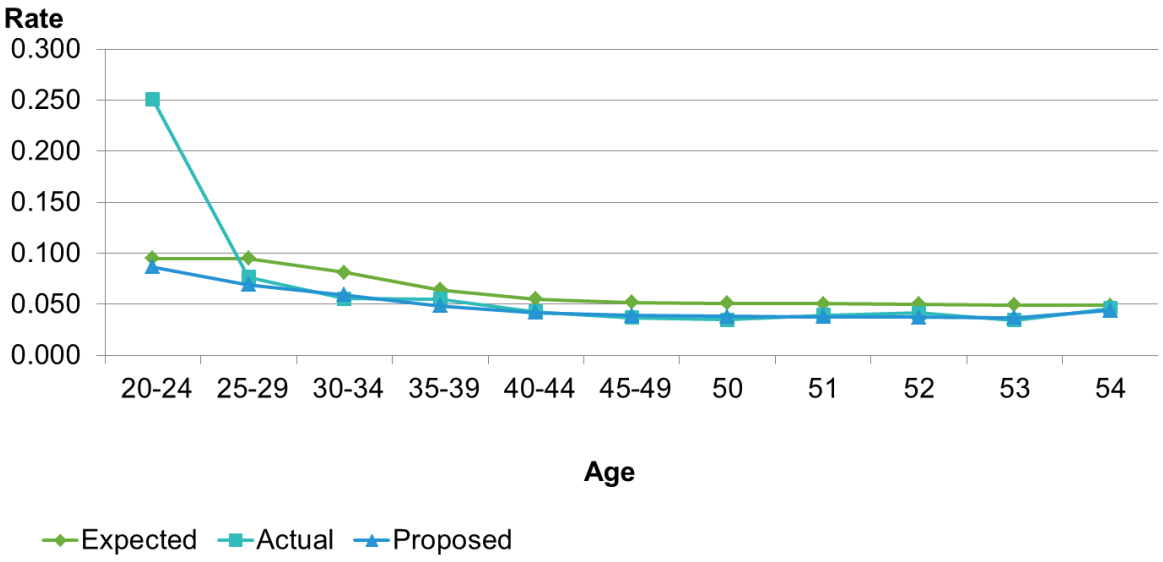
Experience:
Current % Actual Expected: 82.68%
Proposed % Actual/Expected: 102.21%

PERS Others
Withdrawal Rates (Ultimate)
Female



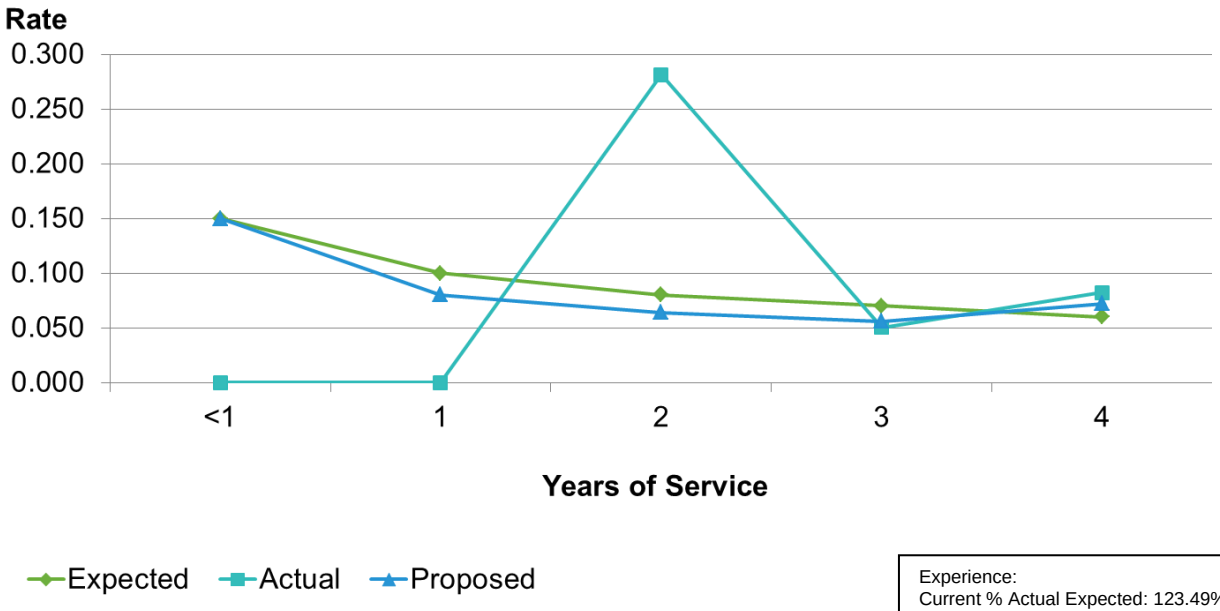
Experience:
Current % Actual Expected: 71.99%
Proposed % Actual/Expected: 99.63%

PERS Others
Withdrawal Rates (Ultimate)
Male



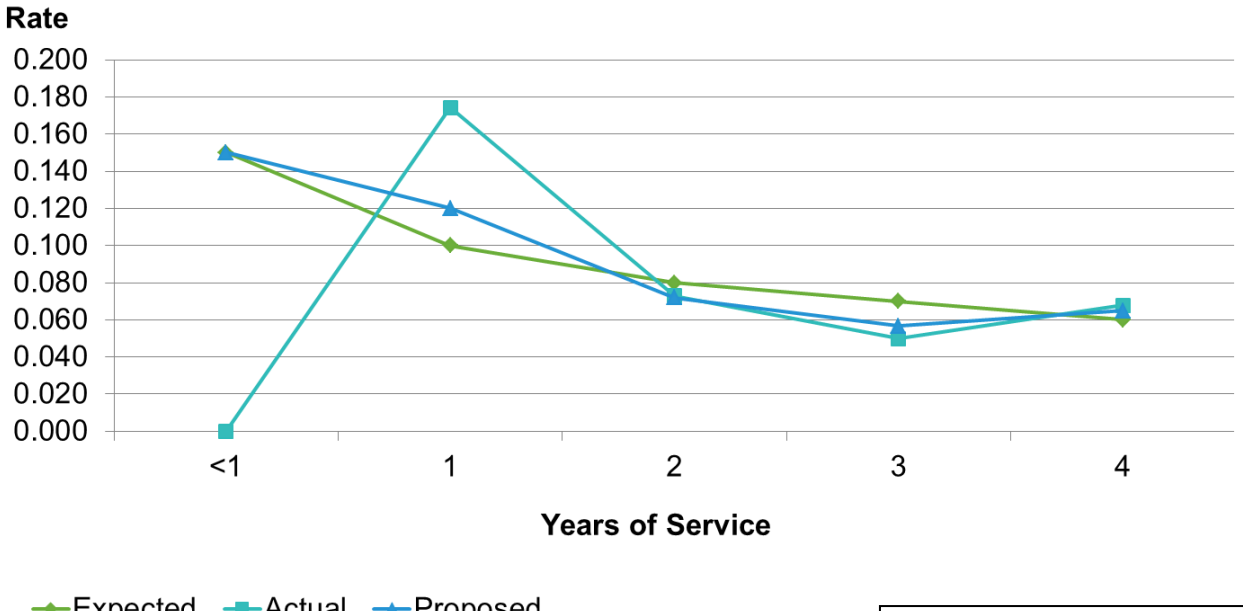
Experience:
Current % Actual Expected: 75.98%
Proposed % Actual/Expected: 99.81%

PERS Peace Officer / Firefighter
Withdrawal Rates (Select)
Female



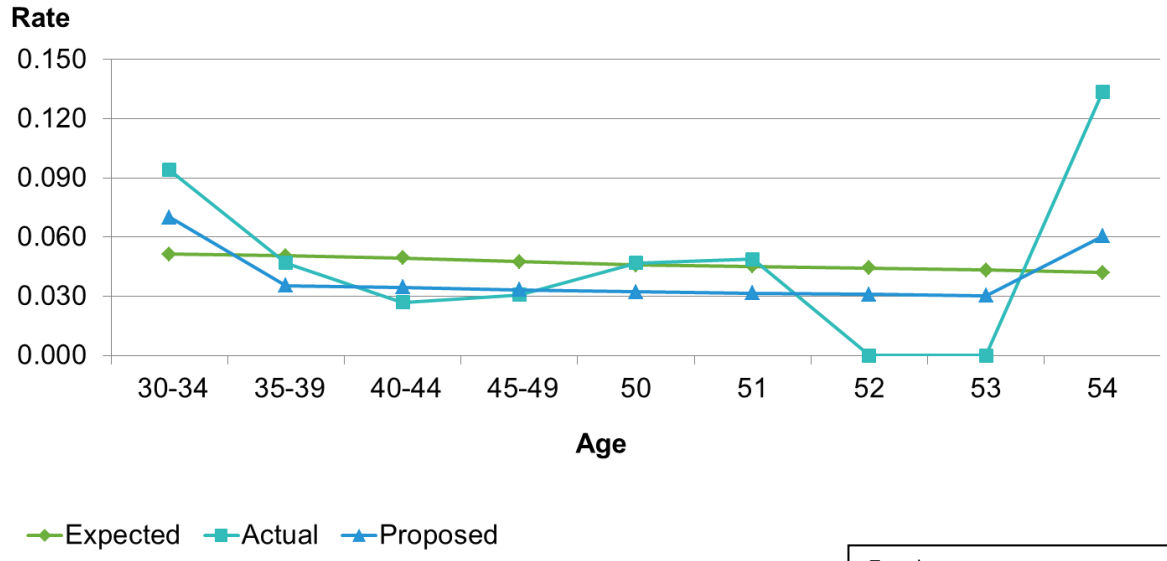
Experience:
Current % Actual Expected: 123.49%
Proposed % Actual/Expected: 116.81%

PERS Peace Officer / Firefighter
Withdrawal Rates (Select)
Male



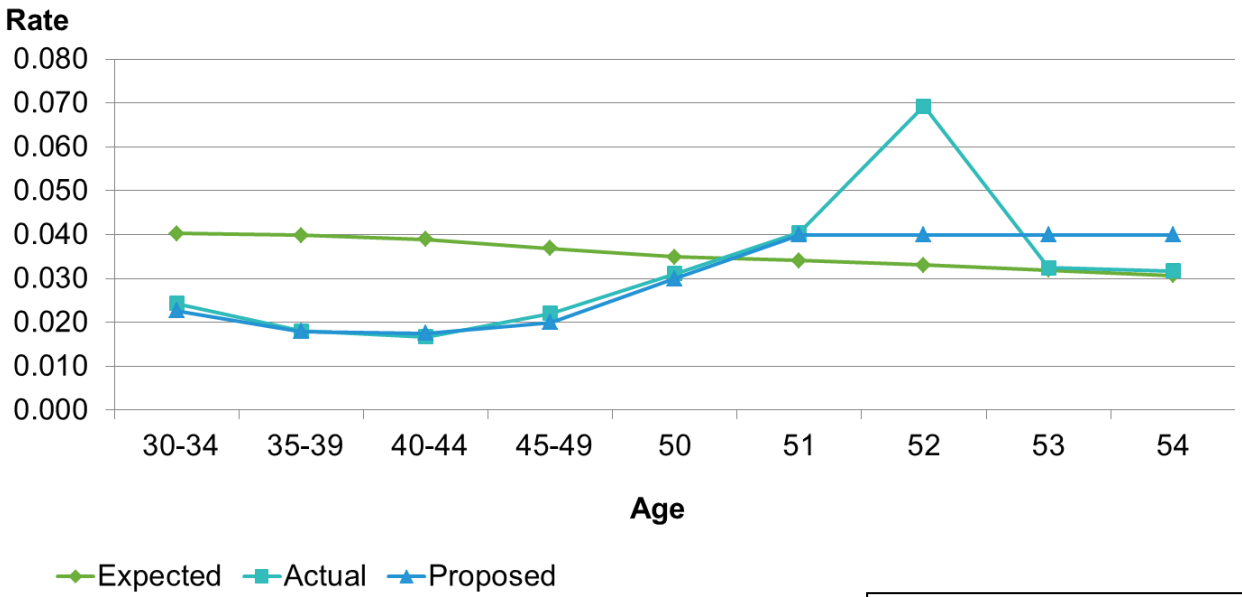
Experience:
Current % Actual Expected: 100.66%
Proposed % Actual/Expected: 101.19%

PERS Peace Officer / Firefighter
Withdrawal Rates (Ultimate)
Female



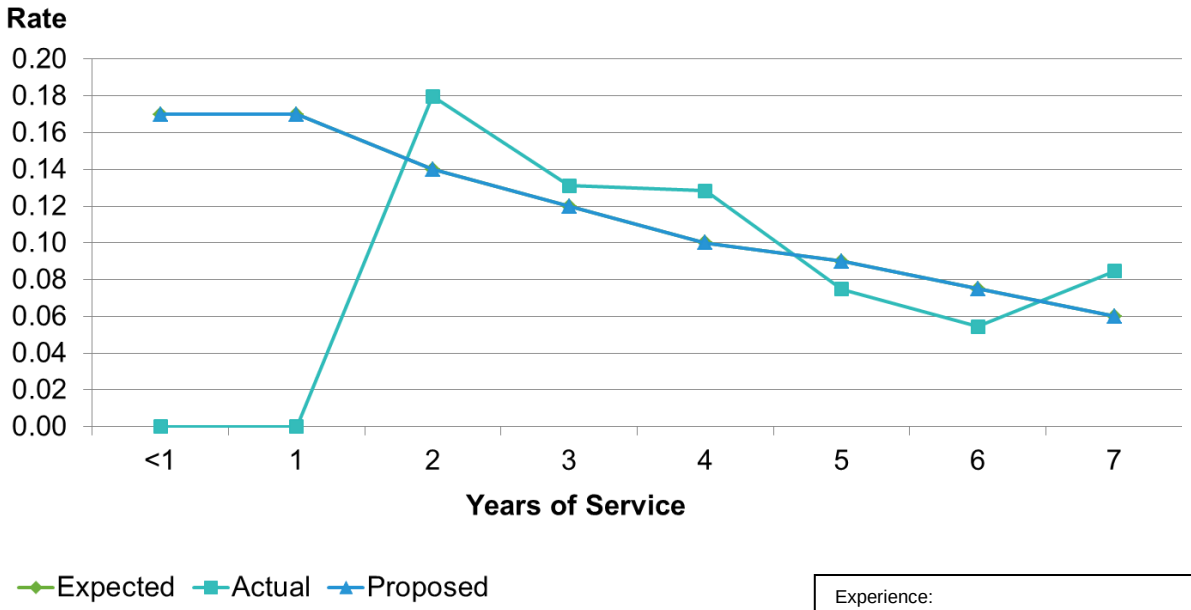
Experience:
Current % Actual Expected: 83.58%
Proposed % Actual/Expected: 104.74%

PERS Peace Officer / Firefighter
Withdrawal Rates (Ultimate)
Male



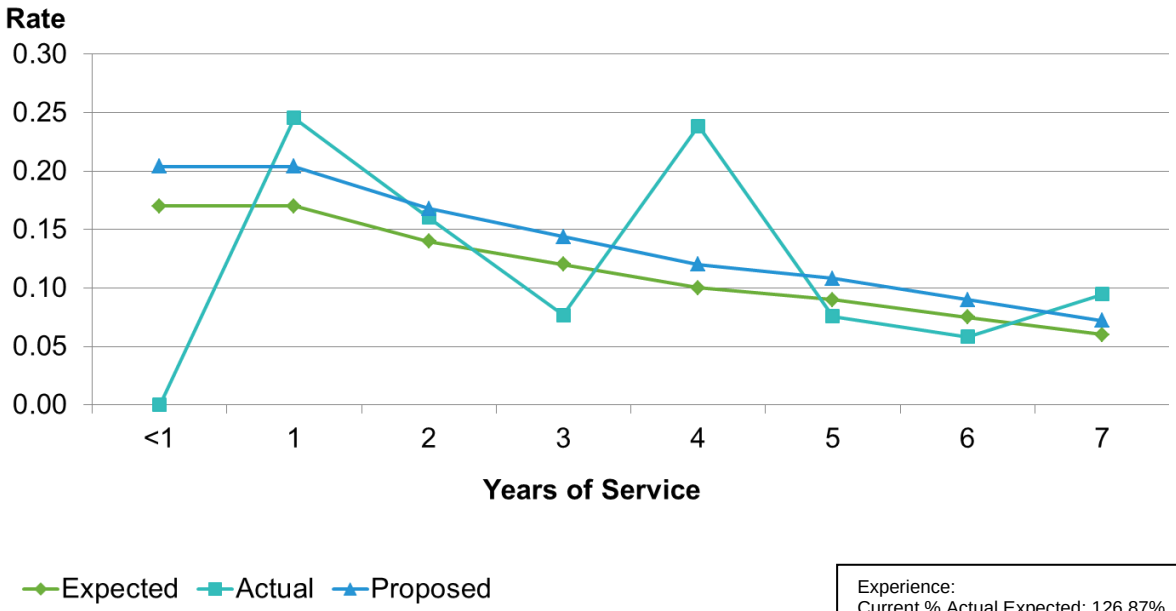
Experience:
Current % Actual Expected: 57.75%
Proposed % Actual/Expected: 101.48%

TRS
Withdrawal Rates (Select)
Female



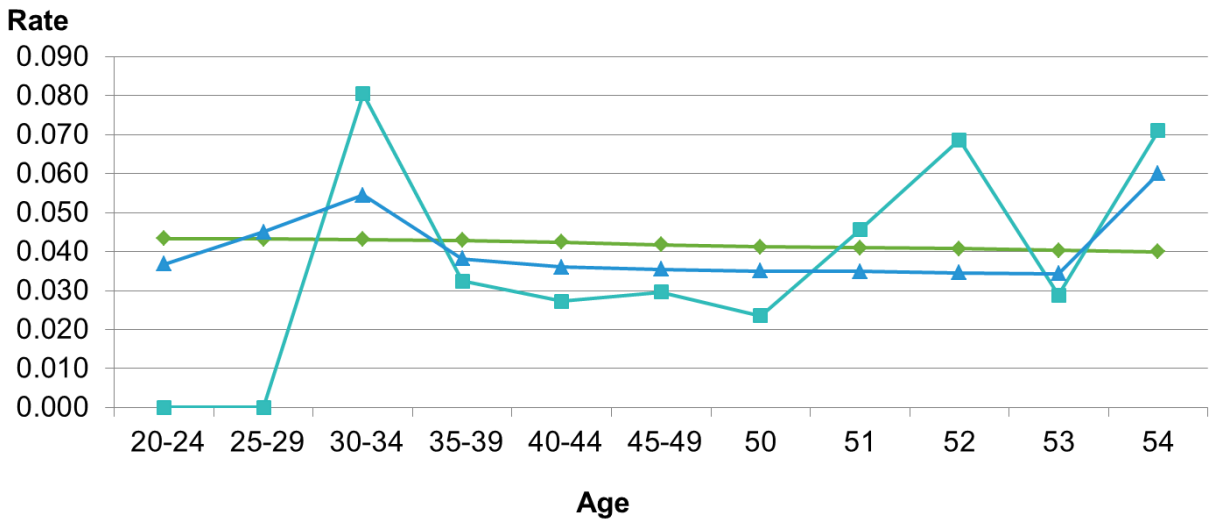
Experience:
Current % Actual Expected: 106.38%
Proposed % Actual/Expected: 106.38%

TRS
Withdrawal Rates (Select)
Male



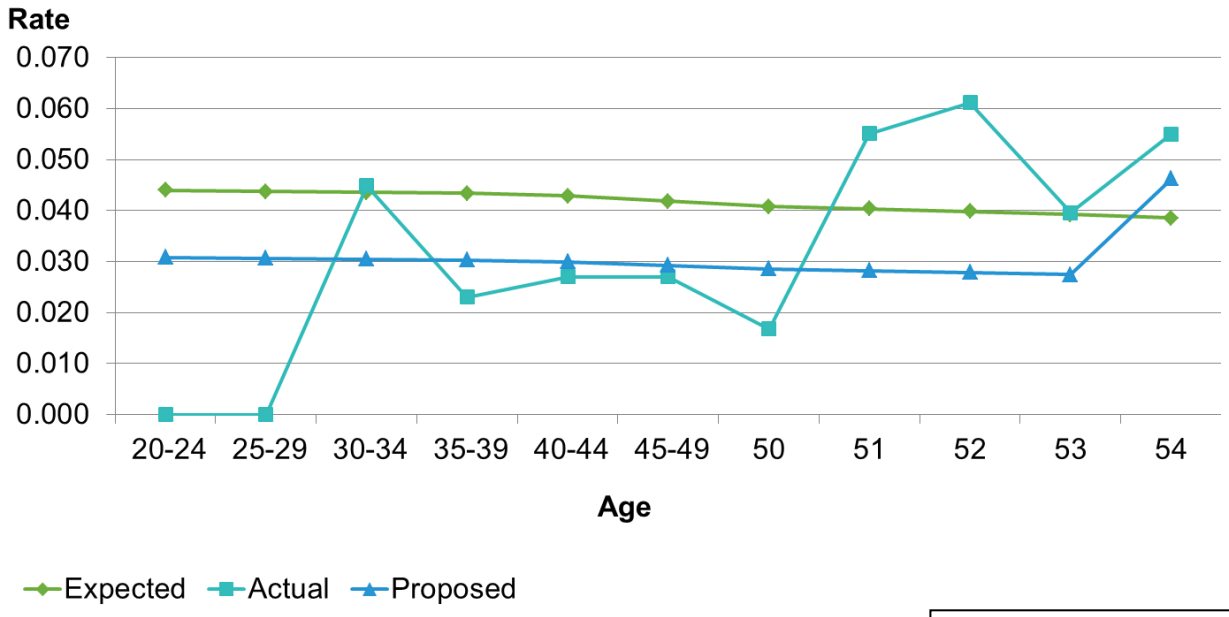
Experience:
Current % Actual Expected: 126.87%
Proposed % Actual/Expected: 105.73%

TRS
Withdrawal Rates (Ultimate)
Female



Experience:
Current % Actual Expected: 85.59%
Proposed % Actual/Expected: 94.67%

TRS
Withdrawal Rates (Ultimate)
Male



Experience:
Current % Actual Expected: 73.56%
Proposed % Actual/Expected: 102.52%

D. Retirement

We studied the retirement experience among active participants who were eligible for retirement. The results are shown in the table below. “Current expected” means the expected retirements using current assumptions. “New expected” means the expected retirements using the new proposed assumptions.

Reduced Retirement Rates										
	Female					Male				
	Current Expected	Actual	A/CE	New Expected	A/NE	Current Expected	Actual	A/CE	New Expected	A/NE
PERS Others	$178,103,106	$161,501,841	91%	$163,967,988	99%	$163,376,275	$118,907,559	73%	$121,472,417	98%

Unisex					
	Current Expected	Actual	A/CE	New Expected	A/NE
PERS Peace Officer/Firefighter	$11,554,296	$9,388,759	81%	$10,543,282	89%
TRS	$59,533,423	$64,531,937	108%	$65,224,374	99%

Unreduced Retirement Rates Unisex					
	Current Expected	Actual	A/CE	New Expected	A/NE
PERS Others	$1,081,905,168	$1,058,675,632	98%	$1,078,911,474	98%

	Female					Male				
	Current Expected	Actual	A/CE	New Expected	A/NE	Current Expected	Actual	A/CE	New Expected	A/NE
PERS Peace Officer / Firefighter	$26,916,965	$18,460,553	69%	$21,824,474	85%	$140,091,262	$115,761,449	83%	$126,339,751	92%
TRS	$438,534,945	$414,163,714	94%	$417,418,343	99%	$247,447,713	$241,372,540	98%	$246,541,951	98%

Under the plan, depending on their age and service, a member may receive a full unreduced benefit or a reduced benefit. The current retirement assumptions are based on age and group and reflect whether the member is eligible for full or reduced retirement benefits. The current retirement rates are based on actual experience from 2005 to 2009.

Recommendation: Generally, the actual retirements were lower than expected for reduced retirements and for unreduced retirements. Setting retirement rates in this way reflects expected retirement patterns considering both age and service. We recommend decreasing most retirement rates, except that we recommend increasing TRS reduced rates.

	Current	Proposed
PERS Others	• Unisex various rates • Ages 50 to 59 for reduced retirement • Ages 50 to 90 for unreduced retirement	• Sex-distinct rates for reduced retirement, decreased most rates • Unisex rates for unreduced retirement, decreased most rates
PERS Peace Officer / Firefighter	• Unisex various rates • Ages 50 to 59 for reduced retirement • Ages 50 to 75 for unreduced retirement	• Unisex rates for reduced retirement, decreased most rates • Sex-distinct rates for unreduced retirement, decreased most rates
TRS	• Unisex various rates for reduced retirement, various rates 50 to 59 • Sex-distinct various rates for ages 50 to 85 for unreduced retirement	• Unisex rates for reduced retirement, increased rates at age 54 and 59 • Sex-distinct rates for unreduced retirement, decreased most rates

We also performed an analysis of the age the deferred vested members commence their retirement benefits.

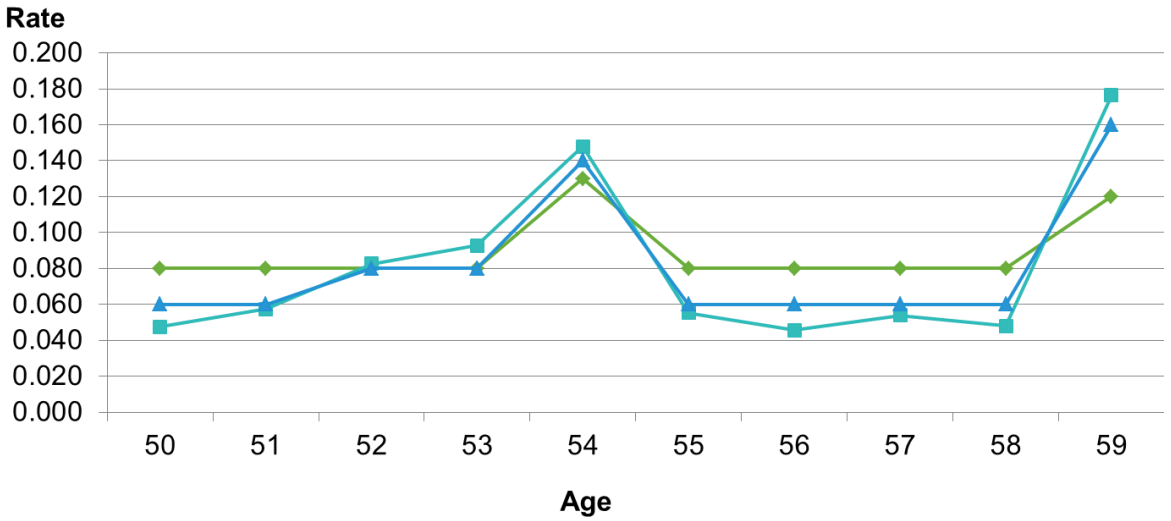
	Current Expected	Actual	New Expected
PERS Others			
- Tier 1	Earliest	56	
- Tier 2	Unreduced	60	
- Tier 3	age	61	No Change
PERS Peace Officer / Firefighter			
- Tier 1	53	56	55
- Tier 2	57	59	60
- Tier 3	57	58	60
TRS			
- Tier 1	Earliest	56	
- Tier 2	Unreduced age	61	No Change

Recommendation: Our current assumption assumes deferred vested members commence their retirement benefits at their earliest unreduced retirement age. The experience shows that these members are retiring at their unreduced retirement age. We recommend changing PERS Peace Officer/Firefighter to 55 for Tier 1, 60 for Tier 2, and 60 for Tier 3.

Some members may be retirement eligible when they terminate but they elect to defer receiving benefits. We believe it is reasonable to set the benefit commencement age in the aggregate based on observed commencement age.

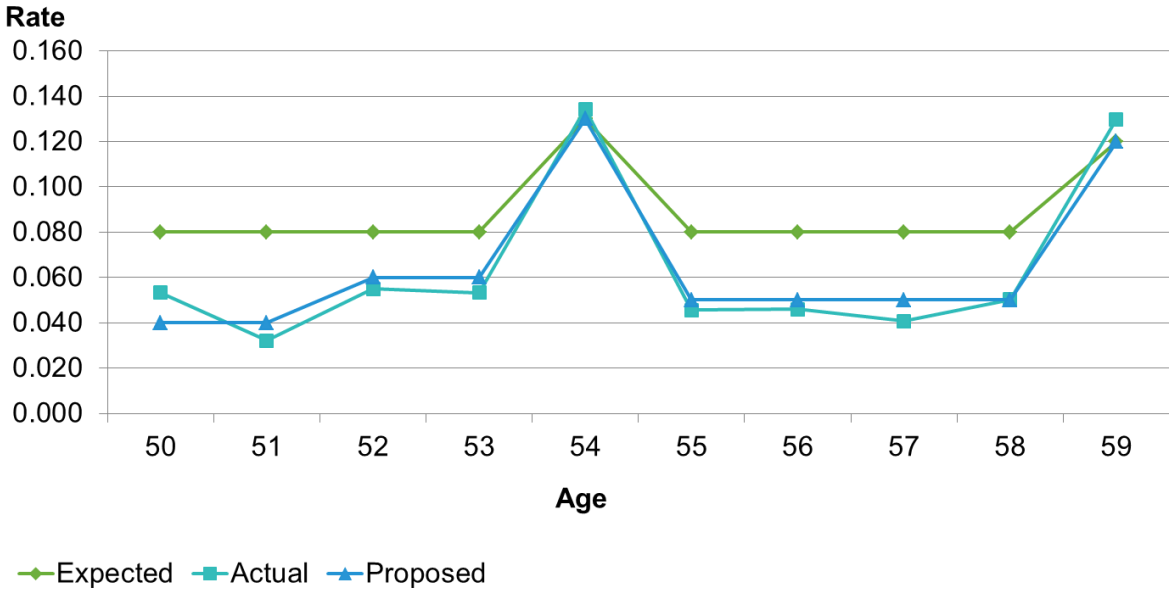
The graphs on the next pages show the actual experience and the new proposed rates for reduced and unreduced retirement.

PERS Others
Reduced Retirement Rates
Female



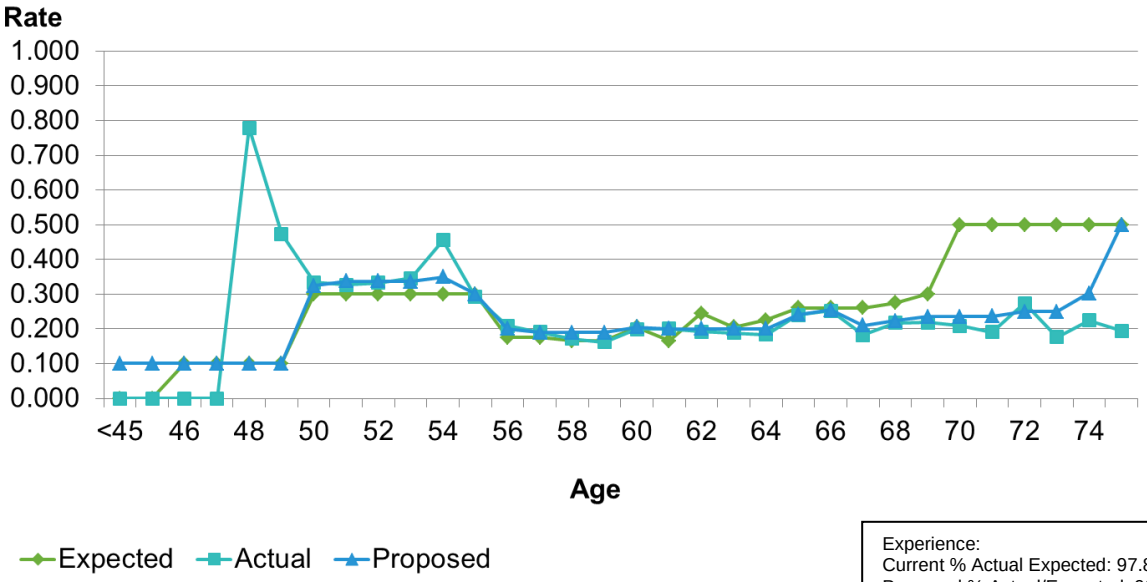
Experience:
Current % Actual Expected: 90.68%
Proposed % Actual/Expected: 98.50%

PERS Others
Reduced Retirement Rates
Male



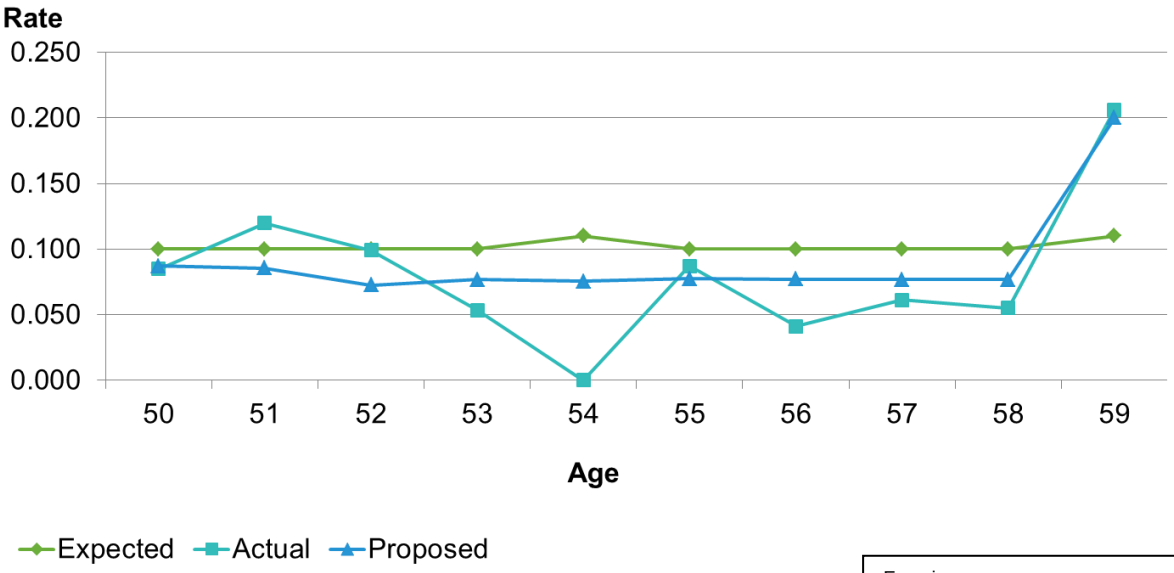
Experience:
Current % Actual Expected: 72.78%
Proposed % Actual/Expected: 97.89%

PERS Others
Unreduced Retirement Rates
Unisex



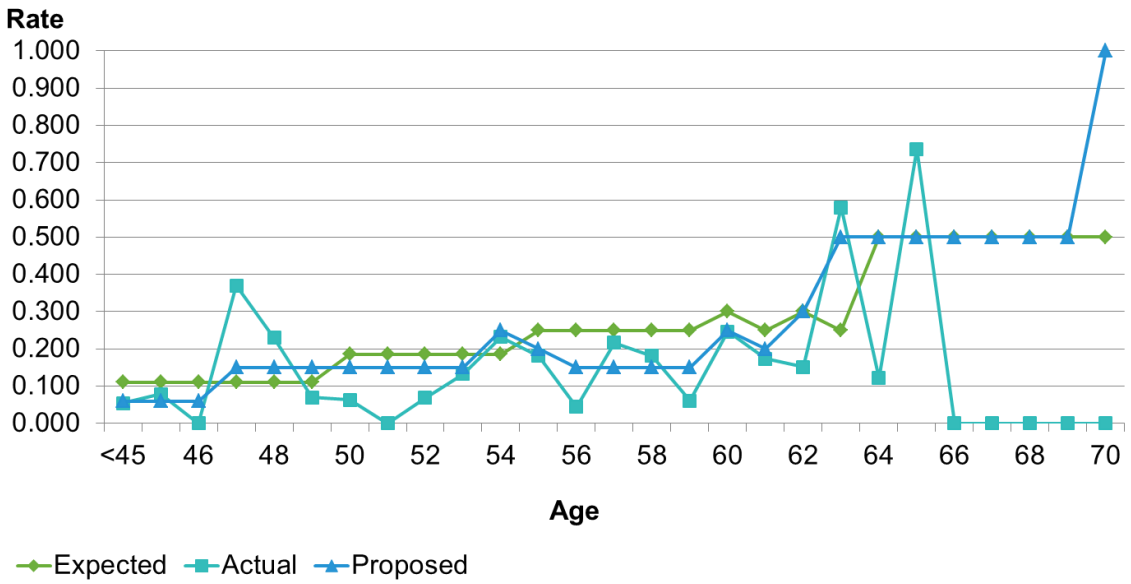
Experience:
Current % Actual Expected: 97.85%
Proposed % Actual/Expected: 98.12%

PERS Peace Officer / Firefighter
Reduced Retirement Rates
Unisex



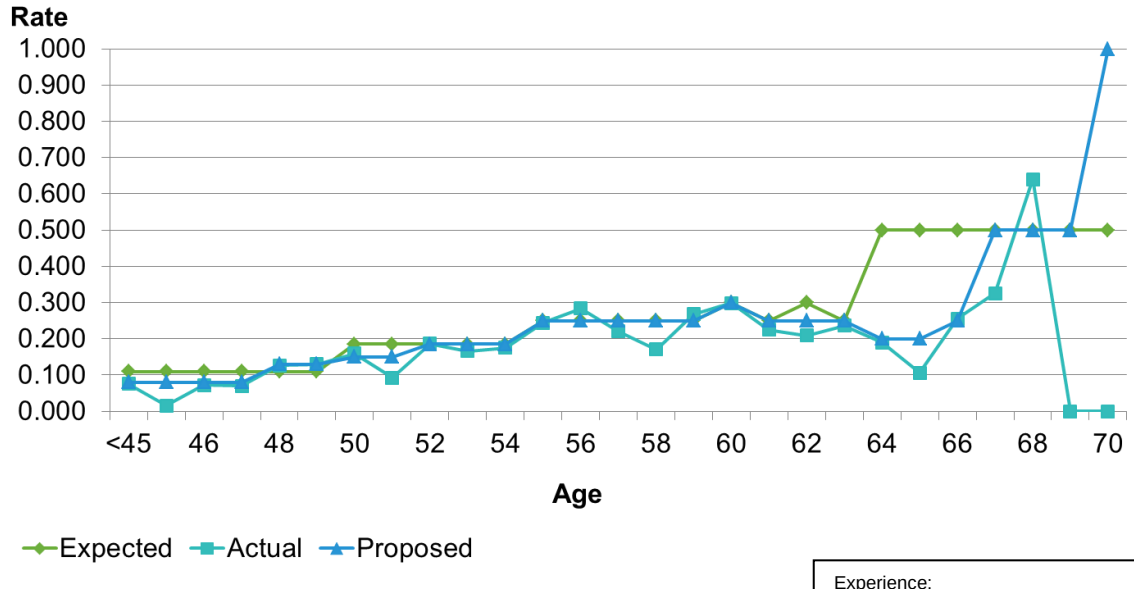
Experience:
Current % Actual Expected: 81.26%
Proposed % Actual/Expected: 89.05%

PERS Peace Officer / Firefighter
Unreduced Retirement Rates
Female



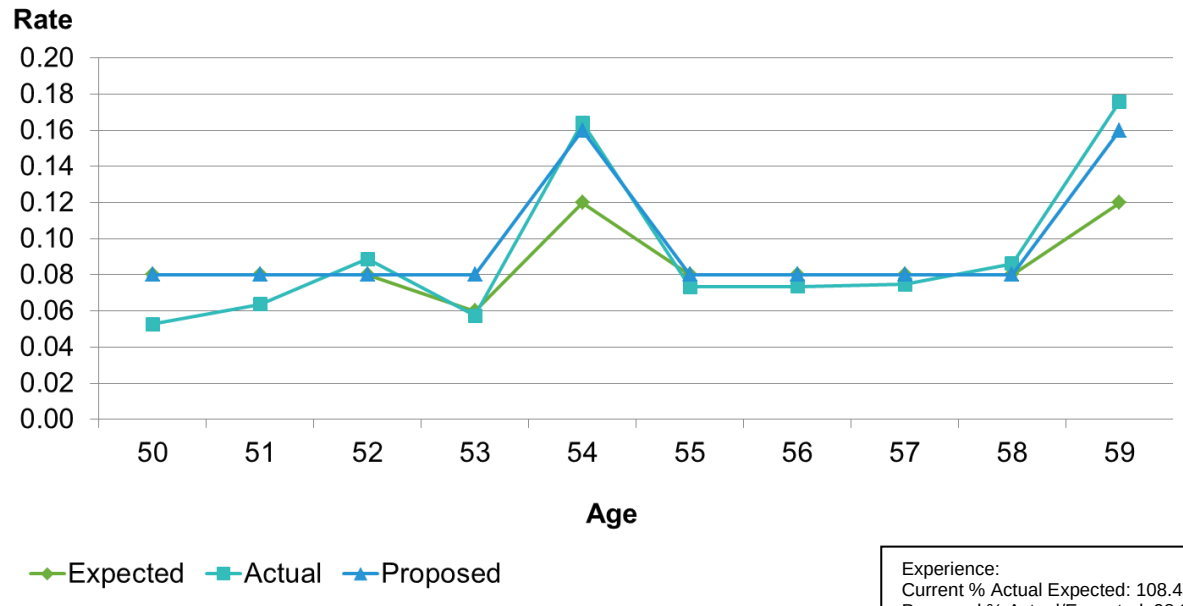
Experience:
Current % Actual Expected: 68.58%
Proposed % Actual/Expected: 84.59%

PERS Peace Officer / Firefighter
Unreduced Retirement Rates
Male



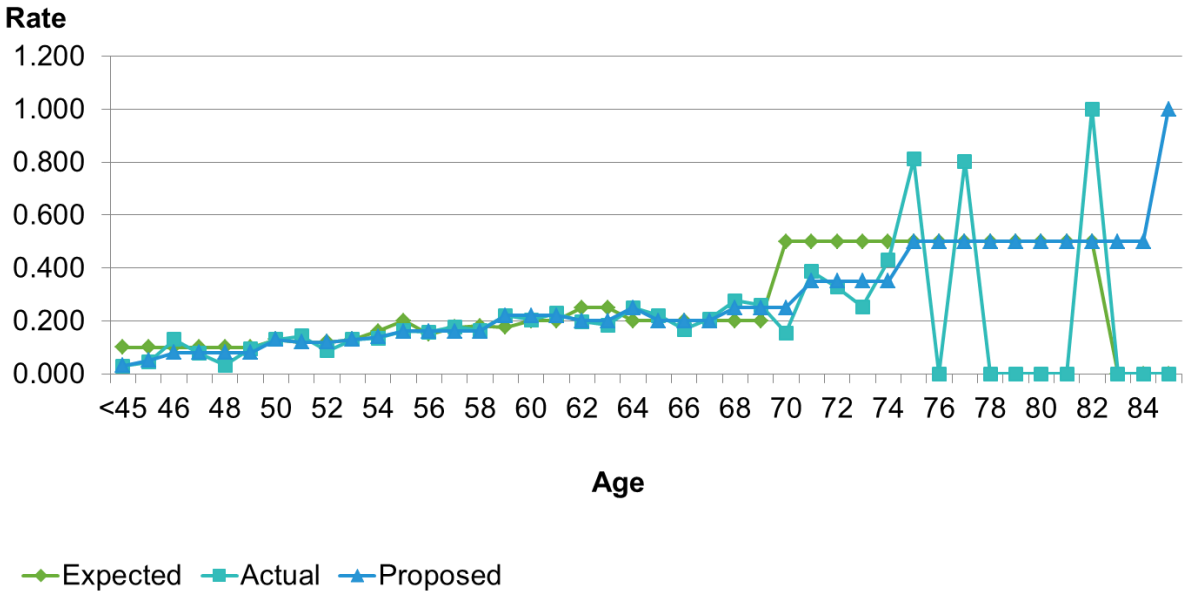
Experience:
Current % Actual Expected: 82.63%
Proposed % Actual/Expected: 91.63%

TRS
Reduced Retirement Rates
Unisex



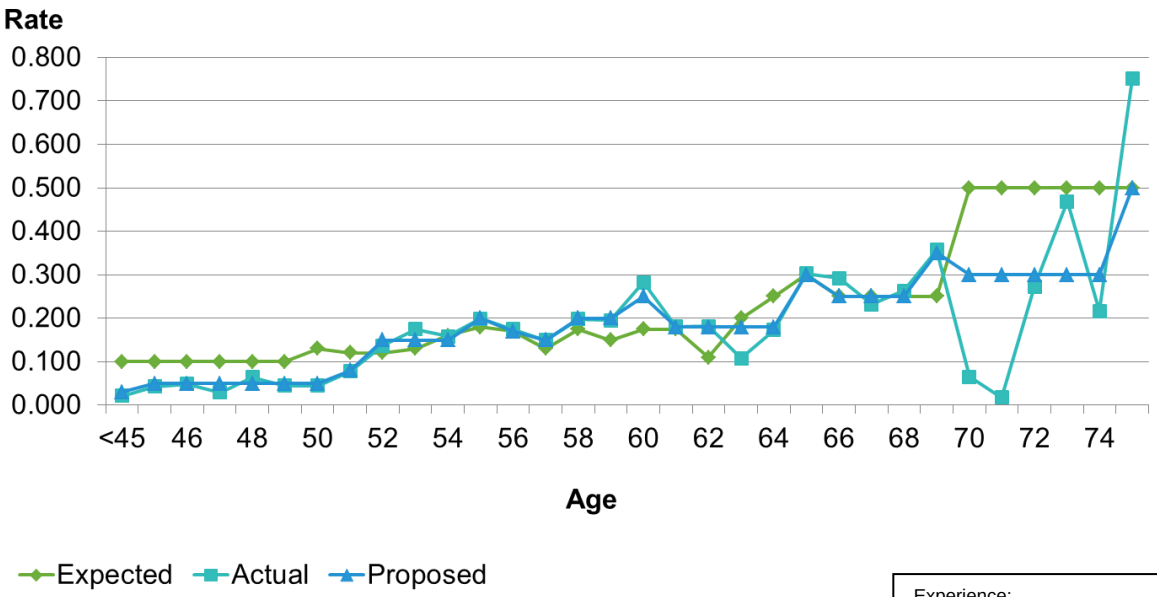
Experience:
Current % Actual Expected: 108.40%
Proposed % Actual/Expected: 98.94%

TRS
Unreduced Retirement Rates
Female



Experience:
Current % Actual Expected: 94.44%
Proposed % Actual/Expected: 99.22%

TRS
Unreduced Retirement Rates
Male



Experience:
Current % Actual Expected: 97.54%
Proposed % Actual/Expected: 97.90%

E. Disability Retirements

We studied the number of members who retired under disability retirement during the past four years. The table below shows the number of actual and expected disability retirements during this study. “Current expected” means the expected disabilities using current assumptions. “New expected” means the expected disabilities using the new proposed assumptions. Actual disabilities greater than expected disabilities is a conservative assumption.

Disability Retirements										
	Female					Male				
	Current Expected	Actual	A/CE	New Expected	A/NE	Current Expected	Actual	A/CE	New Expected	A/NE
PERS Others	23	26	113%	22	118%	21	16	76%	20	80%
PERS Peace Officer / Firefighter	2	0	0%	1	0%	11	5	45%	7	71%
TRS	8	14	175%	12	117%	4	4	100%	6	67%

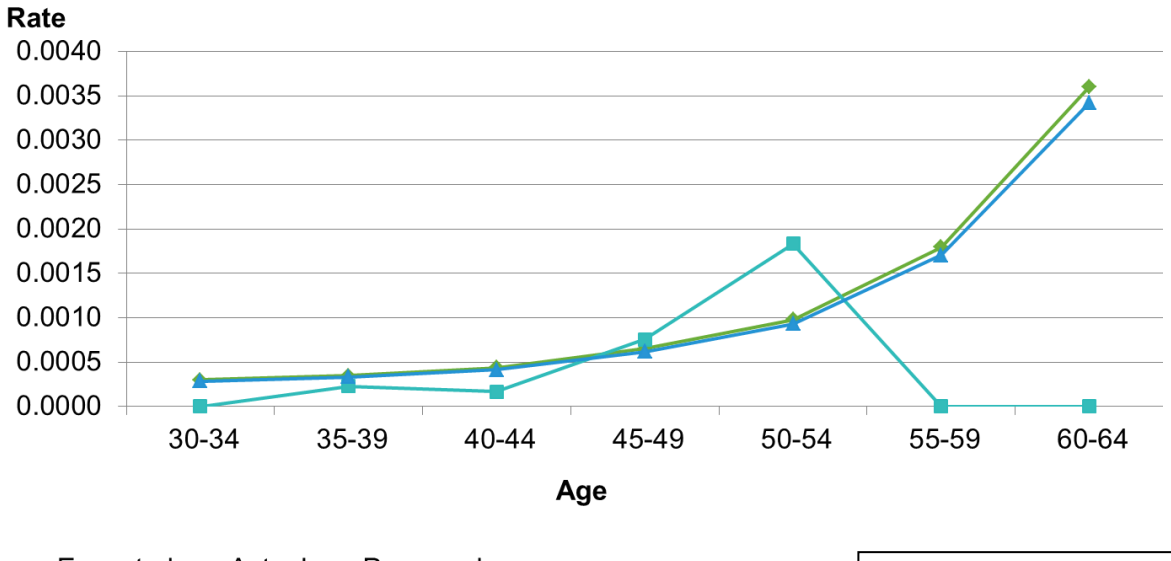
The current assumption was based on the actual experience from 2005 to 2009.

Recommendation: For the TRS members, the rates are slightly low, so we recommend increasing rates. For PERS Others and PERS Peace Officer/Firefighter members, the current rates are also slightly high, so we recommend decreasing the rates by 5% and 30%, respectively.

Disability Retirements		
	Current	Proposed
PERS Others	• Age based, sex-distinct rates • Rates stop at retirement eligibility	• Decreased rates by 5%
PERS Peace Officer / Firefighter	• Age based, unisex rates • Rates stop at retirement eligibility	• Decreased rates by 30%
TRS	• Age based, sex-distinct rates • Rates stop at retirement eligibility	• Age based, unisex rates • Generally increased rates

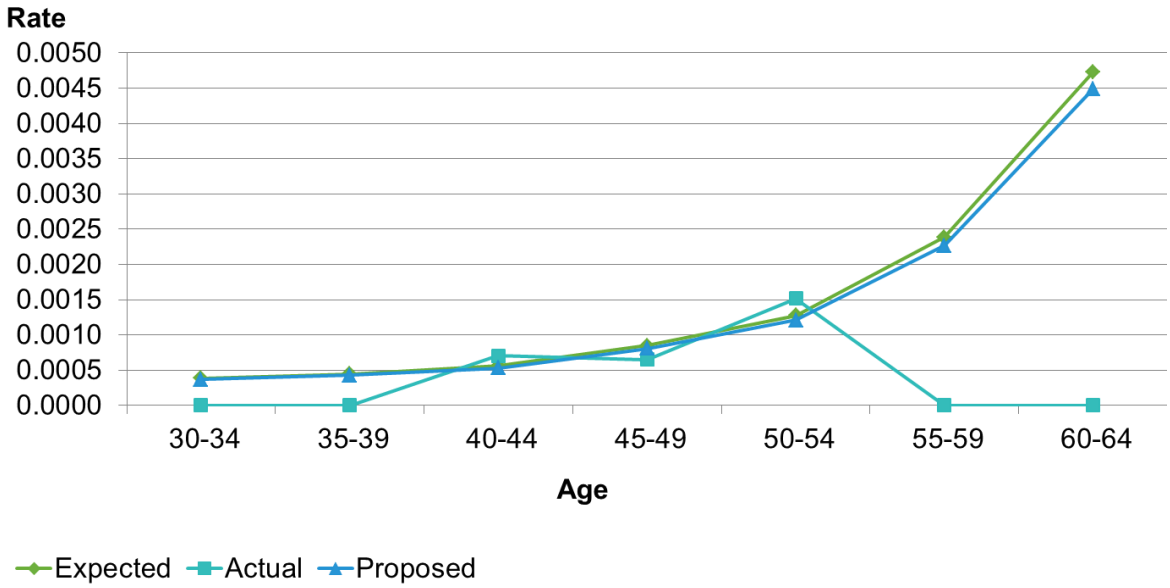
The graphs on the next pages compare the current and proposed assumptions with the actual disability rates.

PERS Others
Disability Rates
Female



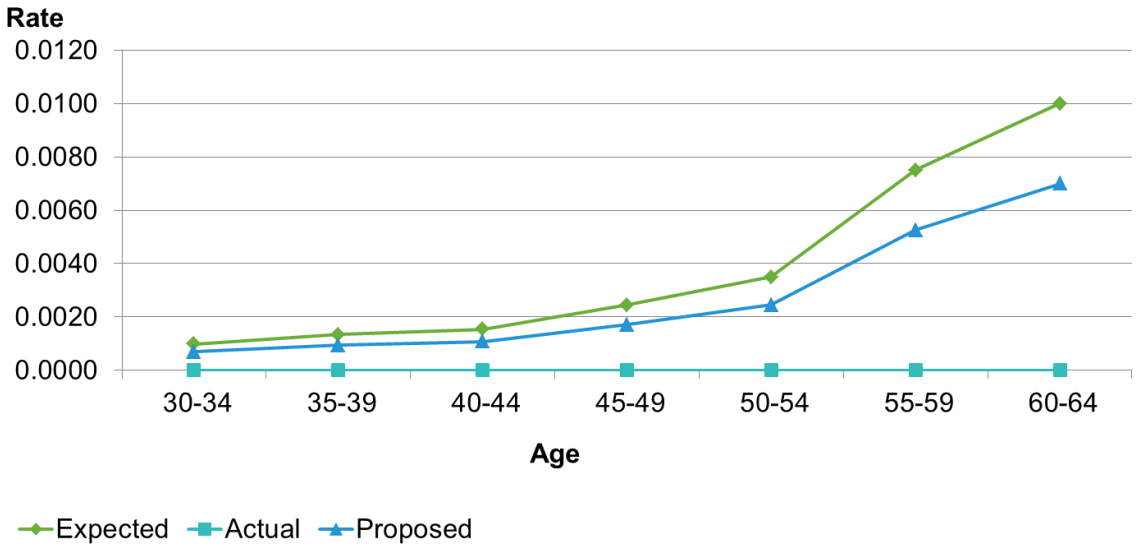
Experience:
Current % Actual Expected: 113.04%
Proposed % Actual/Expected: 118.18%

PERS Others
Disability Rates
Male



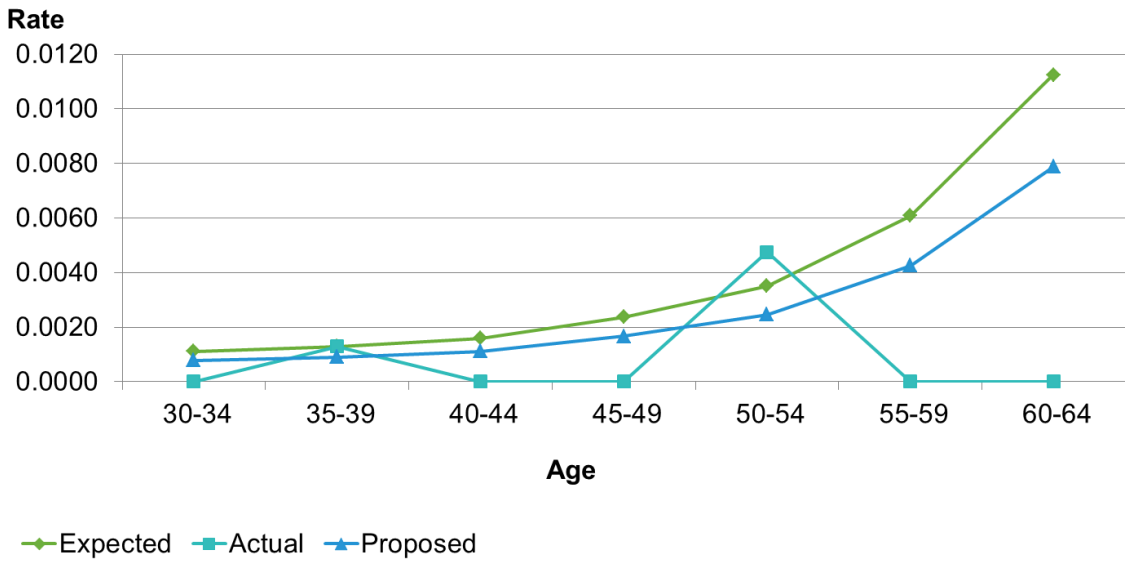
Experience:
Current % Actual Expected: 76.19%
Proposed % Actual/Expected: 80.00%

PERS Peace Officer / Firefighter
Disability Rates
Female



Experience:
Current % Actual Expected: 0.00%
Proposed % Actual/Expected: 0.00%

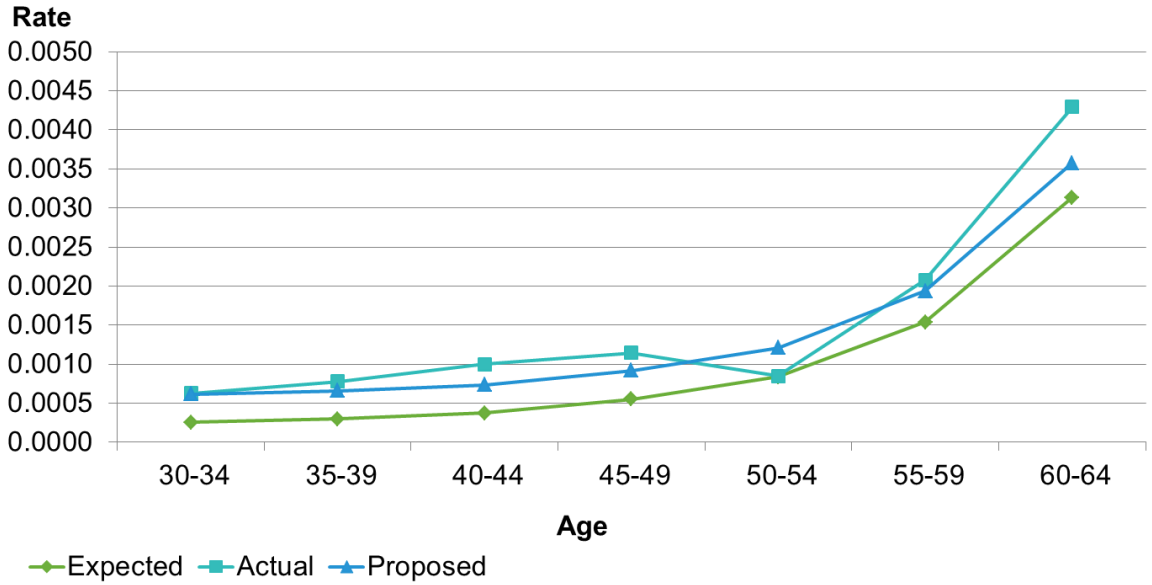
PERS Peace Officer / Firefighter
Disability Rates
Male



Experience:
Current % Actual Expected: 45.45%
Proposed % Actual/Expected: 71.43%

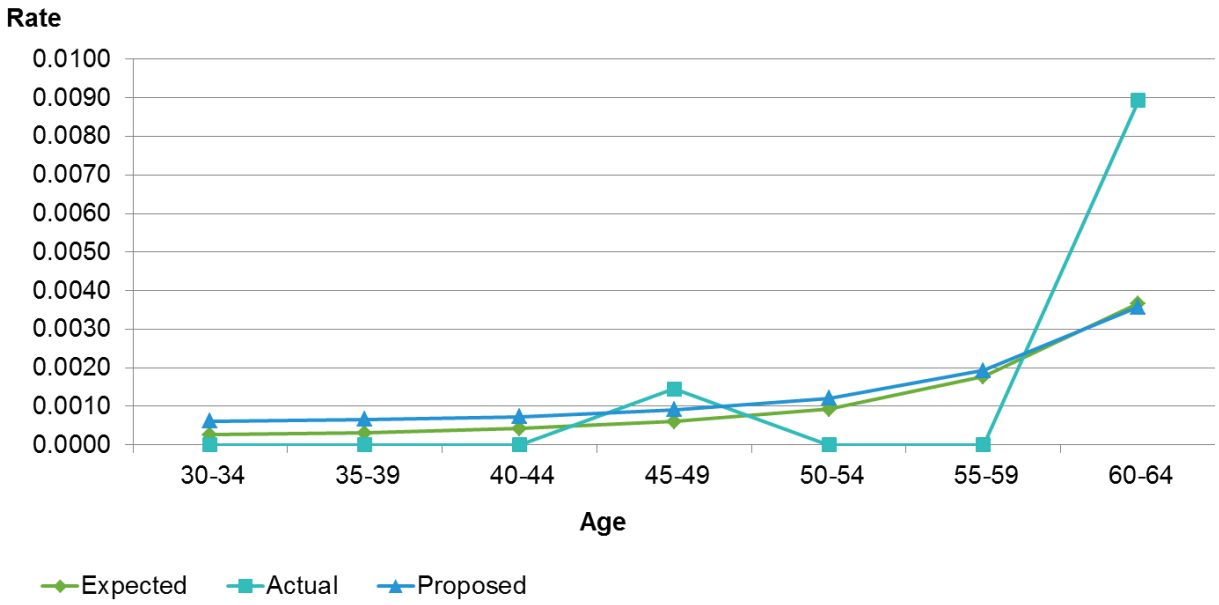
TRS

Disability Rates
Female



Experience:
Current % Actual Expected: 175.00%
Proposed % Actual/Expected: 116.67%

TRS
Disability Rates
Male



Experience:
Current % Actual Expected: 100.00%
Proposed % Actual/Expected: 67.67%

F. Withdrawal of Contributions at Termination

Vested participants who terminate prior to being eligible for retirement have the option of withdrawing their contributions with interest or leaving their money in the plan and receiving a deferred retirement annuity benefit. A low percent of members electing a refund is a conservative assumption.

We reviewed the data for vested members leaving active employment during the last four valuation years for our analysis. The results are as follows:

	Current	Rate Electing Refund	Proposed Assumption
PERS Others	15%	9%	10%
PERS Peace Officer / Firefighter	15%	14%	15%
TRS	10%	2%	5%

Recommendation: We understand that very few TRS members take a refund. We recommend changing the assumption to 5% of vested members will elect refunds.

We recommend changing the assumption for PERS Others from 15% to 10% of vested members will elect refunds.

We recommend keeping the assumption of 15% for members electing a refund for PERS Peace Officers / Firefighters.

Members who are eligible to retire also have the option of withdrawing their contributions. We assume these members elect the annuity and medical coverage which is the most valuable benefit. We do not recommend changing this assumption.

G. Other Demographic Assumptions

We have reviewed the following other demographic assumptions that are needed for the valuation:

- Marriage assumption
- Age difference between husbands and wives
- Number of dependent children
- Alaska residency
- Number of unused sick days (TRS only)
- Part-time service earned during the year
- Occupational versus nonoccupational deaths and disabilities

MARRIAGE ASSUMPTION

The marriage assumption is used in a pension valuation to estimate the death benefits payable to a spouse upon the death of an active or deferred member. It is also used to predict the optional form of payment a member will elect upon retirement. For the post-retirement healthcare valuation, this assumption is used to determine the expected number of spouses to elect participation. This last use will have the most impact on the valuation. A high marriage percent is a conservative assumption.

Typically, a percentage is used to determined marital status at retirement or death, regardless of the member's current marital status. We reviewed the actual marital status for members who are retirement eligible at each valuation date over the study period.

The results are as follows:

	PERS Others		PERS Peace Officer/ Firefighter		TRS	
	Male	Female	Male	Female	Male	Female
Total number of member exposures who are retirement eligible as of the valuation date	16,788	21,877	1,983	425	4,165	8,831
Number who are married	12,508	14,420	1,632	241	3,394	6,469
Percent married	75%	66%	82%	57%	81%	73%
Current assumption	80%	70%	80%	70%	85%	75%
Proposed assumption	75%	70%	85%	60%	85%	75%

Age Difference between Husbands and Wives

The age difference between husbands and wives is used in conjunction with the marriage assumption to value death benefits, expected optional form of payment elections and postemployment healthcare benefits. The current assumption for both PERS and TRS is that husbands are three years older than their wives.

We reviewed the actual age differences between husbands and wives for current retirees who have elected a joint and survivor benefit. The results are as follows:

	PERS Others	PERS Peace Officer/ Firefighter	TRS
Number of male retiree exposures receiving a joint and survivor benefit	28,309	6,425	9,741
Average age older	3.7 years older	3.2 years older	3.3 years older
Current age difference assumption	3 years older	3 years older	3 years older
Proposed age difference assumption	3 years older	3 years older	3 years older
Number of female retiree exposures receiving a joint and survivor benefit	26,338	602	12,395
Average age younger	1.8 years younger	1.8 years younger	1.5 years younger
Current age difference assumption	3 years younger	3 years younger	3 years younger
Proposed age difference assumption	3 years younger	3 years younger	3 years younger

Number of Dependent Children

Death and disability benefits are based on dependent children under TRS. Death benefits are payable to dependent children if no spouse exists in PERS.

Recommendation: The current assumption is that married members have two dependent children from age 25 through 45. At 46, we assume members have no dependent children. We do not have sufficient data to review this assumption. We recommend no change to this assumption.

Alaska Residency

Eligible benefit recipients who reside in Alaska receive an Alaska cost-of-living allowance. An assumption must be made regarding how many members will remain in Alaska after retirement. A high portion of retirees expected to reside in Alaska is a conservative assumption.

We reviewed all members and beneficiaries who are eligible to receive COLA benefits to review this assumption. The results are as follows:

	PERS Others	PERS Peace Officer/ Firefighter	TRS
Total benefit amount of all COLA eligible benefit recipient exposures (in thousands)	144,459	27,130	109,143
Total benefit amount of recipients receiving an Alaska COLA (in thousands)	99,535	17,181	67,138
Portion receiving Alaska COLA	69%	63%	62%
Current assumption	70%	70%	60%
Proposed assumption	70%	65%	60%

Since the actual percentage of benefits that have the Alaska Residency COLA is lower than the assumption for PERS Peace Office/Firefighter members, we recommend decreasing this assumption to 65%.

Number of Unused Sick Days (TRS only)

TRS members receive service credit for unused sick leave when they retire. An assumption is made to determine the expected amount of credit members will receive when they retire.

Recommendation: The current assumption is that a member will receive 4.7 days for each year of service. This effectively increases the member's service by 2.73%. We recommend lowering this assumption based on actual experience from June 30, 2009 through June 30, 2013 to 4.5 days, which will increase liability to 2.60%.

Part-time Service Earned During the Year

There are members who are employed part-time and participate in PERS and TRS. Members will earn a portion of a year of service for their part-time employment. An assumption is made regarding the amount of service these members will earn during a year. A conservative assumption would be close to 1.

We reviewed members who were part-time to analyze this assumption. The results are as follows:

	PERS Others	PERS Peace Officer / Firefighter	TRS
Total part-time member exposures	3,936	N/A	2,117
Average increase in service	.66	N/A	0.77
Current assumption	.65	1.00	.60
Proposed assumption	.65	1.00	.75

Recommendation: There were only a few Peace Officer / Firefighter members with part-time status during the study period. Therefore, we did not review this assumption for this group. We recommend keeping the assumption that all Peace Officers / Firefighters will earn a full year of service. We recommend increasing the assumption for TRS to be .75 of a year.

We recommend no change for PERS Others.

Occupational vs. Nonoccupational Death and Disability

PERS has different benefits for members who become disabled or die due to occupational causes. TRS has different benefits for those who die due to occupational causes.

We reviewed the data for members who are currently receiving a disability benefit to analyze this assumption. There is insufficient data to analyze male and female assumptions separately, so data was aggregated. Please note that we do not have data available to determine whether occupational or nonoccupational death benefits are paid. The results are as follows:

	PERS Others	PERS Peace Officer/ Firefighter	TRS
Disability			
Member exposures receiving a nonoccupational disability benefit	612	67	N/A
Members receiving an occupational disability benefit	601	139	N/A
Portion occupational	50%	68%	N/A
Current assumption	55%	75%	N/A
Proposed assumption	50%	70%	N/A
Death			
Current assumption	55%	75%	15%
Proposed assumption	50%	70%	15%

Recommendation: We recommend decreasing the percent occupational assumption for PERS Peace Officers / Firefighters and PERS Others to 70% and 50%, respectively. We recommend keeping the TRS assumption of 15%.

Section 2 Economic Assumptions

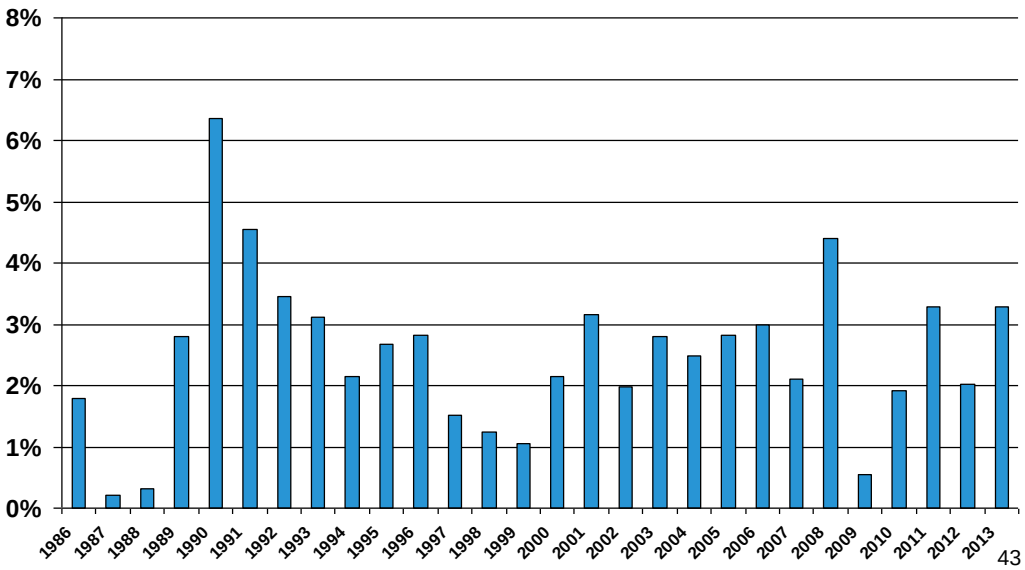
This section compares the actual experience with respect to the economic assumptions over the last four years.

A. Inflation

Inflation is a critical core component of economic actuarial assumptions. It is a component of the investment return assumption as well as the salary and payroll growth assumption. The current annual inflation assumption is 3.12%. This is higher than the actual annualized inflation rate of 2.39% experienced over the last 10 year period ending 2014 and higher than the most recent 20-year average of 2.42%. However, when higher historical inflation periods during the 70's and 80's are included, the historical inflation mean over 50 years of 4.20% exceeds the current assumption of 3.12%. This is illustrated in the following table:

Ten-Year Period Ending	Mean Inflation Rate (CPI)*
1974	5.09%
1984	7.63%
1994	3.53%
2004	2.45%
2014	2.39%
Twenty-Year Mean	2.42%
Fifty-Year Mean	4.20%

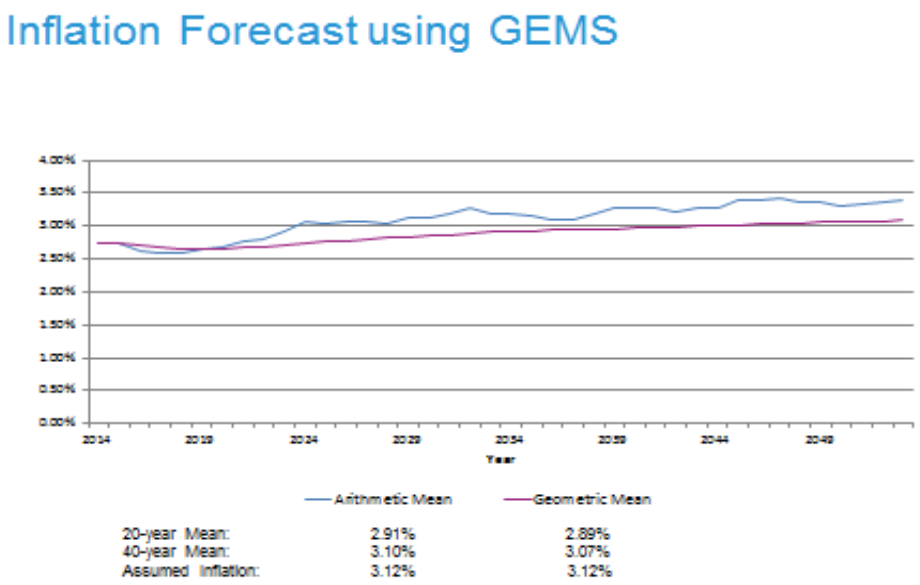
Historical inflation information is also available under the Consumer Price Index specific for Anchorage. This data is available beginning with 1986 has a mean of 2.49% which is consistent with national averages. A graph of the annual Anchorage CPI from 1986 to 2013 follows:



In addition, Buck performed a projection of expected inflation rates using the General Economy and Market Simulator (GEMS) developed by Conning, a portfolio company of Aquiline. This is an econometric model that uses an arbitrage free multifactor affine model which can:

- Generate realistic inflation index dynamics,
- Produce real term structures for inflation linked bonds,
- Simulate market expectations for inflation, and
- Links the price inflation model with the interest rate model for consistency.

The results of the projection for inflation using GEMS, showing both arithmetic and geometric mean rates for inflation, follows:



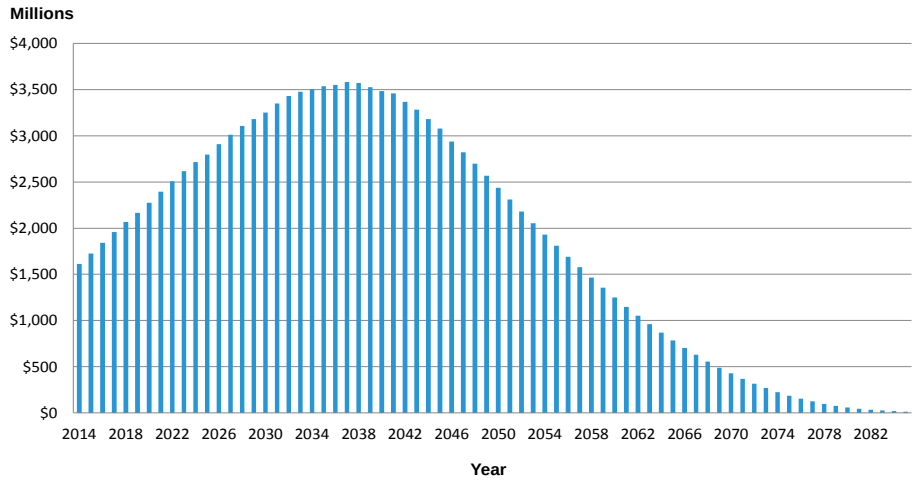
Recommendation: Short-term projections of inflation suggest lower inflation than we currently assume, increasing long-term. Our calculations are long term in nature so a higher inflation assumption is more appropriate. The current 3.12% inflation assumption falls within 20 and 50 year means of historical inflation, and is not materially different than the forecasted long-term inflation. Therefore, we recommend no change to the 3.12% inflation assumption at this time.

B. Investment Return or Discount (Interest) Rate

This assumption is the expected net return on the actuarial value of assets. Since this return is assumed for the period benefits will be paid to current members, the experience of the last four years is not necessarily a good predictor of the appropriate long-term rate. However, actual experience should be reviewed with a long-term perspective to make sure that the actuarial assumptions are reasonable.

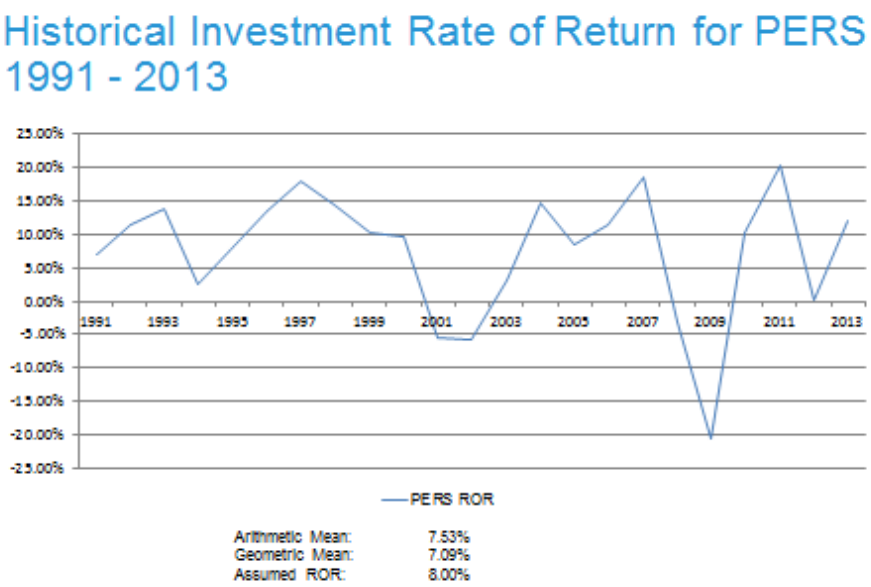
This assumption is generally regarded as having the greatest impact on the measure of a System's actuarial liability calculation. The actuarial liability represents the present value of the future benefit payments expected to be paid from the System on the valuation date. This amount represents the value of all expected future benefit payments from the valuation date, discounted back to the valuation date for each year from the valuation date to the expected payment date. This represents a long time horizon since future payments calculated include not only payments made to current retirees, but also expected payments to currently active members who will begin receiving benefit payments when they retire, which may be as many as 40 years from the valuation date. When expected future salary increases and post-retirement pension adjustments are factored into the calculation of expected future benefits, the weighted payment time horizon, or duration of benefit payments, is increased. The time horizon of Alaska's PERS and TRS systems can be better illustrated by the following graph which shows the annual future benefits expected to be paid from fiscal years 2014 to 2082.

Projection of Future Annual Benefit Payments for PERS and TRS (2014 – 2082)



The graph shows that the annual benefit payments of about $1.5 billion are expected to increase through 2037 before beginning to decline, and the amount is not expected to drop below the current level of $1.5 billion until 2058. This is important because investment policy decisions are typically based on much shorter time horizons, typically over 5 to 7 year market cycles. Setting the investment return assumption for discount and interest rate purposes for an actuarial valuation should consider not only the expected returns over the next market cycle, but over future market cycles which cover the duration of future benefit payments.

When setting an investment return assumption, it is important to recognize historical rates of return. This gives a view of actual performance, although it is not necessarily an indication of expected future returns. The following graph shows the actual return history on market value for PERS with comparison to the mean return actually experienced from 1991 to the present:



The mean returns for this 23 year past period are lower than the currently assumed rates, but are highly influenced by the negative returns experienced during the 2008-2009 financial crisis. By statistical measures, this event had a 2% chance of occurrence, or once every 50 years. This would suggest this period would need to cover 50 years in order to be more credible. For example, if the 2009 experience is removed, the geometric mean for PERS during this period would increase to 8.52%.

The development of the investment return assumption should also consider the Systems' asset allocation policy. A development of the expected investment rate of return using the current asset allocation policies follows.

Asset Class	FY 2015 Policy Allocation Target PERS and TRS
Cash	3%
Fixed Income	12%
Domestic Equities	26%
International Equities	25%
Absolute Return	5%
Alternative Equity	3%
Private Equities	9%
Real Assets	17%
Total	**100%**

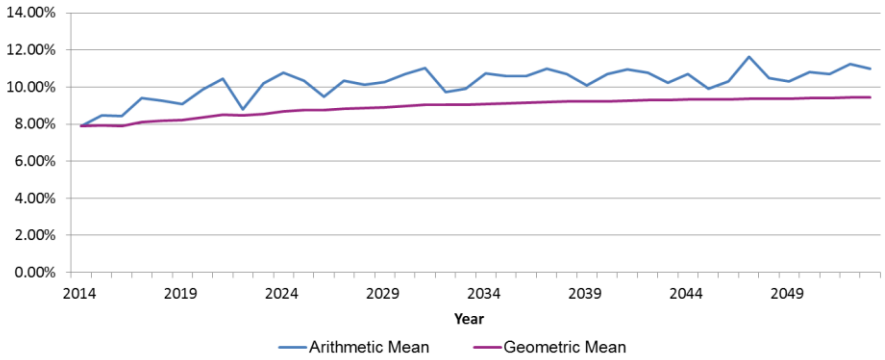
To develop expected future investment rate of returns over a period sufficiently long for use in the actuarial valuations for Alaska's Systems, we again used GEMS, an econometric modeling tool which is used in our Asset /Liability Modeling (ALM) practice. Buck uses this tool for forecasting expected rates of return because we believe it provides a more realistic projection of expected investment returns and the measurement of portfolio risk than other models available in the industry. The equity model within GEMS generates a probability for extreme behavior (fat tails) via the specification of an independent statistical jump process. The features of the returns

generated by the model include volatility clustering, low frequency/ high severity jumps, and jump clustering behaviors, all of which are observed in actual markets.

GEMS uses an Economic Scenario Generator (ESG) that provides projections of the economic environment. The portfolio asset classes are linked to the state of the projected economic environment when forecasting performance and risk. GEMS is calibrated with observed market data, both recent and historical. This calibration leads to a realistic, unbiased forecast of expected investment returns and measures of portfolio risk over both the short-term and the long-term time horizons. When economic conditions are expected to change over time, the projection of expected returns will be non-linear and portfolio risk measures (standard deviations) are likely to be slightly smaller than most models used by other firms.

The results of the GEMS forecast of expected future investment returns for Alaska's Systems assuming the current FY2015 portfolio asset allocation policy remains unchanged over the forecast period showing both arithmetic and geometric mean returns follows:

PERS and TRS Investment Rate of Return Forecasting using GEMS
Net of Expenses (2014-2053)



20-year Mean:	9.73%	9.04%
40-year Mean:	10.20%	9.45%
Assumed ROR:	8.00%	8.00%

The forecasted geometric mean returns for both asset allocation policies exceeds the currently assumed rate of return. This does not necessarily imply that the currently assumed rate of return is supported by the forecasted returns. You will notice that the forecasted returns are non-linear, initially lower returns that increase over the long-term. Actuarial Standards of Practice No. 27 for Setting Economic Assumptions has been recently amended. The revisions to the standard require actuaries to recommend a discount rate assumption that is not greater than the long-term expected investment rate of return. A margin for adverse deviation (or conservatism) is allowed by using a lower rate to the extent reasonable.

In order to insure the recommended discount rate is not greater than the assumed return, we used the non-linear geometric mean returns for the respective portfolios to discount the annual expected future benefit payments (see the graph of future benefit payments for PERS and TRS on page 45). Once the present value of benefits is determined for each portfolio, we then determined the blended, linear rate of return which provides an equal measurement of the present value of benefits. The result of our calculations follows:

	PERS	TRS
Total Plan Liability	$21.5B	$10.2B
Current Discount Rate	8.0%	8.0%
GEMS Liability	$19.2B	$9.1B
Blended GEMS Rate	8.9%	8.9%

Recommendation: Discounting future expected annual benefit payments by the forecast returns, net of expenses, shows the currently assumed discount rate of 8.0% for PERS and TRS is supportable by the long-term investment rates of return given the current asset allocation policy. However, due to the closed group nature of PERS and TRS defined benefit plans, future liquidity needs and increased risk due to the shortening of the benefit duration may require a more conservative asset allocation policy at some time in the future, reducing the expected investment rates of return from that point forward. For this reason, we do not recommend a change to the discount rate at this time. Instead, we recommend the long-term impact of increased liquidity needs and shortened benefit duration on PERS and TRS be analyzed to better understand the impact these have on the investment and funding risk to the systems.

C. Individual Salary Increases

We reviewed the salary increases over the past four years. We measured actual total pay increases for a four-year period and compared them to the total assumptions. We separated the salary increases into inflation and real components. The table below shows the average increase compared to the assumption.

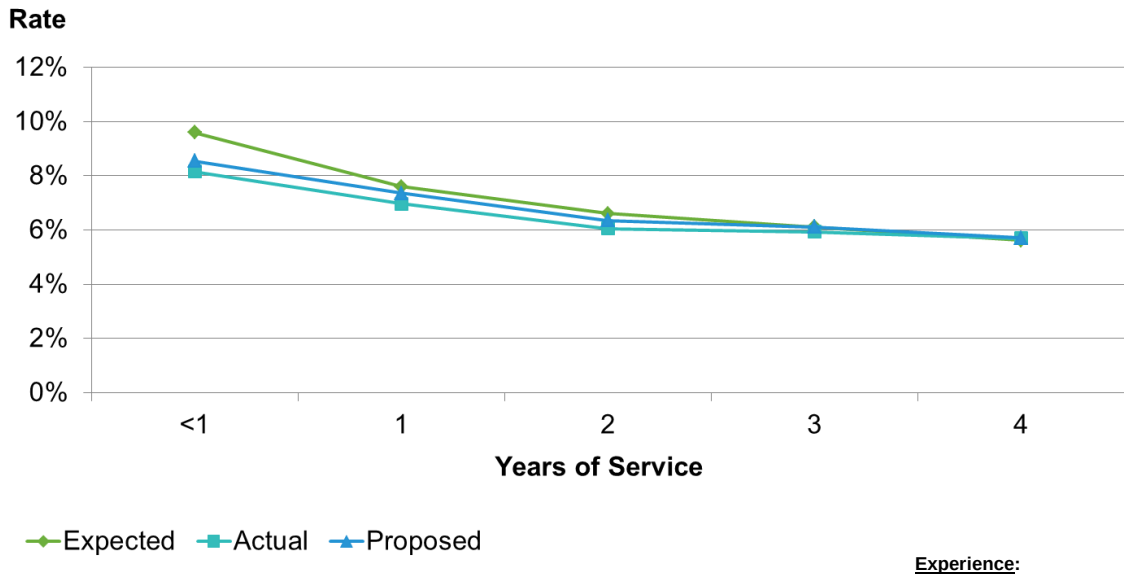
	Average Salary Increase with Inflation		
	Current Expected	Actual	New Expected
PERS Others			
First 5 years	7.44%	6.77%	7.05%
After 5 years	4.40%	4.78%	5.28%
PERS Peace Officer / Firefighter	4.77%	5.95%	5.76%
TRS	5.06%	5.32%	5.36%

To set our salary scale assumptions, we also looked at salary increases separated into inflation and real components. Our current inflation assumption is 3.12%.

Recommendation: Generally, actual increases were more than expected. We recommend changes to the salary assumptions for all groups to reflect the experience of the last four years. The graphs on the following pages compare the current and proposed assumptions with the actual rates.

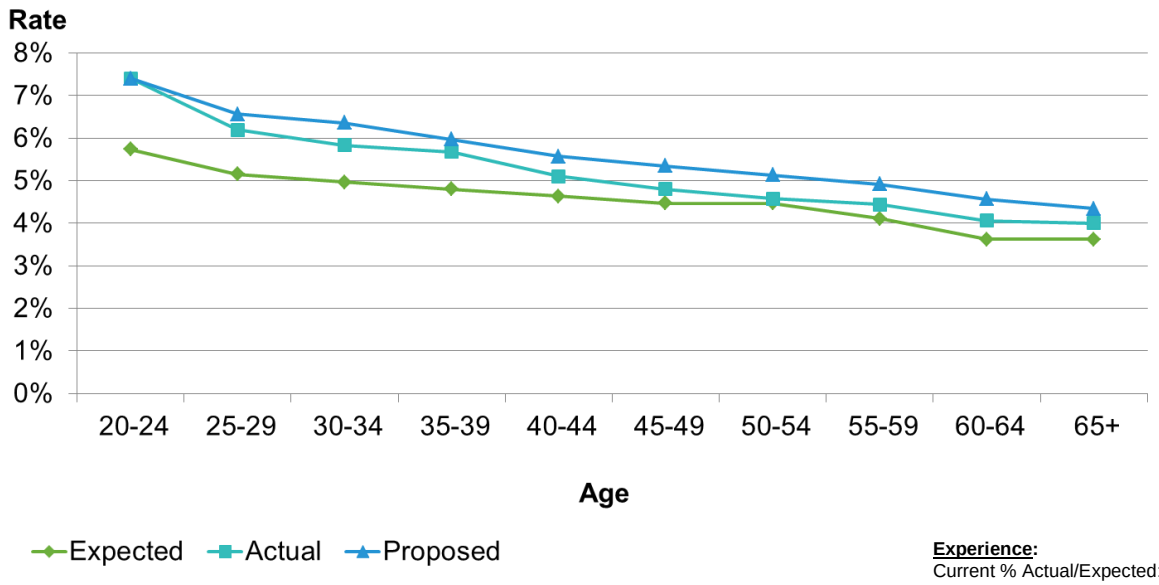
We set the salary scale assumption based on service only for TRS and PERS Peace Officers / Firefighters. For PERS Others, we set the assumption based on a 5-year select and ultimate table. Our analysis indicates these approaches are reasonable.

PERS Others
Salary scale (Select)
Service less than 5 years



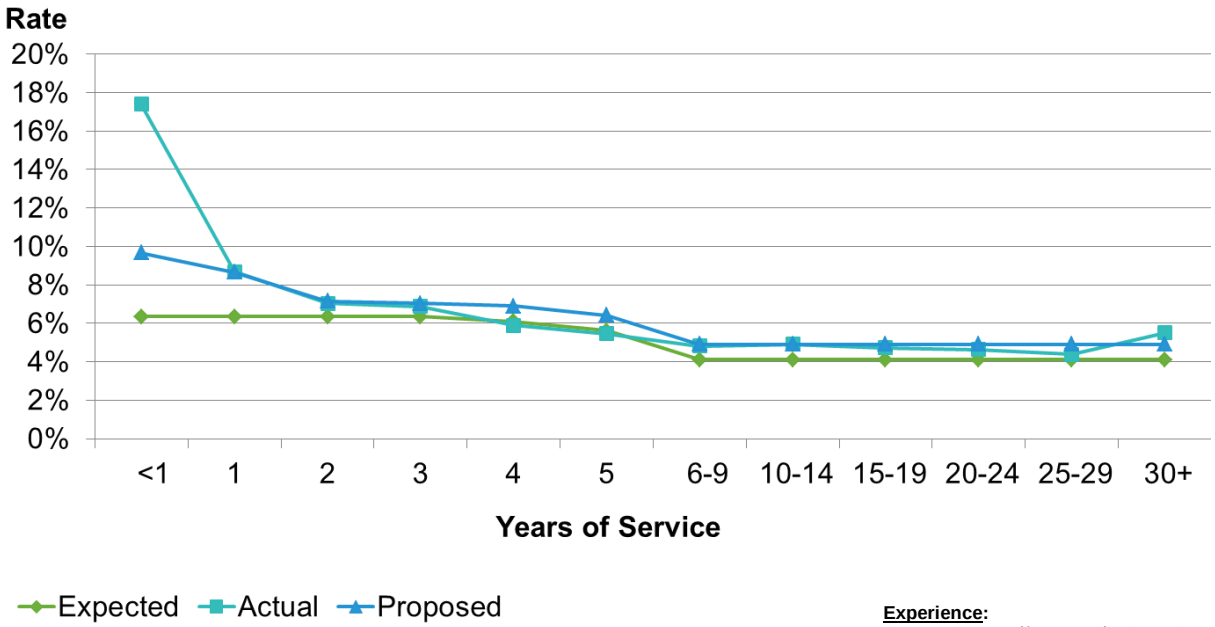
Experience:
Current % Actual/Expected: 91.02%
Proposed % Actual/Expected: 96.03%

PERS Others
Salary scale
Service over 5 years



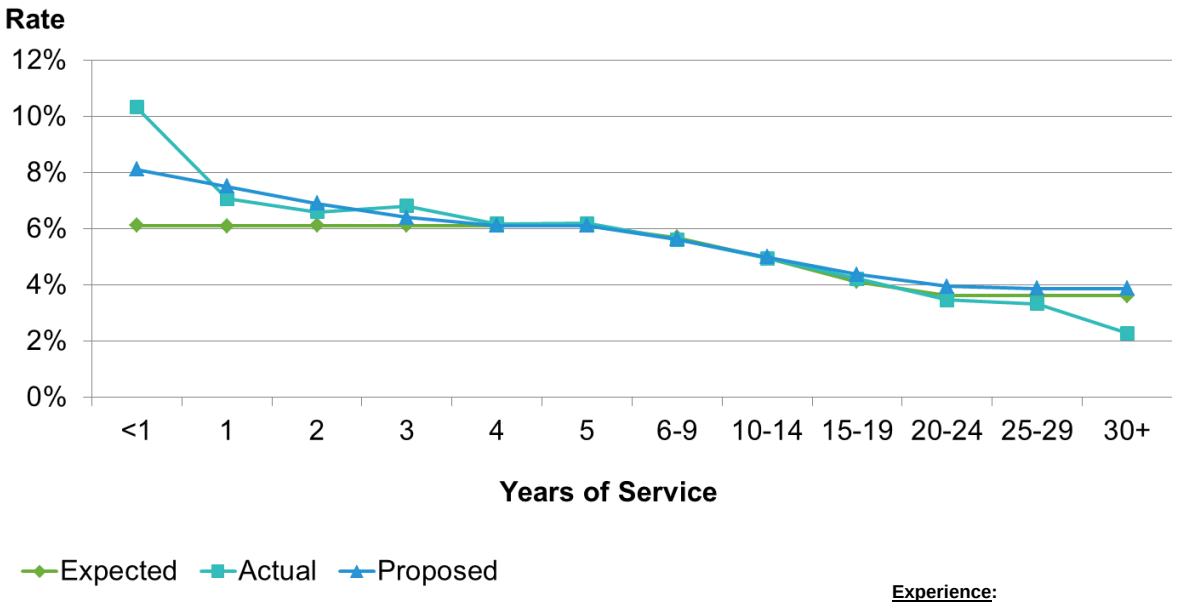
Experience:
Current % Actual/Expected: 108.76%
Proposed % Actual/Expected: 90.61%

PERS Peace Officer / Firefighter
Salary scale



Experience:
Current % Actual/Expected: 124.74%
Proposed % Actual/Expected: 103.34%

TRS
Salary scale



Experience:
Current % Actual/Expected: 105.03%
Proposed % Actual/Expected: 99.24%

D. Payroll Growth

As part of determining the actuarial contribution rate, the unfunded accrued liability is amortized over a 25-year period as a level percent of pay. If pay is expected to increase, an assumption is made for the rate at which total payroll increases. The amortization payment will remain level as a percentage of total payroll provided:

- the active payroll on which the contribution is based remains at a constant or stationary level,
- the underlying long-term inflation rate and productivity increases are realized, and
- the total payroll grows by the assumed rate.

This procedure for amortizing unfunded accrued liabilities is common for large public plans. However, this methodology increases the risk of future funding shortfalls since adequate funding is dependent on a stationary employee population with a growing active payroll.

Currently, a net interest rate of 4.09% is used for both TRS and PERS to amortize the unfunded liability. The net interest is the ratio of the valuation interest rate of 8.00% and the expected total payroll growth. The use of a 4.23% net interest rate assumes a total payroll growth of 3.62% and uses a compound interest approach.

Additionally, current law states that the contribution rates will be paid for the members in both the defined benefit plan and the Defined Contribution Rate plan (DCR). Since the active payroll in which contributions are based upon will continue to increase, a payroll growth assumption is appropriate.

PERS

	Number of Actives	Annual Earnings (000's)	Annual Average Earnings	Percent Increase / (Decrease) in Average Earnings
2013	35,271	$2,198,978	$62,345	3.3%
2012	35,327	$2,132,009	$60,351	3.3%
2011	35,358	$2,065,747	$58,424	3.8%
2010	35,674	$2,007,885	$56,284	3.2%
2009	34,821	$1,899,608	$54,554	

Total percent increase of 3.4% for the 4 year period.

TRS

	Number of Actives	Annual Earnings (000's)	Annual Average Earnings	Percent Increase / (Decrease) in Average Earnings
2013	9,624	$702,204	$72,964	2.0%
2012	9,902	$708,229	$71,524	2.8%
2011	10,011	$696,424	$69,566	2.5%
2010	10,078	$683,700	$67,840	5.1%
2009	10,018	$646,734	$64,557	

Total percent increase of 3.1% for the 4 year period.

Recommendation: We would recommend no change to the payroll growth assumption for both TRS and PERS.

E. Expenses

Currently, the expense assumption is included in the investment return assumption. We analyzed expenses over the last 4 years. The summary below is for PERS and TRS combined. Administrative expenses for the healthcare plan are excluded since these are included in the liability calculation.

	Fiscal Year Ending				
	2010	2011	2012	2013	Average
Expenses (000's)					
- Administrative	$ 9,063	$ 9,550	$ 9,590	$ 10,109	$ 9,578
- Investment	25,272	32,569	33,260	37,282	32,096
- Total	$ 34,355	$ 42,119	$ 42,850	$ 47,391	$ 41,674
Average Annual Fair Value of Assets (000's)	$12,930,041	$14,859,141	$16,025,639	$16,799,701	$15,153,630
Expense Ratio					
- Administrative (pension)	0.07%	0.06%	0.06%	0.06%	0.063%
- Investment	0.20%	0.22%	0.21%	0.22%	0.212%
- Total	0.27%	0.28%	0.27%	0.28%	0.275%

Section 3 Postemployment Healthcare Assumptions

In this section, we have reviewed the following assumptions that are needed for the postemployment healthcare valuation:

- Base Claim Cost Rate Derivation
- Healthcare Cost Trend Rate
- Morbidity
- Retiree-Paid Premiums
- Participation Rates
- Combined Experience

Pension-related assumption and method changes impact the postemployment healthcare results in generally the same direction and magnitude as their impact on the pension valuation. Healthcare-specific assumption changes do not impact pension results.

A. Base Claim Cost Rate Derivation

Base claims cost rates are incurred healthcare costs expressed as a rate per member per year. Ideally, claims cost rates should be derived for each significant component of cost that can be expected to require differing projection assumptions or methods, i.e., medical claims, prescription drug claims, administrative costs, etc. Separate analysis is limited by the availability and credibility of cost and enrollment data for each component of cost. The valuation per capita costs reflect non-prescription claims separated by Medicare status, including eligibility for free Part A coverage. Prescription costs are analyzed separately as in prior valuations. Administrative costs are assumed in the final per capita claims cost rates used for valuation purposes, as described below. Analysis to date on Medicare Part A coverage is limited since Part A claim data is not available by individual, nor is this status incorporated into historical claim data.

For the June 30, 2013, we analyzed HealthSmart management level reporting for fiscal 2010 through April 2013, and derived recommended base claims cost rates as described in the following steps:

1. Dental, vision and audio claims (DVA) are excluded from data analyzed for this valuation.

2. Available management level reporting does not show claims or enrollment separately for Medicare and non-Medicare plan participants, but does include overall statistics as to the percentage of claims and enrollment attributable to both groups for fiscal 2010 through 2012. Fiscal 2013 management level reporting includes the percentage of claims attributable to both groups but does not address enrollment by group. DB

Tier retiree census supplied by the Division was split into under and over age 65 counts as a proxy for fiscal 2013 Medicare and non-Medicare enrollment. Historical claim level reporting and estimated impacts of Medicare coordination and plan design were used to augment cost data by Medicare status.

3. Alaska retirees who do not have 40 quarters of Medicare-covered compensation do not qualify for Medicare Part A coverage free of charge. This is a relatively small and closed group. Medicare was applied to State employment for all employees hired after March 31, 1986. For these "no-Part A" individuals, the State is the primary payer for hospital bills and other Part A services. Thus, claims costs are higher for the no-Part A group. To date, claim experience is not available separately for participants with both Medicare Parts A and B and those with Part B only. Therefore, higher no-Part A claims are spread across the entire retired population and have been applied to future claims of current active employees projected to retire in the future. To the extent that no-Part A claims can be isolated and applied strictly to the appropriate closed group, actuarial accrued liability will be more accurate and will be lower. The smaller the no-Part A population, the more accrued liabilities will decrease.

Based on census data received from HealthSmart, 0.6% of the current retiree population was identified as having coverage only under Medicare Part B. For future retirees, we assume their Part A eligible status based on a combination of date of hire and/or re-hire, date of birth, tier, etc.

All claims cost rates developed from management level reporting have been compared to similar rates developed from claim level data.

4. The steps above result in separate incurred claims cost rates for medical and prescription benefits for non-Medicare, Medicare Part B only and Medicare Part A&B members for the past four fiscal years. Medical claims cost rates reflect differing average ages and levels of Medicare coordination for each group. Prescription claims cost rates reflect differing average ages. We deemed incurred claim data from HealthSmart management reports to be complete for fiscal 2010, 2011 and 2012. Fiscal 2013 medical claim data was completed using a factor of 0.82; fiscal 2013 prescription claim data was completed using a factor of 0.90 – these factors were derived from historic completion patterns for AlaskaCare retiree claims. Incurred claim cost rates are projected forward to the valuation year using a blend of Alaska plan-specific trend and national trend rates over the same period, with Alaska experience receiving 75% weight, national trend 25%. These weighted trend factors for this purpose for the current valuation are as follows:

Experience Period	Alaska-Specific and National Average Weighted Trend from Experience Period to Valuation Year		Weighting Factors
	Medical	Prescription Drugs	
FY2010 to FY2011	13.0%	9.6%	10%
FY2011 to FY2012	8.1%	4.5%	20%
FY2012 to FY2013	8.3%	5.1%	40%
FY2013 to FY2014	8.9%	7.1%	30%

5. Healthcare Reform legislation passed on March 23, 2010 included several provisions with potential implications for the State of Alaska Retiree Health Plan liability. Buck evaluated the impact of the following provisions; however, none of the impacts other than noted fees have been included in the valuation results.

   Because the State plan is retiree-only, and was in effect at the time the legislation was enacted, not all provisions are required. Unlimited lifetime benefits and dependent coverage to age 26 are two of these provisions. We reviewed the impact of including these provisions, but there was no decision made to adopt them, and no requirement to do so.

   The Plan will be subject to the high cost plan excise tax (Cadillac tax). Based upon guidance available at the time of disclosure, Buck estimated the year in which the tax would potentially affect Alaska to be sufficiently far into the future to produce a minimal impact. Buck determined the impact to be immaterial based on a blend of pre-Medicare and Medicare retirees.

   Patient-centered outcomes research fees and transitional reinsurance fees are included in the administration fees.

We have not identified any other specific provisions of healthcare reform that would be expected to have a significant impact on the measured obligation. As additional guidance on the legislation is issued, we will continue to monitor any potential impacts.

	Medical	Prescription Drugs
Pre-Medicare	$ 11,125	$ 2,621
Medicare Parts A & B	$ 1,726	$ 2,621
Medicare Part B Only	$ 6,676	$ 2,621
Medicare Part D	N/A	$ 502

Note that changes to the base claim cost rate derivation methodology and assumptions that will address recent consistent healthcare gains are described in subsection F “Combined Experience.”

B. Healthcare Cost Trend Rate (HCCTR)

Healthcare cost trend rates are used to project the base claim cost rates into the future. Separate trend rates are used for medical and prescription benefits. We last changed this assumption in the June 30, 2012 valuation to use the Society of Actuaries’ long term trend model as follows:

- Medical claim trend was assumed to be higher for pre-Medicare retires than for Medicare retirees in the select period through 2024 and the same for both groups thereafter.

- Prescription claim trend was assumed to differ from medical claim trend in the select period through 2024 with all trend rates equivalent thereafter.

- Assumed medical and prescription trend rates were set higher for near-term years than was assumed in prior years but lower after the select period.

Recommendation: At this time, we do not recommend HCCTR changes. Despite more healthcare gains than losses in recent years, assumed trend rates remain low compared to national norms and other Alaska plan experience. As we collect more experience data and improve allocation to Medicare groups, we may propose revised trend rate assumptions to better reflect recent experience of each separate group and benefit type. We will analyze historic trend rates for each group with and without large claims in order to smooth out large claim variance over time. While initial trend rates may differ by member type, we anticipate that ultimate trend rates for all three member types and both benefit types will remain uniform. Until we recommend HCCTR changes, or until significant unanticipated costs indicate otherwise, the set of trend rates used will not change but will progress toward the ultimate, long-term rates currently assumed. Finally, if the assumed inflation rate or the real rate of investment return is changed at some future date, ultimate HCCTR factors should be revisited.

C.Morbidity

Morbidity rates (also called aging factors) are used to estimate utilization of healthcare benefits at each age to reflect the fact that healthcare utilization increases with age. Separate morbidity rates are used for medical and prescription benefits.

Recommendation: We do not recommend changes to the current morbidity assumptions. As we collect more experience data, we will propose revised morbidity assumptions to better reflect utilization by age. We may recommend separate sets of morbidity assumptions for each of the Medicare groups in order to better reflect suspected Medicare cost shifting. Premera was only able to provide claims by 5-year age bands prior to age 65. After age 65, all claims were reported together in one band. This did not provide meaningful information on which to propose any revised assumptions. HealthSmart and Aetna as of January 1, 2014, are able to provide age-specific claims. As of June 2014 (i.e., past the June 30, 2013 valuation date) we have almost six years of claims data by age, but not yet a full year under Aetna. Analysis of data available for this experience study did not indicate a need to update the morbidity rates. Buck will review information available for the June 30, 2014 valuation to assess this assumption and recommend potential changes.

D.Retiree Paid Premiums

DCR Tier retirees pay 100% of plan cost prior to Medicare eligibility. Thereafter, DCR Tier retirees pay premiums based on years of service at retirement, from a maximum of 30% of plan cost with less than 15 years of service to a minimum of 10% of plan cost with 30 years of service. TRS Tier II retirees under age 60 and with less than 30 years of service are required to pay premiums to obtain coverage. PERS Tier II and III retirees under age 60 and with less than 30 years of service (25 years for peace officers and firefighters) are also required to pay premiums to obtain coverage. Tier I members under both Systems are not required to pay premiums to obtain coverage.

Currently, premiums paid by retirees are reflected on a composite basis (the portion of retirees electing retiree only and retiree plus dependent(s) coverage has been blended into a single retiree premium rate and applied to all current and future retirees). This methodology is required for current active and inactive employees since their future dependent coverage elections are unknown. However, we recommend that actual dependent coverage elections in place as of the valuation date be assumed to continue for current retirees.

Recommendation: We do not recommend changes to the assumed trend rates for retiree-paid premiums at this time. However, we will monitor actual premiums charged compared to plan cost changes and recommend changes to retiree-paid premium trend factors as appropriate.

E. Participation Rates

The participation assumption is used to estimate how many members elect to participate in the program. Members may have coverage under another employer or their spouse, or they may simply elect to waive coverage for a period of time.

Current participation assumptions by Tier are as follows:

- DCR Tier
  - For disability decrement retirements assumed rates of participation vary by age at disability from a low of 73% at age 56 or younger to a high of 94% at ages 65 and above, regardless of service
  - For retirement decrements assumed rates of participation vary by age at retirement if before age 65, from a low of 40% at age 55 to a high of 90% at age 64
  - For retirement decrements assumed rates of participation vary by years of service at retirement if after age 64, from a low of 70.5% with less than 15 years of service to a high of 94% with 30 years of service
  - This set of assumed participation rates based on decrement, age at event and service at event reflect the availability and expected cost of other coverage in future, as well as accumulation of HRA balances with increasing years of service.
- TRS Tier II, PERS Tier II and PERS Tier III: 10% of retirees are assumed to participate if they have no system-paid coverage; 100% of retirees are assumed to participate when they have system-paid coverage.
- TRS and PERS Tier I: 100% of retirees are assumed to participate since they have system-paid coverage.

Recommendation: We do not recommend changes to the assumed contributory participation rates at this time. However, we will monitor actual participation compared to assumed and recommend changes to participation assumptions as appropriate.

F. Combined Experience

All of the healthcare-related assumptions described, plus claims and enrollment data, combine to drive projected healthcare costs. Emerging healthcare experience has been favorable for seven of the last eight years, with losses occurring in 2010 only. Conservativeness in our methodology and assumptions can be broadly grouped into three sources of these consistent gains:

- Long-term focus of trend assumptions
- Continuing improved network breadth and discounts after changing third-party administrators
- Continued refinement of the claims database

The pattern of healthcare experience gains from June 30, 2006 to date parallels the development of a robust healthcare claims database from which future healthcare costs are projected. The following points highlight milestones in the development of the requisite database as of June 30, 2013:

- **Long-term Focus of Trend Assumptions** – Assumed HCCTR is based on the Society of Actuaries' long term trend model. This approach extends the select period from a decade often used in retiree medical valuations to over five decades. When combined with Buck's recommendations to set near-term trend higher than actual experience – due to the fact that national trends have also exceeded AlaskaCare experience – this longer-term outlook generates actuarial gains. And, in our first valuation for DRB, Buck recommended "holding off" one year in the prior actuary's set of trend rates grading from higher initial trend rates to a lower ultimate rate. This recommendation was based on concerns over validity of the claims data then available and the prior claim cost derivation methodology. We believe these explicitly conservative adjustments have been and are appropriate, but they do tend to lead to claims experience gains.

- **Trend and Blend Methodology** – Buck develops separate claim cost rates for each of the three years prior to the valuation, adjusts from a paid to an incurred basis, applies trend separately to bring each of the prior year's data to the valuation year, and blends each prior year's data into a single set of base year claim cost rates. This approach is labeled "trend and blend." The trend and blend approach does not itself give rise to consistent gains or losses, but does allow for two types of refinement to this key calculation over time. First, as the claims database detail and credibility are improved, more weight can be applied to paid claims nearer the valuation date. This reduces the duration until prior experience is completely reflected in future projections, while still maintaining some smoothing capability. Second, as the claims database detail and credibility are improved, constituent parts of overall claims will continue to be analyzed and projected separately, including medical clams prior to Medicare, medical claims for members with both Medicare Parts A and B, medical claims for members with Medicare Part B only, and prescription claims.

- **Network Improvements** – Premera was selected as the plan's third-party administrator (TPA) effective July 1, 2006. Premera medical provider discounts were significantly greater than under the prior Aetna contract. Overall paid claims for fiscal 2007 decreased 8% per member compared to fiscal 2006. Compared to assumed HCCTR, this means 2007 average costs

were almost 18% less than expected. Changes in one type of claim, such as hospitalization, does not translate directly into the same percentage gain on liabilities. Also, the trend and blend methodology inherently smoothes changes in paid claims from one year to the next. So, our June 30, 2007 valuation did not result in a one-time 18% gain, but improved hospital discounts have contributed to gains every year since. Wells Fargo Insurance Services / HealthSmart (HealthSmart) became TPA and Envision became pharmacy benefit manager (PBM) effective July 1, 2009 with similar but somewhat less favorable results. Aetna is now the TPA and PBM effective January 1, 2014. Again, we anticipate additional savings with Aetna but not as great a one-time savings as the 2006 TPA change. Note that the lower magnitude of gains arising from the switch to HealthSmart and Aetna, as compared to the switch to Premera, are consistent with Buck's assumption that significant discounts due to any one provider contracting cycle or attributable to one TPA versus another are not sustainable over time.

Note also that we do not recommend that clients change HCCTR assumptions to anticipate improvements in provider contracting. Even in cases similar to Premera's selection over Aetna due at least partially to promised lower hospitalization bills, there is typically no guarantee that such savings will materialize exactly as described in the RFP process. More importantly, it is not likely that significant discounts due to any one provider contracting cycle or attributable to one TPA versus another will be sustained over time. Providers typically negotiate in business cycles analogous to insured plans. When business pressures lean toward expanding market share, providers tend to accept greater fee discounts. When business pressures lean toward improved profitability, providers tend to risk loss of network status in order to reduce fee discounts. Similarly, if one TPA obtains significant provider discounts relative to other TPAs, there will be pressure from other TPAs to obtain the same discounts. Thus, Buck believes trend and blend claim cost derivation, coupled with an ever-improving claim cost database, provides the best basis for long-term healthcare cost projections.

- **Health Claims Database Development** – Beginning with Aetna's EPSM online reporting, continuing through Premera's Insight Reporter, then HealthSmart online tools and now back to Aetna's system, access to claims and claimant detail has steadily improved. It will likely take several years data at current quality levels to form the credible basis for a complete morbidity curve, but as the database improves a source of variance – in addition to actual versus expected claims – is introduced.

Gains generated by blending prior TPA levels of provider discounts with current levels will be mitigated in future without any additional explicit methodology or assumption changes as prior TPA-based claims drop out of the averaging period used. Also, we may recommend changing the current weighting of experience periods used from a straight average to greater emphasis on more recent years, or even shortening the experience period used. Finally, as there are fewer refinements in the claims database to be made, the impact of such refinements should diminish. All these changes should serve to reduce healthcare gains that would have otherwise arisen.

However, we caution that the impact of provider contracting under the Aetna administrative services contract will not be fully known until we perform the June 30, 2014 valuation. To the extent that Aetna provider and prescription drug contracting deliver greater savings than previously available, additional gains will arise.

Section 4 Actuarial Methods

A. Funding Method

The ultimate cost of any retirement program is equal to the benefits paid plus the administrative costs of operating the plan. This cost is provided from contributions made to the plan plus the investment return on accumulated contributions. The level and timing of the contributions needed to fund the ultimate cost are determined by the actuarial assumptions, plan provisions, member characteristics, investment experience, and the actuarial cost method. Actuarial cost methods are calculation processes which determine and allocate the cost of a retirement plan to specific periods of time. As such, it has an influence on the level and timing of the ultimate contributions.

Different actuarial cost methods can provide for faster funding earlier in a plan's existence, more level funding over time, or more flexibility in funding. The choice of an actuarial cost method will determine the pattern or pace of the funding and therefore should be linked to long term financing objectives of the fund and benefit security considerations.

The actuarial cost method used for the State of Alaska is as follows:

Entry Age Actuarial Cost –

Liabilities and contributions shown in the report are computed using the Entry Age Actuarial Cost method of funding. Any funding surpluses or unfunded accrued liability is amortized over 25 years as a level percent of pay amount. Payroll is assumed to increase by the payroll growth assumption per year for this purpose. State statutes allow the contribution rate to be determined on payroll for all members, defined benefit and defined contribution member payroll combined. However, for GASB disclosure requirements, the net amortization period will not exceed 30 years and the level dollar amortization method is used since the defined benefit plan membership was closed effective July 1, 2006.

Projected pension and postemployment healthcare benefits were determined for all active members. Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year for pension benefits (constant dollar amount for healthcare benefits) from the assumed entry age to the assumed retirement age were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members and determining an average normal cost rate which is then related to the total payroll of active members. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for retired members and their beneficiaries currently receiving benefits, terminated vested members and disabled members not yet receiving benefits was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date.

Under this method, experience gains or losses, i.e., decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

This actuarial cost method will systematically fund the prospective pension benefits on an actuarially sound basis given all of the actuarial assumptions are realized.

The Entry Age Normal Cost Method is the most common method used by public systems. The 2014 NASRA Public Fund Survey on State Retirement Systems showed 99 out of 126 surveyed systems, or 79%, used this method.

Recommendation: We recommend no changes in the actuarial cost method.

B. Asset Valuation Method

To counter the natural volatility of the stock market, PERS and TRS do not measure the funded status of their pension benefits using the current market value of their Plan's assets. Instead, it determines the actuarial value of their Plan's assets by smoothing the effects of increases or decreases in market values each year over several years. For a majority of state systems, this period is generally four or five years. The effect of this approach is to take the immediate impact of a severe market drop or spike in growth and spread it out over time.

This actuarial method of smoothing means that, when the stock markets experience periods of large declines, the unfunded liability that drives the Systems' annual contributions will grow much more slowly than it did in the past. Conversely, when the markets increase in value rapidly, unfunded liabilities will drop much more slowly than they did previously. For these reasons, employer contribution rates will be much more stable.

The current method used by both PERS and TRS is a 5-year actuarial smoothing period to calculate their Actuarial Value of Assets. This procedure recognizes 20% of each plan year's appreciation (depreciation) in excess of the expected appreciation, whether realized or unrealized, beginning with the year of occurrence. After five years, the appreciation (depreciation) is fully recognized. If the adjusted market value is less than 80% of market value, or more than 120%, an adjustment will be made to bring it within that range.

Recommendation: Under SB119 passed during the 2014 Legislative Session, it is the intent of the Legislature to eliminate asset smoothing, although this intent is nonbinding. In order to follow the intent of the Legislature, we recommend the Actuarial Value of Assets be re-initialized at Fair (Market) Value as of June 30, 2014, and five-year smoothing of asset gains and losses be phased-in over the next five years. We also recommend eliminating the 80%-120% corridor. The corridor has been observed to increase volatility in the actuarial value. We believe the five-year period used for smoothing is sufficiently short to meet the requirements of Actuarial Standards of Practice No. 44.

C.Amortization Method

There are a variety of different methods that can be used to amortize the unfunded actuarial liability. Statement No. 25 of the Governmental Accounting Standards Board (GASB) sets parameters for these methods that are required for disclosure and expense purposes. Amortization periods cannot exceed 30 years. The amortization amount can be a fixed level dollar amount or a level percentage of payroll amount where the payment increases at a fixed rate, which is the expected rate of salary increases. It can be a closed amortization period, a fixed period that decreases by one year each year, or an open amortization period, where the period does not decline but resets each year. The method used by a specific plan depends on a variety of factors, including the characteristics of the plan and the covered population, statutory requirements, the funding objectives, and the degree of stability that is required in the employer's contribution rates.

Currently, PERS and TRS amortize their unfunded liability over a layered period of 25 years as a level dollar amount for funding purposes and GASB purposes.

Recommendation: In order to comply with HB385 passed during the 2014 Legislative session, we recommend changing the amortization method from the level dollar amortization method to the level percentage of total payroll method and amortize the unfunded actuarial accrued liability over a closed 25-year period beginning June 30, 2014.

Section 5 Impact of Proposed Changes

Public Employees' Retirement System

As of June 30, 2013 ($ in thousands)	Current Assumptions	Proposed Assumptions
Pension		
Actuarial Accrued Liability (AAL)	$ 11,945,881	$ 12,477,057
Actuarial Value of Assets (AVA)	6,510,749	6,510,749
UAAL	$ 5,432,132	$ 5,966,308
Funded Ratio Based on AVA	54.5%	52.2%
Employer Normal Cost Rate	2.38%	3.79%
Past Service Cost Rate	22.46%	24.32%
Employer Contribution Rate	24.84%	28.11%
Employer Contribution Rate HB385	16.64%	19.41%
Healthcare		
Actuarial Accrued Liability (AAL)	$ 8,046,878	$ 8,306,459
Actuarial Value of Assets (AVA)	5,651,877	5,651,877
UAAL	$ 2,395,001	$ 2,654,582
Funded Ratio Based on AVA	70.2%	68.0%
Employer Normal Cost Rate	3.73%	4.12%
Past Service Cost Rate	11.71%	12.62%
Employer Contribution Rate	15.44%	16.74%
Employer Contribution Rate HB385	9.75%	10.81%
Total		
Actuarial Accrued Liability (AAL)	$ 19,992,759	$ 20,793,516
Actuarial Value of Assets (AVA)	12,162,626	12,162,626
UAAL	$ 7,830,133	$ 8,620,890
Funded Ratio Based on AVA	60.8%	58.5%
Employer Normal Cost Rate	6.11%	7.91%
Past Service Cost Rate	34.17%	36.94%
Employer Contribution Rate	40.28%	44.85%
Employer Contribution Rate HB385	26.39%	30.22%

Please note that the current and proposed assumptions and methods use an 8.00% investment return and 3.12% inflation.

Teachers' Retirement System

As of June 30, 2013 ($ in thousands)	Current Assumptions	Proposed Assumptions
Pension		
Actuarial Accrued Liability (AAL)	$ 6,589,553	$ 6,748,125
Actuarial Value of Assets (AVA)	3,170,313	3,170,313
UAAL	$ 3,419,240	$ 3,577,812
Funded Ratio Based on AVA	48.1%	47.0%
Employer Normal Cost Rate	2.50%	2.93%
Past Service Cost Rate	45.56%	47.20%
Employer Contribution Rate	48.06%	50.13%
Employer Contribution Rate HB385	30.73%	32.38%
Healthcare		
Actuarial Accrued Liability (AAL)	$ 3,002,554	$ 3,091,681
Actuarial Value of Assets (AVA)	1,803,763	1,803,763
UAAL	$ 1,198,791	$ 1,287,918
Funded Ratio Based on AVA	60.1%	58.3%
Employer Normal Cost Rate	3.20%	3.23%
Past Service Cost Rate	17.98%	18.94%
Employer Contribution Rate	21.18%	22.17%
Employer Contribution Rate HB385	12.89%	13.63%
Total		
Actuarial Accrued Liability (AAL)	$ 9,592,107	$ 9,839,806
Actuarial Value of Assets (AVA)	4,974,076	4,974,076
UAAL	$ 4,618,031	$ 4,865,730
Funded Ratio Based on AVA	51.9%	50.6%
Employer Normal Cost Rate	5.70%	6.16%
Past Service Cost Rate	63.54%	66.14%
Employer Contribution Rate	69.24%	72.30%
Employer Contribution Rate HB385	43.62%	46.01%

Please note that the current and proposed assumptions and methods use an 8.00% investment return and 3.12% inflation.

PERS
As of June 30, 2013

		Pension		Healthcare		Total	
	Description of Change	Employer Contribution Rate	Funded Ratio	Employer Contribution Rate	Funded Ratio	Employer Contribution Rate	Funded Ratio
Before Changes		16.64%	56.0%	9.75%	72.4%	26.39%	62.6%
Termination Rates	Change to sex distinct select rates and decreased most rates for both select and ultimate.	0.65%	(0.1)%	0.22%	0.3%	0.87%	0.1%
Retirement Rates	Changed to sex distinct for reduced for PERS Others and decreased most rates. Changes to sex distinct for unreduced for P/F and decreased most rates.	(0.10)%	0.2%	(0.11)%	0.2%	(0.21)%	0.2%
Disability Rates	Decreased Others rates by 5% and P/F by 30%.	(0.01)%	0.0%	0.00%	0.0%	(0.01)%	(0.1)%
Salary Scale	Increased most rates.	0.99%	(0.7)%	(0.05)%	0.0%	0.94%	(0.4)%
Part-Time Service Accrual	No changes.	0.02%	0.0%	0.01%	0.0%	0.03%	0.0%
Marriage Assumption	Decreased Others males from 80% to 75%, no change for females. Decreased P/F females from 70% to 60% and increased P/F males from 80% to 85%.	(0.01)%	0.0%	(0.16)%	0.4%	(0.17)%	0.1%
Vested Termination Refund	Decreased Others from 15% to10%. No change to P/F.	0.02%	(0.1)%	0.09%	(0.1)%	0.11%	(0.1)%
Occupational Assumption	Decreased both for Others 55% to 50%. Decreased both for P/F from 75% to 70%.	(0.01)%	0.1%	(0.01)%	0.0%	(0.02)%	0.0%
Deferred Vested Commencement Age	Increased ages for all tiers of P/F. No change for Others.	(0.02)%	0.0%	(0.01)%	0.0%	(0.03)%	0.0%
Alaska Residency	Decreased P/F from 70% to 65%. No change for Others	0.00%	0.0%	0.00%	0.0%	0.00%	0.1%
Disabled Mortality	Decreased most rates.	0.03%	(0.1)%	0.03%	(0.1)%	0.06%	(0.1)%
Pre-termination Mortality	Decreased most rates.	0.01%	0.0%	0.01%	0.0%	0.02%	0.0%
Post-termination Mortality	Decreased most rates.	1.20%	(1.6)%	1.04%	(2.9)%	2.24%	(2.1)%
After Changes		19.41%	53.7%	10.81%	70.2%	30.22%	60.3%

TRS
As of June 30, 2013

		Pension		Healthcare		Total	
	Description of Change	Employer Contribution Rate	Funded Ratio	Employer Contribution Rate	Funded Ratio	Employer Contribution Rate	Funded Ratio
Before Changes		30.73%	49.8%	12.89%	62.2%	43.62%	53.6%
Termination Rates	Changed to sex distinct rates for all. Increased most select rates and decreased ultimate rates.	0.20%	(0.1)%	(0.07)%	(0.1)%	0.13%	(0.1)%
Retirement Rates	Increased reduced rates for ages 54 and 59, decreased most unreduced rates.	(0.10)%	0.0%	0.08%	(0.2)%	(0.02)%	0.0%
Disability Rates	Changed to unisex rates. Increased most rates.	0.03%	0.0%	0.02%	0.0%	0.05%	0.0%
Salary Scale	Increased most rates	0.27%	(0.01)%	(0.03)%	0.0%	0.24%	(0.1)%
Part time service	Increased from 0.60 to 0.75 years.	0.07%	0.0%	0.02%	0.0%	0.09%	0.0%
Sick Time	Decrease from 4.7 to 4.5 days	(0.05)%	(0.1)%	(0.03)%	0.0%	(0.08)%	0.0%
Vested Termination Refund	Decrease from 10% to 5%	0.00%	0.0%	0.07%	(0.1)%	0.07%	0.0%
Disabled Mortality	Decreased most rates.	0.04%	0.0%	0.02%	0.0%	0.06%	0.0%
Pre-termination Mortality	Decreased rates.	0.03%	0.0%	0.01%	0.0%	0.04%	(0.1)%
Post-termination Mortality	Decreased rates.	1.16%	(0.9)%	0.65%	(1.4)%	1.81%	(1.0)%
After Changes		32.38%	48.6%	13.63%	60.4%	46.01%	52.3%

Section 6 Comparative Summary of Current & Proposed Assumption Rate Tables

PERS and TRS
Disability Mortality Rates
Female

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.0075	0.0071	50	0.0115	0.0109	85	0.1002	0.0806
16	0.0075	0.0071	51	0.0125	0.0118	86	0.1071	0.0862
17	0.0075	0.0071	52	0.0135	0.0127	87	0.1145	0.0921
18	0.0075	0.0071	53	0.0145	0.0137	88	0.1225	0.0985
19	0.0075	0.0071	54	0.0155	0.0144	89	0.1310	0.1054
20	0.0075	0.0071	55	0.0165	0.0151	90	0.1400	0.1148
21	0.0075	0.0071	56	0.0176	0.0158	91	0.1497	0.1249
22	0.0075	0.0071	57	0.0187	0.0164	92	0.1599	0.1359
23	0.0075	0.0071	58	0.0197	0.0171	93	0.1704	0.1475
24	0.0075	0.0071	59	0.0208	0.0176	94	0.1828	0.1611
25	0.0075	0.0071	60	0.0218	0.0182	95	0.1945	0.1745
26	0.0075	0.0071	61	0.0229	0.0188	96	0.2054	0.1877
27	0.0075	0.0071	62	0.0241	0.0194	97	0.2152	0.2003
28	0.0075	0.0071	63	0.0253	0.0204	98	0.2239	0.2084
29	0.0075	0.0071	64	0.0266	0.0214	99	0.2314	0.2192
30	0.0075	0.0071	65	0.0280	0.0226	100	0.2375	0.2250
31	0.0075	0.0071	66	0.0296	0.0238	101	0.2448	0.2362
32	0.0075	0.0071	67	0.0313	0.0252	102	0.2545	0.2455
33	0.0075	0.0071	68	0.0332	0.0267	103	0.2660	0.2613
34	0.0075	0.0071	69	0.0353	0.0284	104	0.2791	0.2741
35	0.0075	0.0071	70	0.0376	0.0303	105	0.2931	0.2931
36	0.0075	0.0071	71	0.0401	0.0323	106	0.3078	0.3078
37	0.0075	0.0071	72	0.0429	0.0345	107	0.3227	0.3227
38	0.0075	0.0071	73	0.0458	0.0368	108	0.3374	0.3374
39	0.0075	0.0071	74	0.0489	0.0393	109	0.3515	0.3515
40	0.0075	0.0071	75	0.0522	0.0420	110	0.3646	0.3646
41	0.0075	0.0071	76	0.0558	0.0449	111	0.3762	0.3762
42	0.0075	0.0071	77	0.0595	0.0479	112	0.3860	0.3860
43	0.0075	0.0071	78	0.0635	0.0511	113	0.3935	0.3935
44	0.0075	0.0071	79	0.0678	0.0546	114	0.3983	0.3983
45	0.0075	0.0071	80	0.0723	0.0582	115	0.4000	0.4000
46	0.0082	0.0078	81	0.0771	0.0621	116	0.4000	0.4000
47	0.0090	0.0085	82	0.0823	0.0662	117	0.4000	0.4000
48	0.0098	0.0093	83	0.0878	0.0707	118	0.4000	0.4000
49	0.0106	0.0101	84	0.0938	0.0755	119	0.4000	0.4000

Current Assumption: RP-2000 Disabled Retiree Mortality

Proposed Assumption: RP-2000 Disabled Retiree Mortality, 2000 Base Year projected to 2018 with Projection Scale BB

PERS and TRS
Disability Mortality Rates
Male

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.0226	0.0214	50	0.0290	0.0275	85	0.1416	0.1079
16	0.0226	0.0214	51	0.0303	0.0287	86	0.1484	0.1130
17	0.0226	0.0214	52	0.0316	0.0299	87	0.1552	0.1204
18	0.0226	0.0214	53	0.0329	0.0311	88	0.1622	0.1282
19	0.0226	0.0214	54	0.0342	0.0324	89	0.1692	0.1362
20	0.0226	0.0214	55	0.0354	0.0336	90	0.1834	0.1503
21	0.0226	0.0214	56	0.0367	0.0348	91	0.1998	0.1667
22	0.0226	0.0214	57	0.0380	0.0354	92	0.2166	0.1841
23	0.0226	0.0214	58	0.0393	0.0359	93	0.2337	0.2022
24	0.0226	0.0214	59	0.0407	0.0365	94	0.2507	0.2209
25	0.0226	0.0214	60	0.0420	0.0370	95	0.2675	0.2400
26	0.0226	0.0214	61	0.0435	0.0376	96	0.2839	0.2594
27	0.0226	0.0214	62	0.0450	0.0382	97	0.2999	0.2790
28	0.0226	0.0214	63	0.0466	0.0389	98	0.3153	0.2934
29	0.0226	0.0214	64	0.0483	0.0396	99	0.3302	0.3128
30	0.0226	0.0214	65	0.0502	0.0404	100	0.3446	0.3264
31	0.0226	0.0214	66	0.0522	0.0413	101	0.3586	0.3459
32	0.0226	0.0214	67	0.0545	0.0422	102	0.3717	0.3585
33	0.0226	0.0214	68	0.0569	0.0434	103	0.3830	0.3762
34	0.0226	0.0214	69	0.0596	0.0454	104	0.3920	0.3850
35	0.0226	0.0214	70	0.0626	0.0477	105	0.3979	0.3979
36	0.0226	0.0214	71	0.0658	0.0502	106	0.4000	0.4000
37	0.0226	0.0214	72	0.0694	0.0529	107	0.4000	0.4000
38	0.0226	0.0214	73	0.0733	0.0558	108	0.4000	0.4000
39	0.0226	0.0214	74	0.0775	0.0591	109	0.4000	0.4000
40	0.0226	0.0214	75	0.0821	0.0625	110	0.4000	0.4000
41	0.0226	0.0214	76	0.0870	0.0662	111	0.4000	0.4000
42	0.0226	0.0214	77	0.0921	0.0702	112	0.4000	0.4000
43	0.0226	0.0214	78	0.0976	0.0744	113	0.4000	0.4000
44	0.0226	0.0214	79	0.1034	0.0788	114	0.4000	0.4000
45	0.0226	0.0214	80	0.1094	0.0833	115	0.4000	0.4000
46	0.0238	0.0226	81	0.1155	0.0880	116	0.4000	0.4000
47	0.0251	0.0238	82	0.1219	0.0928	117	0.4000	0.4000
48	0.0264	0.0250	83	0.1283	0.0978	118	0.4000	0.4000
49	0.0277	0.0262	84	0.1349	0.1028	119	0.4000	0.4000

Current Assumption: RP-2000 Disabled Retiree Mortality

Proposed Assumption: RP-2000 Disabled Retiree Mortality, 2000 Base Year projected to 2018 with Projection Scale BB

PERS Peace Officer / Firefighter
Pre-termination Mortality Rates
Female

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.000103	0.000100	50	0.000665	0.000991	85	0.038980	0.038887
16	0.000118	0.000105	51	0.000745	0.001095	86	0.044195	0.043371
17	0.000129	0.000109	52	0.000856	0.001193	87	0.050234	0.048373
18	0.000134	0.000111	53	0.000978	0.001305	88	0.056091	0.053879
19	0.000136	0.000112	54	0.001111	0.001407	89	0.063736	0.059830
20	0.000135	0.000113	55	0.001270	0.001549	90	0.070848	0.067336
21	0.000133	0.000114	56	0.001474	0.001730	91	0.078456	0.075301
22	0.000135	0.000115	57	0.001712	0.001912	92	0.086514	0.083583
23	0.000138	0.000116	58	0.001970	0.002118	93	0.096846	0.092034
24	0.000141	0.000119	59	0.002266	0.002355	94	0.106005	0.100518
25	0.000144	0.000122	60	0.002604	0.002632	95	0.115653	0.108913
26	0.000151	0.000127	61	0.002987	0.002973	96	0.125793	0.117100
27	0.000155	0.000132	62	0.003421	0.003343	97	0.139044	0.124961
28	0.000161	0.000139	63	0.003916	0.003840	98	0.150475	0.130016
29	0.000170	0.000147	64	0.004470	0.004328	99	0.162502	0.136784
30	0.000187	0.000156	65	0.005065	0.004874	100	0.174982	0.140379
31	0.000207	0.000181	66	0.005686	0.005500	101	0.191374	0.147369
32	0.000220	0.000207	67	0.006314	0.006107	102	0.204576	0.153186
33	0.000229	0.000233	68	0.006899	0.006751	103	0.218752	0.163049
34	0.000239	0.000257	69	0.007454	0.007462	104	0.233998	0.171022
35	0.000250	0.000281	70	0.008053	0.008407	105	0.249108	0.182904
36	0.000262	0.000304	71	0.008605	0.009329	106	0.262876	0.192074
37	0.000277	0.000327	72	0.009498	0.010376	107	0.274094	0.201380
38	0.000295	0.000354	73	0.010356	0.011534	108	0.282896	0.210563
39	0.000316	0.000383	74	0.011506	0.012783	109	0.290084	0.219363
40	0.000344	0.000417	75	0.012564	0.014113	110	0.295462	0.227521
41	0.000372	0.000458	76	0.014026	0.015549	111	0.298832	0.234778
42	0.000400	0.000504	77	0.016014	0.017125	112	0.300000	0.240873
43	0.000425	0.000554	78	0.017912	0.018877	113	0.300000	0.245548
44	0.000447	0.000608	79	0.019964	0.020841	114	0.300000	0.248544
45	0.000462	0.000664	80	0.022241	0.023037	115	0.300000	0.249600
46	0.000481	0.000723	81	0.024813	0.025498	116	0.300000	0.249600
47	0.000508	0.000784	82	0.027750	0.028266	117	0.300000	0.249600
48	0.000551	0.000848	83	0.030970	0.031386	118	0.300000	0.249600
49	0.000598	0.000916	84	0.034426	0.034906	119	1.000000	1.000000

Current Assumption: 60% of the 1994 Group Annuity Mortality Table, 1994 Base Year without margin projected to 2013 using Projection Scale AA

Proposed Assumption: 65% of the Alaska Healthy Post-Termination Mortality Rate

PERS Peace Officer / Firefighter
Pre-termination Mortality Rates
Male

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.000206	0.000147	50	0.001571	0.001167	85	0.073196	0.048601
16	0.000234	0.000155	51	0.001716	0.001336	86	0.079634	0.053884
17	0.000257	0.000164	52	0.001883	0.001455	87	0.088751	0.060797
18	0.000275	0.000172	53	0.002100	0.001591	88	0.099307	0.068537
19	0.000289	0.000181	54	0.002331	0.001744	89	0.109062	0.077135
20	0.000303	0.000188	55	0.002644	0.001978	90	0.121907	0.086571
21	0.000323	0.000195	56	0.003015	0.002292	91	0.133329	0.096025
22	0.000345	0.000200	57	0.003466	0.002515	92	0.148100	0.106027
23	0.000380	0.000204	58	0.003989	0.002775	93	0.161191	0.116472
24	0.000419	0.000205	59	0.004489	0.003073	94	0.175253	0.127248
25	0.000470	0.000205	60	0.005050	0.003425	95	0.193451	0.138257
26	0.000534	0.000206	61	0.005801	0.003826	96	0.208278	0.149421
27	0.000569	0.000208	62	0.006550	0.004287	97	0.222608	0.160693
28	0.000590	0.000214	63	0.007549	0.004813	98	0.240779	0.168970
29	0.000609	0.000225	64	0.008515	0.005324	99	0.254300	0.180186
30	0.000627	0.000242	65	0.009565	0.005904	100	0.267754	0.188016
31	0.000642	0.000272	66	0.010895	0.006558	101	0.286848	0.199258
32	0.000656	0.000307	67	0.012098	0.007184	102	0.301359	0.206513
33	0.000663	0.000344	68	0.013069	0.007842	103	0.317507	0.216693
34	0.000664	0.000383	69	0.014299	0.008689	104	0.335084	0.221764
35	0.000666	0.000422	70	0.015318	0.009744	105	0.352468	0.229182
36	0.000674	0.000459	71	0.016752	0.010782	106	0.368034	0.230400
37	0.000697	0.000493	72	0.018385	0.011971	107	0.380160	0.230400
38	0.000721	0.000526	73	0.020140	0.013334	108	0.388536	0.230400
39	0.000753	0.000557	74	0.021980	0.014876	109	0.394246	0.230400
40	0.000792	0.000589	75	0.024487	0.016602	110	0.397751	0.230400
41	0.000837	0.000623	76	0.026887	0.018504	111	0.399515	0.230400
42	0.000890	0.000663	77	0.030303	0.020583	112	0.400000	0.230400
43	0.000943	0.000709	78	0.034339	0.022872	113	0.400000	0.230400
44	0.000997	0.000762	79	0.038945	0.025419	114	0.400000	0.230400
45	0.001059	0.000823	80	0.044082	0.028245	115	0.400000	0.230400
46	0.001133	0.000882	81	0.049708	0.031612	116	0.400000	0.230400
47	0.001226	0.000946	82	0.055777	0.035318	117	0.400000	0.230400
48	0.001331	0.001015	83	0.060931	0.039369	118	0.400000	0.230400
49	0.001445	0.001089	84	0.067455	0.043784	119	1.000000	1.000000

Current Assumption: 80% of the 1994 Group Annuity Mortality Table, 1994 Base Year without margin projected to 2013 using Projection Scale AA

Proposed Assumption: 60% of the Alaska Healthy Pre-Termination Mortality Rates

PERS Peace Officer / Firefighter
Post-termination Mortality Rates
Female

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.000196	0.000155	50	0.001241	0.001524	85	0.073658	0.059827
16	0.000215	0.000161	51	0.001426	0.001684	86	0.083723	0.066725
17	0.000224	0.000167	52	0.001631	0.001835	87	0.093485	0.074420
18	0.000226	0.000171	53	0.001851	0.002007	88	0.106227	0.082891
19	0.000224	0.000173	54	0.002117	0.002165	89	0.118079	0.092046
20	0.000222	0.000174	55	0.002457	0.002383	90	0.130760	0.103593
21	0.000225	0.000175	56	0.002854	0.002662	91	0.144189	0.115847
22	0.000230	0.000176	57	0.003284	0.002942	92	0.161410	0.128589
23	0.000235	0.000179	58	0.003777	0.003259	93	0.176674	0.141591
24	0.000239	0.000183	59	0.004339	0.003623	94	0.192756	0.154643
25	0.000251	0.000188	60	0.004979	0.004050	95	0.209655	0.167558
26	0.000258	0.000195	61	0.005701	0.004574	96	0.231741	0.180154
27	0.000269	0.000203	62	0.006527	0.005143	97	0.250792	0.192248
28	0.000283	0.000214	63	0.007450	0.005908	98	0.270837	0.200025
29	0.000311	0.000226	64	0.008442	0.006658	99	0.291636	0.210437
30	0.000344	0.000240	65	0.009476	0.007498	100	0.318956	0.215967
31	0.000367	0.000279	66	0.010523	0.008462	101	0.340960	0.226721
32	0.000382	0.000318	67	0.011499	0.009396	102	0.364586	0.235671
33	0.000398	0.000358	68	0.012424	0.010386	103	0.389996	0.250844
34	0.000417	0.000396	69	0.013422	0.011479	104	0.415180	0.263111
35	0.000437	0.000432	70	0.014342	0.012933	105	0.438126	0.281391
36	0.000462	0.000467	71	0.015830	0.014352	106	0.456824	0.295499
37	0.000492	0.000504	72	0.017260	0.015964	107	0.471493	0.309816
38	0.000526	0.000544	73	0.019177	0.017744	108	0.483473	0.323943
39	0.000573	0.000589	74	0.020940	0.019666	109	0.492436	0.337482
40	0.000620	0.000642	75	0.023377	0.021712	110	0.498054	0.350032
41	0.000666	0.000704	76	0.026690	0.023921	111	0.500000	0.361196
42	0.000708	0.000775	77	0.029853	0.026346	112	0.500000	0.370574
43	0.000744	0.000852	78	0.033273	0.029042	113	0.500000	0.377767
44	0.000770	0.000936	79	0.037068	0.032063	114	0.500000	0.382376
45	0.000802	0.001022	80	0.041355	0.035441	115	0.500000	0.384000
46	0.000847	0.001112	81	0.046249	0.039227	116	0.500000	0.384000
47	0.000918	0.001206	82	0.051616	0.043487	117	0.500000	0.384000
48	0.000997	0.001304	83	0.057377	0.048286	118	0.500000	0.384000
49	0.001109	0.001410	84	0.064966	0.053702	119	1.000000	1.000000

Current Assumption: 1994 Group Annuity Mortality Table, 1994 Base Year without margin projected to 2013 using Projection Scale AA, with 1-year set-forward

Proposed Assumption: 96% of all rates of RP-2000, 2000 Base Year projected to 2018 with Projection Scale BB

PERS Peace Officer / Firefighter
Post-termination Mortality Rates
Male

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.000258	0.000245	50	0.001964	0.001944	85	0.091495	0.081002
16	0.000292	0.000258	51	0.002145	0.002227	86	0.099542	0.089807
17	0.000322	0.000274	52	0.002354	0.002426	87	0.110938	0.101329
18	0.000344	0.000287	53	0.002625	0.002652	88	0.124133	0.114229
19	0.000362	0.000301	54	0.002914	0.002907	89	0.136327	0.128559
20	0.000379	0.000314	55	0.003305	0.003296	90	0.152384	0.144286
21	0.000404	0.000325	56	0.003769	0.003820	91	0.166662	0.160042
22	0.000432	0.000333	57	0.004333	0.004192	92	0.185126	0.176712
23	0.000475	0.000339	58	0.004986	0.004625	93	0.201488	0.194120
24	0.000523	0.000342	59	0.005611	0.005121	94	0.219067	0.212080
25	0.000587	0.000342	60	0.006312	0.005708	95	0.241814	0.230428
26	0.000668	0.000344	61	0.007251	0.006377	96	0.260347	0.249035
27	0.000711	0.000347	62	0.008188	0.007144	97	0.278260	0.267822
28	0.000737	0.000357	63	0.009436	0.008021	98	0.300974	0.281616
29	0.000762	0.000375	64	0.010644	0.008874	99	0.317876	0.300310
30	0.000784	0.000404	65	0.011956	0.009839	100	0.334693	0.313360
31	0.000803	0.000454	66	0.013618	0.010930	101	0.358560	0.332097
32	0.000820	0.000511	67	0.015123	0.011973	102	0.376699	0.344188
33	0.000829	0.000574	68	0.016336	0.013070	103	0.396884	0.361155
34	0.000830	0.000638	69	0.017873	0.014482	104	0.418855	0.369606
35	0.000832	0.000703	70	0.019147	0.016240	105	0.440585	0.381971
36	0.000843	0.000765	71	0.020940	0.017969	106	0.460043	0.384000
37	0.000871	0.000822	72	0.022981	0.019952	107	0.475200	0.384000
38	0.000901	0.000877	73	0.025175	0.022223	108	0.485670	0.384000
39	0.000941	0.000929	74	0.027475	0.024793	109	0.492807	0.384000
40	0.000990	0.000981	75	0.030609	0.027670	110	0.497189	0.384000
41	0.001047	0.001039	76	0.033609	0.030840	111	0.499394	0.384000
42	0.001112	0.001105	77	0.037879	0.034305	112	0.500000	0.384000
43	0.001178	0.001181	78	0.042924	0.038120	113	0.500000	0.384000
44	0.001247	0.001271	79	0.048681	0.042365	114	0.500000	0.384000
45	0.001323	0.001371	80	0.055102	0.047075	115	0.500000	0.384000
46	0.001417	0.001470	81	0.062135	0.052687	116	0.500000	0.384000
47	0.001532	0.001577	82	0.069722	0.058863	117	0.500000	0.384000
48	0.001663	0.001692	83	0.076164	0.065615	118	0.500000	0.384000
49	0.001806	0.001814	84	0.084319	0.072973	119	1.000000	1.000000

Current Assumption: 1994 Group Annuity Mortality Table, 1994 Base Year without margin projected to 2013 using Projection Scale AA

Proposed Assumption: 96% of all rates of RP-2000, 2000 Base Year projected to 2018 with Projection Scale BB

PERS Peace Officer / Firefighter
Withdrawal Rates
Members with less than 5 years of service

	Female		Male	
Years of Service	Current	Proposed (rounded)	Current	Proposed (rounded)
0	0.15	0.15	0.15	0.15
1	0.10	0.08	0.10	0.12
2	0.08	0.06	0.08	0.07
3	0.07	0.06	0.07	0.06
4	0.06	0.07	0.06	0.06

Members with 5 or more years of service

	Female		Male			Female		Male	
Age	Current	Proposed	Current	Proposed	Age	Current	Proposed	Current	Proposed
20	0.051867	0.080000	0.041148	0.040894	45	0.048463	0.033802	0.037833	0.019012
21	0.051844	0.080000	0.041098	0.040894	46	0.048040	0.033527	0.037365	0.019506
22	0.051820	0.080000	0.041043	0.040894	47	0.047545	0.033251	0.036818	0.020000
23	0.051799	0.080000	0.040978	0.038801	48	0.047003	0.032862	0.036216	0.023333
24	0.051763	0.080000	0.040894	0.036708	49	0.046444	0.032474	0.035581	0.026667
25	0.051745	0.080000	0.040822	0.034616	50	0.045835	0.032085	0.034887	0.030000
26	0.051721	0.080000	0.040754	0.032523	51	0.045115	0.031581	0.034073	0.040000
27	0.051653	0.080000	0.040663	0.030430	52	0.044201	0.030941	0.033070	0.040000
28	0.051592	0.078000	0.040592	0.028877	53	0.043144	0.030201	0.031919	0.040000
29	0.051505	0.076000	0.040510	0.027324	54	0.041974	0.060402	0.030646	0.040000
30	0.051431	0.074000	0.040447	0.025771	55	0.040561	0.060402	0.029148	0.040000
31	0.051334	0.072000	0.040373	0.024218	56	0.038709	0.060402	0.027271	0.040000
32	0.051251	0.070000	0.040317	0.022665	57	0.036326	0.060402	0.024939	0.040000
33	0.051149	0.063077	0.040260	0.021722	58	0.033764	0.060402	0.022459	0.040000
34	0.051044	0.056154	0.040215	0.020779	59	0.030323	0.060402	0.019263	0.040000
35	0.050915	0.049231	0.040154	0.019836	60	0.026437	0.060402	0.015673	0.040000
36	0.050778	0.042308	0.040080	0.018893	61	0.022201	0.060402	0.011732	0.040000
37	0.050611	0.035385	0.039963	0.017950	62	0.017278	0.060402	0.007141	0.040000
38	0.050431	0.035234	0.039816	0.017866	63	0.011720	0.060402	0.001951	0.040000
39	0.050236	0.035082	0.039650	0.017782	64	0.005717	0.060402	0.043200	0.040000
40	0.050035	0.034930	0.039466	0.017699	65	0.054000	0.060402	0.043200	0.040000
41	0.049813	0.034779	0.039250	0.017615	65+	0.054000	0.060402	0.043200	0.040000
42	0.049540	0.034627	0.038972	0.017531					
43	0.049243	0.034352	0.038659	0.018025					
44	0.048884	0.034077	0.038278	0.018519					

Current Assumption: Based on the actual withdrawal experience from 2005 to 2009

Proposed Assumption: Based on the actual withdrawal experience from 2009 to 2013.
Changed to sex distinct and decreased most select and ultimate rates.

PERS Peace Officer / Firefighter
Reduced Retirement Rates

	Female		Male	
Age	Current	Proposed	Current	Proposed
<50	N/A		N/A	
50	0.100000	0.087041	0.100000	0.087041
51	0.100000	0.085580	0.100000	0.085580
52	0.100000	0.072383	0.100000	0.072383
53	0.100000	0.076688	0.100000	0.076688
54	0.110000	0.075561	0.110000	0.075561
55	0.100000	0.077429	0.100000	0.077429
56	0.100000	0.077106	0.100000	0.077106
57	0.100000	0.076730	0.100000	0.076730
58	0.100000	0.076820	0.100000	0.076820
59	0.110000	0.200000	0.110000	0.200000
60	N/A		N/A	
61	N/A		N/A	
62	N/A		N/A	
63	N/A		N/A	
64	N/A		N/A	
65	N/A		N/A	
66	N/A		N/A	
67	N/A		N/A	
68	N/A		N/A	
69	N/A		N/A	
70	N/A		N/A	
71	N/A		N/A	
72	N/A		N/A	
73	N/A		N/A	
74	N/A		N/A	
75	N/A		N/A	

Current Assumption: Based on the actual retirement experience from 2005 to 2009

Proposed Assumption: Rates were adjusted based on actual experience from 2009 to 2013. Kept rates unisex rates and decreased most rates.

PERS Peace Officer / Firefighter
Unreduced Retirement Rates

	Female		Male	
Age	Current	Proposed	Current	Proposed
<47	0.110000	0.060000	0.110000	0.080000
47	0.110000	0.150000	0.110000	0.080000
48	0.110000	0.150000	0.110000	0.130000
49	0.110000	0.150000	0.110000	0.130000
50	0.185000	0.150000	0.185000	0.150000
51	0.185000	0.150000	0.185000	0.150000
52	0.185000	0.150000	0.185000	0.185000
53	0.185000	0.150000	0.185000	0.185000
54	0.185000	0.250000	0.185000	0.185000
55	0.250000	0.200000	0.250000	0.250000
56	0.250000	0.150000	0.250000	0.250000
57	0.250000	0.150000	0.250000	0.250000
58	0.250000	0.150000	0.250000	0.250000
59	0.250000	0.150000	0.250000	0.250000
60	0.300000	0.250000	0.300000	0.300000
61	0.250000	0.200000	0.250000	0.250000
62	0.300000	0.300000	0.300000	0.250000
63	0.250000	0.500000	0.250000	0.250000
64	0.500000	0.500000	0.500000	0.200000
65	0.500000	0.500000	0.500000	0.200000
66	0.500000	0.500000	0.500000	0.250000
67	0.500000	0.500000	0.500000	0.500000
68	0.500000	0.500000	0.500000	0.500000
69	0.500000	0.500000	0.500000	0.500000
70	0.500000	1.000000	0.500000	1.000000
71	0.500000	1.000000	0.500000	1.000000
72	0.500000	1.000000	0.500000	1.000000
73	0.500000	1.000000	0.500000	1.000000
74	0.500000	1.000000	0.500000	1.000000
75	1.000000	1.000000	1.000000	1.000000

Current Assumption: Based on the actual retirement experience from 2005 to 2009

Proposed Assumption: Rates were adjusted based on actual experience from 2009 to 2013. Changed all rates to sex distinct and decreased most rates.

PERS Peace Officer / Firefighter
Disability Rates

	Unisex			Unisex	
Age	Current	Proposed	Age	Current	Proposed
20	0.000880	0.000224	40	0.001440	0.001027
21	0.000890	0.000224	41	0.001500	0.001068
22	0.000900	0.000224	42	0.001590	0.001108
23	0.000910	0.000305	43	0.001700	0.001221
24	0.000930	0.000387	44	0.001850	0.001333
25	0.000940	0.000468	45	0.002030	0.001446
26	0.000950	0.000550	46	0.002200	0.001559
27	0.000980	0.000631	47	0.002390	0.001671
28	0.001000	0.000658	48	0.002590	0.001828
29	0.001030	0.000685	49	0.002790	0.001985
30	0.001050	0.000712	50	0.003000	0.002142
31	0.001080	0.000739	51	0.003250	0.002299
32	0.001100	0.000765	52	0.003580	0.002456
33	0.001130	0.000793	53	0.003980	0.002868
34	0.001160	0.000821	54	0.004440	0.003280
35	0.001200	0.000849			
36	0.001240	0.000877			
37	0.001290	0.000905			
38	0.001340	0.000946			
39	0.001390	0.000986			

Current Assumption: There were no changes for the disability rates for PERS Peace Officer / Firefighter except to stop the rates at earliest retirement age.

Proposed Assumption: Decreased previous rates by 30%.

PERS Peace Officer / Firefighter
Salary Scale

Years of service	Percent increase	
	Current	Proposed
0	6.36%	9.66%
1	6.36%	8.66%
2	6.36%	7.16%
3	6.36%	7.03%
4	6.11%	6.91%
5	5.61%	6.41%
6	4.12%	5.66%
7	4.12%	4.92%
8	4.12%	4.92%
9	4.12%	4.92%
10	4.12%	4.92%
11	4.12%	4.92%
12	4.12%	4.92%
13	4.12%	4.92%
14	4.12%	4.92%
15	4.12%	4.92%
16	4.12%	4.92%
17	4.12%	4.92%
18	4.12%	4.92%
19	4.12%	4.92%
20+	4.12%	4.92%

Current Assumption: Based on the actual experience from 2005 to 2009

Proposed Assumption: Based on actual experience from 2009 to 2013. Increased rates for less than seven years of service.

PERS Others
Pre-termination Mortality Rates
Female

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.000094	0.000100	50	0.000610	0.000991	85	0.035731	0.038887
16	0.000108	0.000105	51	0.000683	0.001095	86	0.040512	0.043371
17	0.000118	0.000109	52	0.000784	0.001193	87	0.046048	0.048373
18	0.000123	0.000111	53	0.000897	0.001305	88	0.051417	0.053879
19	0.000124	0.000112	54	0.001018	0.001407	89	0.058425	0.059830
20	0.000123	0.000113	55	0.001164	0.001549	90	0.064944	0.067336
21	0.000122	0.000114	56	0.001352	0.001730	91	0.071918	0.075301
22	0.000123	0.000115	57	0.001570	0.001912	92	0.079304	0.083583
23	0.000127	0.000116	58	0.001806	0.002118	93	0.088776	0.092034
24	0.000129	0.000119	59	0.002077	0.002355	94	0.097171	0.100518
25	0.000132	0.000122	60	0.002387	0.002632	95	0.106016	0.108913
26	0.000138	0.000127	61	0.002738	0.002973	96	0.115310	0.117100
27	0.000142	0.000132	62	0.003136	0.003343	97	0.127457	0.124961
28	0.000148	0.000139	63	0.003590	0.003840	98	0.137936	0.130016
29	0.000156	0.000147	64	0.004097	0.004328	99	0.148960	0.136784
30	0.000171	0.000156	65	0.004643	0.004874	100	0.160400	0.140379
31	0.000189	0.000181	66	0.005212	0.005500	101	0.175426	0.147369
32	0.000202	0.000207	67	0.005787	0.006107	102	0.187528	0.153186
33	0.000210	0.000233	68	0.006324	0.006751	103	0.200522	0.163049
34	0.000219	0.000257	69	0.006833	0.007462	104	0.214498	0.171022
35	0.000229	0.000281	70	0.007382	0.008407	105	0.228349	0.182904
36	0.000240	0.000304	71	0.007888	0.009329	106	0.240969	0.192074
37	0.000254	0.000327	72	0.008707	0.010376	107	0.251253	0.201380
38	0.000271	0.000354	73	0.009493	0.011534	108	0.259321	0.210563
39	0.000289	0.000383	74	0.010547	0.012783	109	0.265910	0.219363
40	0.000315	0.000417	75	0.011517	0.014113	110	0.270840	0.227521
41	0.000341	0.000458	76	0.012857	0.015549	111	0.273930	0.234778
42	0.000366	0.000504	77	0.014680	0.017125	112	0.275000	0.240873
43	0.000389	0.000554	78	0.016419	0.018877	113	0.275000	0.245548
44	0.000409	0.000608	79	0.018300	0.020841	114	0.275000	0.248544
45	0.000423	0.000664	80	0.020388	0.023037	115	0.275000	0.249600
46	0.000441	0.000723	81	0.022745	0.025498	116	0.275000	0.249600
47	0.000466	0.000784	82	0.025437	0.028266	117	0.275000	0.249600
48	0.000505	0.000848	83	0.028389	0.031386	118	0.275000	0.249600
49	0.000548	0.000916	84	0.031557	0.034906	119	1.000000	1.000000

Current Assumption: 55% of the 1994 Group Annuity Mortality Table, 1994 Base Year without margin projected to 2013 using Projection Scale AA

Proposed Assumption: 65% of the Alaska Healthy Pre-Termination Mortality Rates

PERS Others
Pre-termination Mortality Rates
Male

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.000193	0.000147	50	0.001473	0.001167	85	0.068621	0.048601
16	0.000219	0.000155	51	0.001609	0.001336	86	0.074656	0.053884
17	0.000241	0.000164	52	0.001765	0.001455	87	0.083204	0.060797
18	0.000258	0.000172	53	0.001969	0.001591	88	0.093100	0.068537
19	0.000271	0.000181	54	0.002186	0.001744	89	0.102245	0.077135
20	0.000284	0.000188	55	0.002479	0.001978	90	0.114288	0.086571
21	0.000303	0.000195	56	0.002827	0.002292	91	0.124996	0.096025
22	0.000324	0.000200	57	0.003249	0.002515	92	0.138844	0.106027
23	0.000356	0.000204	58	0.003739	0.002775	93	0.151116	0.116472
24	0.000392	0.000205	59	0.004208	0.003073	94	0.164300	0.127248
25	0.000441	0.000205	60	0.004734	0.003425	95	0.181360	0.138257
26	0.000501	0.000206	61	0.005438	0.003826	96	0.195260	0.149421
27	0.000533	0.000208	62	0.006141	0.004287	97	0.208695	0.160693
28	0.000553	0.000214	63	0.007077	0.004813	98	0.225730	0.168970
29	0.000571	0.000225	64	0.007983	0.005324	99	0.238407	0.180186
30	0.000588	0.000242	65	0.008967	0.005904	100	0.251020	0.188016
31	0.000602	0.000272	66	0.010214	0.006558	101	0.268920	0.199258
32	0.000615	0.000307	67	0.011342	0.007184	102	0.282524	0.206513
33	0.000622	0.000344	68	0.012252	0.007842	103	0.297663	0.216693
34	0.000623	0.000383	69	0.013405	0.008689	104	0.314141	0.221764
35	0.000624	0.000422	70	0.014360	0.009744	105	0.330439	0.229182
36	0.000632	0.000459	71	0.015705	0.010782	106	0.345032	0.230400
37	0.000653	0.000493	72	0.017236	0.011971	107	0.356400	0.230400
38	0.000676	0.000526	73	0.018881	0.013334	108	0.364253	0.230400
39	0.000706	0.000557	74	0.020606	0.014876	109	0.369605	0.230400
40	0.000742	0.000589	75	0.022957	0.016602	110	0.372892	0.230400
41	0.000785	0.000623	76	0.025207	0.018504	111	0.374546	0.230400
42	0.000834	0.000663	77	0.028409	0.020583	112	0.375000	0.230400
43	0.000884	0.000709	78	0.032193	0.022872	113	0.375000	0.230400
44	0.000935	0.000762	79	0.036511	0.025419	114	0.375000	0.230400
45	0.000993	0.000823	80	0.041327	0.028245	115	0.375000	0.230400
46	0.001063	0.000882	81	0.046601	0.031612	116	0.375000	0.230400
47	0.001149	0.000946	82	0.052291	0.035318	117	0.375000	0.230400
48	0.001248	0.001015	83	0.057123	0.039369	118	0.375000	0.230400
49	0.001354	0.001089	84	0.063239	0.043784	119	1.000000	1.000000

Current Assumption: 75% of the 1994 Group Annuity Mortality Table, 1994 Base Year without margin projected to 2013 using Projection Scale AA

Proposed Assumption: 60% of the Alaska Healthy Pre-Termination Mortality Rates

PERS Others
Post-termination Mortality Rates
Female

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.000196	0.000155	50	0.001241	0.001524	85	0.073658	0.059827
16	0.000215	0.000161	51	0.001426	0.001684	86	0.083723	0.066725
17	0.000224	0.000167	52	0.001631	0.001835	87	0.093485	0.074420
18	0.000226	0.000171	53	0.001851	0.002007	88	0.106227	0.082891
19	0.000224	0.000173	54	0.002117	0.002165	89	0.118079	0.092046
20	0.000222	0.000174	55	0.002457	0.002383	90	0.130760	0.103593
21	0.000225	0.000175	56	0.002854	0.002662	91	0.144189	0.115847
22	0.000230	0.000176	57	0.003284	0.002942	92	0.161410	0.128589
23	0.000235	0.000179	58	0.003777	0.003259	93	0.176674	0.141591
24	0.000239	0.000183	59	0.004339	0.003623	94	0.192756	0.154643
25	0.000251	0.000188	60	0.004979	0.004050	95	0.209655	0.167558
26	0.000258	0.000195	61	0.005701	0.004574	96	0.231741	0.180154
27	0.000269	0.000203	62	0.006527	0.005143	97	0.250792	0.192248
28	0.000283	0.000214	63	0.007450	0.005908	98	0.270837	0.200025
29	0.000311	0.000226	64	0.008442	0.006658	99	0.291636	0.210437
30	0.000344	0.000240	65	0.009476	0.007498	100	0.318956	0.215967
31	0.000367	0.000279	66	0.010523	0.008462	101	0.340960	0.226721
32	0.000382	0.000318	67	0.011499	0.009396	102	0.364586	0.235671
33	0.000398	0.000358	68	0.012424	0.010386	103	0.389996	0.250844
34	0.000417	0.000396	69	0.013422	0.011479	104	0.415180	0.263111
35	0.000437	0.000432	70	0.014342	0.012933	105	0.438126	0.281391
36	0.000462	0.000467	71	0.015830	0.014352	106	0.456824	0.295499
37	0.000492	0.000504	72	0.017260	0.015964	107	0.471493	0.309816
38	0.000526	0.000544	73	0.019177	0.017744	108	0.483473	0.323943
39	0.000573	0.000589	74	0.020940	0.019666	109	0.492436	0.337482
40	0.000620	0.000642	75	0.023377	0.021712	110	0.498054	0.350032
41	0.000666	0.000704	76	0.026690	0.023921	111	0.500000	0.361196
42	0.000708	0.000775	77	0.029853	0.026346	112	0.500000	0.370574
43	0.000744	0.000852	78	0.033273	0.029042	113	0.500000	0.377767
44	0.000770	0.000936	79	0.037068	0.032063	114	0.500000	0.382376
45	0.000802	0.001022	80	0.041355	0.035441	115	0.500000	0.384000
46	0.000847	0.001112	81	0.046249	0.039227	116	0.500000	0.384000
47	0.000918	0.001206	82	0.051616	0.043487	117	0.500000	0.384000
48	0.000997	0.001304	83	0.057377	0.048286	118	0.500000	0.384000
49	0.001109	0.001410	84	0.064966	0.053702	119	1.000000	1.000000

Current Assumption: 1994 Group Annuity Mortality Table, 1994 Base Year without margin projected to 2013 using Projection Scale AA, with 1-year set-forward

Proposed Assumption: 96% of all rates of RP-2000, 2000 Base Year projected to 2018 with Projection Scale BB

PERS Others
Post-termination Mortality Rates
Male

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.000258	0.000245	50	0.001964	0.001944	85	0.091495	0.081002
16	0.000292	0.000258	51	0.002145	0.002227	86	0.099542	0.089807
17	0.000322	0.000274	52	0.002354	0.002426	87	0.110938	0.101329
18	0.000344	0.000287	53	0.002625	0.002652	88	0.124133	0.114229
19	0.000362	0.000301	54	0.002914	0.002907	89	0.136327	0.128559
20	0.000379	0.000314	55	0.003305	0.003296	90	0.152384	0.144286
21	0.000404	0.000325	56	0.003769	0.003820	91	0.166662	0.160042
22	0.000432	0.000333	57	0.004333	0.004192	92	0.185126	0.176712
23	0.000475	0.000339	58	0.004986	0.004625	93	0.201488	0.194120
24	0.000523	0.000342	59	0.005611	0.005121	94	0.219067	0.212080
25	0.000587	0.000342	60	0.006312	0.005708	95	0.241814	0.230428
26	0.000668	0.000344	61	0.007251	0.006377	96	0.260347	0.249035
27	0.000711	0.000347	62	0.008188	0.007144	97	0.278260	0.267822
28	0.000737	0.000357	63	0.009436	0.008021	98	0.300974	0.281616
29	0.000762	0.000375	64	0.010644	0.008874	99	0.317876	0.300310
30	0.000784	0.000404	65	0.011956	0.009839	100	0.334693	0.313360
31	0.000803	0.000454	66	0.013618	0.010930	101	0.358560	0.332097
32	0.000820	0.000511	67	0.015123	0.011973	102	0.376699	0.344188
33	0.000829	0.000574	68	0.016336	0.013070	103	0.396884	0.361155
34	0.000830	0.000638	69	0.017873	0.014482	104	0.418855	0.369606
35	0.000832	0.000703	70	0.019147	0.016240	105	0.440585	0.381971
36	0.000843	0.000765	71	0.020940	0.017969	106	0.460043	0.384000
37	0.000871	0.000822	72	0.022981	0.019952	107	0.475200	0.384000
38	0.000901	0.000877	73	0.025175	0.022223	108	0.485670	0.384000
39	0.000941	0.000929	74	0.027475	0.024793	109	0.492807	0.384000
40	0.000990	0.000981	75	0.030609	0.027670	110	0.497189	0.384000
41	0.001047	0.001039	76	0.033609	0.030840	111	0.499394	0.384000
42	0.001112	0.001105	77	0.037879	0.034305	112	0.500000	0.384000
43	0.001178	0.001181	78	0.042924	0.038120	113	0.500000	0.384000
44	0.001247	0.001271	79	0.048681	0.042365	114	0.500000	0.384000
45	0.001323	0.001371	80	0.055102	0.047075	115	0.500000	0.384000
46	0.001417	0.001470	81	0.062135	0.052687	116	0.500000	0.384000
47	0.001532	0.001577	82	0.069722	0.058863	117	0.500000	0.384000
48	0.001663	0.001692	83	0.076164	0.065615	118	0.500000	0.384000
49	0.001806	0.001814	84	0.084319	0.072973	119	1.000000	1.000000

Current Assumption: 1994 Group Annuity Mortality Table, 1994 Base Year without margin projected to 2013 using Projection Scale AA

Proposed Assumption: 96% of all rates of RP-2000, 2000 Base Year projected to 2018 with Projection Scale BB

PERS Others
Withdrawal Rates
Members with less than 5 years of service

Service	Hire Age < 35				Hire Age > 35			
	Current (rounded)		Proposed		Current (rounded)		Proposed	
	Male	Female	Male (rounded)	Female (rounded)	Male	Female	Male	Female
0	0.29	0.29	0.29	0.29	0.20	0.20	0.20	0.20
1	0.25	0.25	0.16	0.20	0.17	0.17	0.12	0.15
2	0.20	0.20	0.13	0.16	0.14	0.14	0.10	0.13
3	0.16	0.16	0.10	0.13	0.11	0.11	0.09	0.10
4	0.13	0.13	0.08	0.10	0.10	0.10	0.09	0.09

Members with 5 or more years of service

	Female		Male			Female		Male	
Age	Current	Proposed	Current	Proposed	Age	Current	Proposed	Current	Proposed
20	0.136769	0.136735	0.095000	0.095000	45	0.060380	0.045685	0.052422	0.039880
21	0.136765	0.136735	0.095000	0.095000	46	0.060236	0.043828	0.052192	0.039357
22	0.136749	0.136735	0.095000	0.095000	47	0.060055	0.041972	0.051918	0.038834
23	0.136746	0.128522	0.095000	0.090250	48	0.059841	0.041891	0.051599	0.038701
24	0.136734	0.120309	0.095000	0.085500	49	0.059628	0.041809	0.051270	0.038568
25	0.136734	0.112096	0.095000	0.080750	50	0.059380	0.041566	0.050893	0.038170
26	0.136730	0.103883	0.095000	0.076000	51	0.059093	0.041365	0.050459	0.037844
27	0.136708	0.095670	0.095000	0.071250	52	0.058745	0.041121	0.049946	0.037460
28	0.136678	0.091756	0.095000	0.069160	53	0.058349	0.040844	0.049364	0.037023
29	0.136643	0.087842	0.095000	0.067060	54	0.057924	0.057924	0.048732	0.043859
30	0.126000	0.083927	0.095000	0.064960	55	0.057418	0.057924	0.048006	0.043859
31	0.119000	0.080013	0.090000	0.062870	56	0.056756	0.057924	0.047122	0.043859
32	0.111000	0.076099	0.084000	0.060770	57	0.055901	0.057924	0.046045	0.043859
33	0.105000	0.072399	0.077300	0.058280	58	0.054935	0.057924	0.044865	0.043859
34	0.099000	0.068699	0.073500	0.055780	59	0.053708	0.057924	0.043447	0.043859
35	0.093000	0.064999	0.070000	0.053290	60	0.052321	0.057924	0.041859	0.043859
36	0.087000	0.061299	0.067000	0.050790	61	0.050780	0.057924	0.040081	0.043859
37	0.083000	0.057599	0.064500	0.048300	62	0.049011	0.057924	0.038026	0.043859
38	0.079000	0.056330	0.062500	0.046930	63	0.047001	0.057924	0.035690	0.043859
39	0.076000	0.055061	0.061000	0.045560	64	0.044808	0.057924	0.033139	0.043859
40	0.073471	0.053792	0.059000	0.044190	65+	0.062500	0.057924	0.055000	0.043859
41	0.073368	0.052523	0.057300	0.042820					
42	0.073253	0.051254	0.055500	0.041450					
43	0.073146	0.049398	0.053900	0.040930					
44	0.073023	0.047541	0.052700	0.040400					

Current Assumption: Based on actual experience from 2005 to 2009

Proposed Assumption: Rates were adjusted based on actual experience from 2009 to 2013.
Changed to sex-distinct select rates and decreased most ultimate rates.

PERS Others
Reduced Retirement Rates

	Female		Male	
Age	Current	Proposed	Current	Proposed
<50	N/A	N/A	N/A	N/A
50	0.08	0.06	0.08	0.04
51	0.08	0.06	0.08	0.04
52	0.08	0.08	0.08	0.06
53	0.08	0.08	0.08	0.06
54	0.13	0.14	0.13	0.14
55	0.08	0.06	0.08	0.05
56	0.08	0.06	0.08	0.05
57	0.08	0.06	0.08	0.05
58	0.08	0.06	0.08	0.05
59	0.12	0.16	0.12	0.14
60	N/A	N/A	N/A	N/A
61	N/A	N/A	N/A	N/A
62	N/A	N/A	N/A	N/A
63	N/A	N/A	N/A	N/A
64	N/A	N/A	N/A	N/A
65	N/A	N/A	N/A	N/A
66	N/A	N/A	N/A	N/A
67	N/A	N/A	N/A	N/A
68	N/A	N/A	N/A	N/A
69	N/A	N/A	N/A	N/A
70-89	N/A	N/A	N/A	N/A
90+	N/A	N/A	N/A	N/A

Current Assumption: Based on actual experience from 2005 to 2009

Proposed Assumption: Rates adjusted based on actual experience from 2009 to 2013. Changed all rates to sex-distinct and decreased most rates

PERS Others

Unreduced Retirement Rates

Age	Female		Male	
	Current (rounded)	Proposed (rounded)	Current (rounded)	Proposed (rounded)
<50	0.10	0.10	0.10	0.10
50	0.30	0.35	0.30	0.30
51	0.30	0.35	0.30	0.33
52	0.30	0.35	0.30	0.33
53	0.30	0.35	0.30	0.33
54	0.30	0.35	0.30	0.35
55	0.30	0.30	0.30	0.30
56	0.18	0.20	0.18	0.20
57	0.18	0.18	0.18	0.20
58	0.17	0.18	0.17	0.20
59	0.17	0.18	0.17	0.20
60	0.21	0.21	0.21	0.20
61	0.17	0.20	0.17	0.20
62	0.25	0.20	0.25	0.20
63	0.21	0.20	0.21	0.20
64	0.23	0.20	0.23	0.20
65	0.26	0.26	0.26	0.23
66	0.26	0.26	0.26	0.25
67	0.26	0.22	0.26	0.20
68	0.28	0.22	0.28	0.23
69	0.30	0.22	0.30	0.25
70	0.50	0.22	0.50	0.25
71	0.50	0.22	0.50	0.25
72	0.50	0.25	0.50	0.25
73	0.50	0.25	0.50	0.25
74	0.50	0.25	0.50	0.25
75-89	0.50	0.50	0.50	0.50
90+	1.00	1.00	1.00	1.00

Current Assumption: Based on actual experience from 2005 to 2009

Proposed Assumption: Rates adjusted based on actual experience from 2009 to 2013. Changed all rates to unisex and decreased most rates

PERS Others

Salary scale

Percent Increase		
Years of Service	Current (rounded)	Proposed
0	9.60%	8.55%
1	7.60%	7.36%
2	6.61%	6.35%
3	6.11%	6.11%
4	5.61%	5.71%
5+	Age based	Age based

Percent increase					
Age	Current	Proposed	Age	Current	Proposed
20	5.11%	7.91%	45	4.53%	5.44%
21	5.11%	7.83%	46	4.50%	5.40%
22	5.11%	7.75%	47	4.47%	5.36%
23	5.11%	7.51%	48	4.44%	5.31%
24	5.11%	7.27%	49	4.40%	5.27%
25	5.11%	7.03%	50	4.61%	5.22%
26	5.09%	6.79%	51	4.54%	5.18%
27	5.06%	6.55%	52	4.47%	5.13%
28	5.04%	6.52%	53	4.39%	5.09%
29	5.01%	6.49%	54	4.32%	5.05%
30	4.99%	6.47%	55	4.24%	5.01%
31	4.96%	6.44%	56	4.17%	4.97%
32	4.94%	6.41%	57	4.09%	4.93%
33	4.91%	6.33%	58	4.02%	4.85%
34	4.89%	6.24%	59	3.94%	4.77%
35	4.86%	6.16%	60	4.00%	4.69%
36	4.83%	6.07%	61	4.00%	4.60%
37	4.80%	5.99%	62	4.00%	4.52%
38	4.76%	5.90%	63	4.00%	4.46%
39	4.73%	5.82%	64	4.00%	4.40%
40	4.70%	5.73%	65+	4.00%	4.34%
41	4.67%	5.64%			
42	4.63%	5.55%			
43	4.60%	5.52%			
44	4.57%	5.48%			

Current Assumption: Based on actual experience from 2005 to 2009

Proposed Assumption: Rates adjusted based on actual experience from 2009 to 2013. Increased most rates.

PERS Others
Disability Rates

	Female		Male			Female		Male	
Age	Current	Proposed	Current	Proposed	Age	Current	Proposed	Current	Proposed
20	0.000235	0.000188	0.000306	0.000218	40	0.000386	0.000381	0.000503	0.000489
21	0.000235	0.000188	0.000306	0.000218	41	0.000403	0.000397	0.000524	0.000510
22	0.000244	0.000188	0.000317	0.000218	42	0.000429	0.000413	0.000558	0.000531
23	0.000244	0.000200	0.000317	0.000240	43	0.000454	0.000454	0.000590	0.000586
24	0.000252	0.000212	0.000328	0.000261	44	0.000496	0.000495	0.000645	0.000641
25	0.000252	0.000224	0.000328	0.000283	45	0.000546	0.000536	0.000711	0.000695
26	0.000252	0.000236	0.000328	0.000304	46	0.000588	0.000577	0.000765	0.000750
27	0.000261	0.000248	0.000339	0.000326	47	0.000638	0.000618	0.000830	0.000805
28	0.000269	0.000255	0.000350	0.000334	48	0.000698	0.000680	0.000907	0.000886
29	0.000278	0.000262	0.000361	0.000342	49	0.000748	0.000742	0.000973	0.000967
30	0.000286	0.000269	0.000371	0.000349	50	0.000806	0.000804	0.001049	0.001048
31	0.000286	0.000277	0.000371	0.000357	51	0.000874	0.000867	0.001136	0.001129
32	0.000294	0.000284	0.000383	0.000365	52	0.000958	0.000929	0.001245	0.001210
33	0.000302	0.000293	0.000393	0.000377	53	0.001067	0.001084	0.001388	0.001421
34	0.000311	0.000303	0.000405	0.000389	54	0.001193	0.001239	0.001551	0.001633
35	0.000319	0.000312	0.000415	0.000401					
36	0.000336	0.000322	0.000437	0.000413					
37	0.000345	0.000331	0.000448	0.000425					
38	0.000362	0.000348	0.000470	0.000446					
39	0.000370	0.000364	0.000481	0.000467					

Current Assumption: Based on actual experience from 2005 to 2009

Proposed Assumption: Based on actual experience from 2009 to 20013. Decreased most rates by 5%.

TRS
Pre-termination Mortality Rates
Female

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.000094	0.000094	50	0.000610	0.000674	85	0.035731	0.023782
16	0.000108	0.000094	51	0.000683	0.000731	86	0.040512	0.026364
17	0.000118	0.000094	52	0.000784	0.000791	87	0.046048	0.029273
18	0.000123	0.000094	53	0.000897	0.000855	88	0.051417	0.032557
19	0.000124	0.000094	54	0.001018	0.000908	89	0.058425	0.036270
20	0.000123	0.000098	55	0.001164	0.000985	90	0.064944	0.041195
21	0.000122	0.000101	56	0.001352	0.001054	91	0.071918	0.046790
22	0.000123	0.000104	57	0.001570	0.001132	92	0.079304	0.053071
23	0.000127	0.000105	58	0.001806	0.001221	93	0.088776	0.060012
24	0.000129	0.000105	59	0.002077	0.001344	94	0.097171	0.067536
25	0.000132	0.000106	60	0.002387	0.001501	95	0.106016	0.075519
26	0.000138	0.000107	61	0.002738	0.001659	96	0.115310	0.083819
27	0.000142	0.000109	62	0.003136	0.001837	97	0.127457	0.092288
28	0.000148	0.000111	63	0.003590	0.002080	98	0.137936	0.098984
29	0.000156	0.000114	64	0.004097	0.002367	99	0.148960	0.107245
30	0.000171	0.000118	65	0.004643	0.002723	100	0.160400	0.113238
31	0.000189	0.000123	66	0.005212	0.003118	101	0.175426	0.120836
32	0.000202	0.000130	67	0.005787	0.003582	102	0.187528	0.125724
33	0.000210	0.000137	68	0.006324	0.004036	103	0.200522	0.132264
34	0.000219	0.000146	69	0.006833	0.004546	104	0.214498	0.135739
35	0.000229	0.000169	70	0.007382	0.005130	105	0.228349	0.142493
36	0.000240	0.000193	71	0.007888	0.005696	106	0.240969	0.148118
37	0.000254	0.000217	72	0.008707	0.006297	107	0.251253	0.154838
38	0.000271	0.000240	73	0.009493	0.006959	108	0.259321	0.162410
39	0.000289	0.000262	74	0.010547	0.007841	109	0.265910	0.170594
40	0.000315	0.000283	75	0.011517	0.008701	110	0.270840	0.179146
41	0.000341	0.000305	76	0.012857	0.009678	111	0.273930	0.187826
42	0.000366	0.000330	77	0.014680	0.010757	112	0.275000	0.196391
43	0.000389	0.000357	78	0.016419	0.011923	113	0.275000	0.204599
44	0.000409	0.000389	79	0.018300	0.013163	114	0.275000	0.212207
45	0.000423	0.000427	80	0.020388	0.014502	115	0.275000	0.218975
46	0.000441	0.000470	81	0.022745	0.015972	116	0.275000	0.224661
47	0.000466	0.000517	82	0.025437	0.017607	117	0.275000	0.229021
48	0.000505	0.000567	83	0.028389	0.019438	118	0.275000	0.231815
49	0.000548	0.000620	84	0.031557	0.021486	119	1.000000	1.000000

Current Assumption: 55% of the 1994 Group Annuity Mortality Table, 1994 Base Year without margin projected to 2013 using Projection Scale AA

Proposed Assumption: 60% of Post-Termination Healthy Mortality

TRS
Pre-termination Mortality Rates
Male

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.000116	0.000163	50	0.000884	0.00105	85	0.041173	0.039193
16	0.000132	0.000163	51	0.000965	0.001126	86	0.044794	0.043689
17	0.000145	0.000163	52	0.001059	0.001208	87	0.049922	0.049483
18	0.000155	0.000163	53	0.001181	0.001295	88	0.05586	0.055939
19	0.000163	0.000172	54	0.001311	0.001483	89	0.061347	0.063161
20	0.000170	0.000182	55	0.001487	0.001615	90	0.068573	0.071260
21	0.000182	0.000191	56	0.001696	0.001766	91	0.074998	0.080328
22	0.000194	0.000200	57	0.001950	0.001901	92	0.083306	0.090400
23	0.000214	0.000209	58	0.002244	0.002117	93	0.090670	0.101453
24	0.000235	0.000216	59	0.002525	0.002409	94	0.098580	0.112526
25	0.000264	0.000222	60	0.002841	0.002643	95	0.108816	0.124240
26	0.000301	0.000226	61	0.003263	0.002917	96	0.117156	0.136471
27	0.000320	0.000228	62	0.003684	0.003229	97	0.125217	0.149090
28	0.000332	0.000228	63	0.004246	0.003599	98	0.135438	0.159079
29	0.000343	0.000229	64	0.004790	0.004021	99	0.143044	0.171919
30	0.000353	0.000231	65	0.005380	0.004504	100	0.150612	0.181575
31	0.000361	0.000238	66	0.006128	0.005057	101	0.161352	0.194404
32	0.000369	0.000249	67	0.006805	0.005594	102	0.169515	0.203598
33	0.000373	0.000269	68	0.007351	0.006202	103	0.178598	0.216309
34	0.000374	0.000302	69	0.008043	0.007017	104	0.188485	0.225144
35	0.000374	0.000340	70	0.008616	0.007828	105	0.198263	0.237581
36	0.000379	0.000382	71	0.009423	0.008702	106	0.207019	0.244839
37	0.000392	0.000425	72	0.010341	0.009643	107	0.213840	0.250568
38	0.000405	0.000468	73	0.011329	0.010813	108	0.218552	0.254329
39	0.000423	0.000509	74	0.012364	0.011964	109	0.221763	0.255680
40	0.000445	0.000547	75	0.013774	0.013285	110	0.223735	0.255680
41	0.000471	0.000584	76	0.015124	0.014797	111	0.224727	0.255680
42	0.000500	0.000618	77	0.017045	0.016508	112	0.225000	0.255680
43	0.000530	0.000653	78	0.019316	0.018423	113	0.225000	0.255680
44	0.000561	0.000692	79	0.021906	0.020534	114	0.225000	0.255680
45	0.000596	0.000736	80	0.024796	0.022841	115	0.225000	0.255680
46	0.000638	0.000787	81	0.027961	0.025382	116	0.225000	0.255680
47	0.000690	0.000846	82	0.031375	0.028208	117	0.225000	0.255680
48	0.000749	0.000913	83	0.034274	0.031344	118	0.225000	0.255680
49	0.000813	0.000979	84	0.037943	0.035081	119	1.000000	1.000000

Current Assumption: 55% of the 1994 Group Annuity Table, 1994 Base Year without margin projected to 2013 using Projection Scale AA

Proposed Assumption: 68% of Post-Termination Healthy Mortality

TRS
Post-termination Mortality Rates
Female

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.000171	0.000156	50	0.000847	0.001124	85	0.046249	0.039636
16	0.000171	0.000156	51	0.000918	0.001219	86	0.051616	0.043940
17	0.000171	0.000156	52	0.000997	0.001318	87	0.057377	0.048789
18	0.000171	0.000156	53	0.001109	0.001424	88	0.064966	0.054261
19	0.000196	0.000156	54	0.001241	0.001513	89	0.073658	0.060450
20	0.000215	0.000163	55	0.001426	0.001641	90	0.083723	0.068659
21	0.000224	0.000169	56	0.001631	0.001756	91	0.093485	0.077983
22	0.000226	0.000173	57	0.001851	0.001887	92	0.106227	0.088452
23	0.000224	0.000175	58	0.002117	0.002035	93	0.118079	0.100021
24	0.000222	0.000176	59	0.002457	0.002240	94	0.130760	0.112560
25	0.000225	0.000176	60	0.002854	0.002501	95	0.144189	0.125866
26	0.000230	0.000178	61	0.003284	0.002765	96	0.161410	0.139699
27	0.000235	0.000181	62	0.003777	0.003062	97	0.176674	0.153813
28	0.000239	0.000185	63	0.004339	0.003466	98	0.192756	0.164973
29	0.000251	0.000190	64	0.004979	0.003946	99	0.209655	0.178741
30	0.000258	0.000197	65	0.005701	0.004538	100	0.231741	0.188730
31	0.000269	0.000205	66	0.006527	0.005196	101	0.250792	0.201393
32	0.000283	0.000216	67	0.007450	0.005970	102	0.270837	0.209540
33	0.000311	0.000228	68	0.008442	0.006727	103	0.291636	0.220440
34	0.000344	0.000243	69	0.009476	0.007576	104	0.318956	0.226232
35	0.000367	0.000282	70	0.010523	0.008550	105	0.340960	0.237489
36	0.000382	0.000322	71	0.011499	0.009494	106	0.364586	0.246863
37	0.000398	0.000362	72	0.012424	0.010494	107	0.389996	0.258063
38	0.000417	0.000400	73	0.013422	0.011599	108	0.415180	0.270683
39	0.000437	0.000436	74	0.014342	0.013068	109	0.438126	0.284323
40	0.000462	0.000472	75	0.015830	0.014502	110	0.456824	0.298577
41	0.000492	0.000509	76	0.017260	0.016130	111	0.471493	0.313043
42	0.000526	0.000550	77	0.019177	0.017929	112	0.483473	0.327318
43	0.000573	0.000595	78	0.020940	0.019871	113	0.492436	0.340998
44	0.000620	0.000649	79	0.023377	0.021938	114	0.498054	0.353678
45	0.000666	0.000711	80	0.026690	0.024170	115	0.500000	0.364959
46	0.000708	0.000783	81	0.029853	0.026620	116	0.500000	0.374435
47	0.000744	0.000861	82	0.033273	0.029345	117	0.500000	0.381702
48	0.000770	0.000946	83	0.037068	0.032397	118	0.500000	0.386359
49	0.000802	0.001033	84	0.041355	0.035811	119	1.000000	1.000000

Current Assumption: 1994 Group Annuity Mortality Table, 1994 Base Year without margin projected to 2013 using Projection Scale AA, with a 3-year setback

Proposed Assumption: 97% of RP-2000 rates, 2000 Base Year, projected to 2018 with Scale BB, with a 4-year setback

TRS

Post-termination Mortality Rates

Male

Age	Current	Proposed	Age	Current	Proposed	Age	Current	Proposed
15	0.000258	0.000240	50	0.001417	0.001544	85	0.062135	0.057637
16	0.000258	0.000240	51	0.001532	0.001656	86	0.069722	0.064248
17	0.000258	0.000240	52	0.001663	0.001777	87	0.076164	0.072770
18	0.000258	0.000240	53	0.001806	0.001904	88	0.084319	0.082264
19	0.000258	0.000253	54	0.001964	0.002181	89	0.091495	0.092884
20	0.000292	0.000268	55	0.002145	0.002375	90	0.099542	0.104794
21	0.000322	0.000281	56	0.002354	0.002597	91	0.110938	0.118129
22	0.000344	0.000295	57	0.002625	0.002795	92	0.124133	0.132941
23	0.000362	0.000307	58	0.002914	0.003113	93	0.136327	0.149196
24	0.000379	0.000318	59	0.003305	0.003543	94	0.152384	0.165479
25	0.000404	0.000326	60	0.003769	0.003887	95	0.166662	0.182705
26	0.000432	0.000332	61	0.004333	0.004289	96	0.185126	0.200693
27	0.000475	0.000335	62	0.004986	0.004749	97	0.201488	0.219249
28	0.000523	0.000335	63	0.005611	0.005293	98	0.219067	0.233940
29	0.000587	0.000337	64	0.006312	0.005913	99	0.241814	0.252821
30	0.000668	0.000340	65	0.007251	0.006624	100	0.260347	0.267022
31	0.000711	0.000350	66	0.008188	0.007436	101	0.278260	0.285888
32	0.000737	0.000367	67	0.009436	0.008227	102	0.300974	0.299408
33	0.000762	0.000395	68	0.010644	0.009121	103	0.317876	0.318102
34	0.000784	0.000444	69	0.011956	0.010318	104	0.334693	0.331094
35	0.000803	0.000500	70	0.013618	0.011511	105	0.358560	0.349384
36	0.000820	0.000562	71	0.015123	0.012798	106	0.376699	0.360058
37	0.000829	0.000625	72	0.016336	0.014180	107	0.396884	0.368483
38	0.000830	0.000688	73	0.017873	0.015902	108	0.418855	0.374013
39	0.000832	0.000749	74	0.019147	0.017595	109	0.440585	0.376000
40	0.000843	0.000805	75	0.020940	0.019536	110	0.460043	0.376000
41	0.000871	0.000858	76	0.022981	0.021760	111	0.475200	0.376000
42	0.000901	0.000909	77	0.025175	0.024276	112	0.485670	0.376000
43	0.000941	0.000961	78	0.027475	0.027093	113	0.492807	0.376000
44	0.000990	0.001017	79	0.030609	0.030198	114	0.497189	0.376000
45	0.001047	0.001082	80	0.033609	0.033590	115	0.499394	0.376000
46	0.001112	0.001157	81	0.037879	0.037326	116	0.500000	0.376000
47	0.001178	0.001244	82	0.042924	0.041482	117	0.500000	0.376000
48	0.001247	0.001343	83	0.048681	0.046095	118	0.500000	0.376000
49	0.001323	0.001439	84	0.055102	0.051589	119	1.000000	1.000000

Current Assumption: 1994 Group Annuity Mortality Table, 1994 Base Year without margin projected to 2013 using Projection Scale AA, with a 4-year setback

Proposed Assumption: 94% of RP-2000 Mortality Table, 2000 Base Year, projected to 2018 with Scale BB, 3-year setback

TRS

Withdrawal Rates

Members with less than 8 years of service

	Female		Male	
Service	Current	Proposed	Current	Proposed
0	0.170	0.170	0.170	0.204
1	0.170	0.170	0.170	0.204
2	0.140	0.140	0.140	0.168
3	0.120	0.120	0.120	0.144
4	0.100	0.100	0.100	0.120
5	0.090	0.090	0.090	0.108
6	0.075	0.075	0.075	0.090
7	0.060	0.060	0.060	0.072

Members with 8 or more years of service

	Female		Male			Female		Male	
Age	Current	Proposed	Current	Proposed	Age	Current	Proposed	Current	Proposed
15	0.043747	0.037185	0.044584	0.031209	40	0.042658	0.036224	0.043189	0.030159
16	0.043714	0.037157	0.044528	0.031170	41	0.042559	0.036155	0.043065	0.030085
17	0.043692	0.037138	0.044483	0.031138	42	0.042460	0.036086	0.042908	0.030010
18	0.043681	0.037129	0.044438	0.031107	43	0.042372	0.035976	0.042762	0.029866
19	0.043670	0.037120	0.044415	0.031091	44	0.042262	0.035867	0.042570	0.029721
20	0.043351	0.036848	0.044067	0.030847	45	0.042130	0.035757	0.042357	0.029577
21	0.043351	0.036848	0.044044	0.030831	46	0.042009	0.035648	0.042132	0.029432
22	0.043340	0.036839	0.043999	0.030799	47	0.041844	0.035538	0.041850	0.029288
23	0.043340	0.036839	0.043965	0.030776	48	0.041657	0.035380	0.041524	0.029046
24	0.043329	0.036830	0.043909	0.030736	49	0.041470	0.035221	0.041187	0.028805
25	0.043329	0.036830	0.043864	0.030705	50	0.041250	0.035063	0.040804	0.028563
26	0.043318	0.036820	0.043819	0.030673	51	0.040997	0.034847	0.040354	0.028248
27	0.043307	0.036762	0.043774	0.030642	52	0.040700	0.034595	0.039825	0.027878
28	0.043274	0.041480	0.043729	0.030610	53	0.040348	0.034296	0.039240	0.027468
29	0.043241	0.046198	0.043684	0.030579	54	0.039974	0.059961	0.038588	0.046305
30	0.043208	0.050917	0.04365	0.030555	55	0.039523	0.059285	0.037845	0.045414
31	0.043186	0.055635	0.043628	0.030540	56	0.038940	0.058410	0.036945	0.044334
32	0.043142	0.060353	0.043594	0.030516	57	0.038192	0.057288	0.035843	0.043012
33	0.043109	0.055569	0.043572	0.030500	58	0.037345	0.056018	0.034639	0.041567
34	0.043065	0.050784	0.043560	0.030455	59	0.036267	0.054401	0.033188	0.039826
35	0.043021	0.046000	0.043538	0.030431	60	0.035046	0.052569	0.031557	0.037868
36	0.042955	0.041215	0.043504	0.030407	61	0.033682	0.050523	0.029745	0.035694
37	0.042900	0.036431	0.043459	0.030383	62	0.032131	0.048197	0.027642	0.033170
38	0.042823	0.036362	0.043380	0.030308	63	0.030360	0.045540	0.025245	0.030294
39	0.042746	0.036293	0.043290	0.030234	64	0.028435	0.042653	0.022647	0.027176
					65+	0.044000	0.066000	0.045000	0.054000

Current Assumption: Rates adjusted based on actual experience from 2005 to 2009

Proposed Assumption: Sex distinct rates in first 8 years grading down from 20% to 6% for males, no change for females. Decreased most male and female rates for members with 8 or more years of service

TRS

Reduced Retirement Rates

	Female		Male	
Age	**Current**	**Proposed**	**Current**	**Proposed**
>50	N/A	N/A	N/A	N/A
50	0.08	0.08	0.08	0.08
51	0.08	0.08	0.08	0.08
52	0.08	0.08	0.08	0.08
53	0.06	0.08	0.06	0.08
54	0.12	0.16	0.12	0.16
55	0.08	0.08	0.08	0.08
56	0.08	0.08	0.08	0.08
57	0.08	0.08	0.08	0.08
58	0.08	0.08	0.08	0.08
59	0.12	0.16	0.12	0.16
60	N/A	N/A	N/A	N/A
61	N/A	N/A	N/A	N/A
62	N/A	N/A	N/A	N/A
63	N/A	N/A	N/A	N/A
64	N/A	N/A	N/A	N/A
65	N/A	N/A	N/A	N/A
66	N/A	N/A	N/A	N/A
67	N/A	N/A	N/A	N/A
68	N/A	N/A	N/A	N/A
69	N/A	N/A	N/A	N/A
70-84	N/A	N/A	N/A	N/A
85+	N/A	N/A	N/A	N/A

Current Assumption: Rates adjusted based on actual experience from 2005 to 2009

Proposed Assumption: Rates adjusted based on actual experience from 2009 to 2013. Increased rates at ages 54 and 59

TRS

Unreduced Retirement Rates

	Female		Male	
Age	Current	Proposed	Current	Proposed
<45	0.10	0.03	0.10	0.03
46	0.10	0.05	0.10	0.05
47	0.10	0.08	0.10	0.05
48	0.10	0.08	0.10	0.05
49	0.10	0.08	0.10	0.05
50	0.13	0.13	0.13	0.05
51	0.12	0.12	0.12	0.08
52	0.12	0.12	0.12	0.15
53	0.13	0.13	0.13	0.15
54	0.16	0.14	0.16	0.15
55	0.20	0.16	0.18	0.20
56	0.15	0.16	0.17	0.17
57	0.18	0.16	0.13	0.15
58	0.18	0.16	0.18	0.20
59	0.18	0.22	0.15	0.20
60	0.20	0.22	0.18	0.25
61	0.20	0.22	0.18	0.18
62	0.25	0.20	0.11	0.18
63	0.25	0.20	0.20	0.18
64	0.20	0.25	0.25	0.18
65	0.20	0.20	0.30	0.30
66	0.20	0.20	0.25	0.25
67	0.20	0.20	0.25	0.25
68	0.20	0.25	0.25	0.25
69	0.20	0.25	0.25	0.35
70	0.50	0.25	0.50	0.30
71	0.50	0.35	0.50	0.30
72	0.50	0.35	0.50	0.30
73	0.50	0.35	0.50	0.30
74	0.50	0.35	0.50	0.30
75-84	0.50	0.50	0.50	0.50
85+	1.00	1.00	1.00	1.00

Current Assumption: Based on actual experience from 2005 to 2009.

Proposed Assumption: Rates adjusted based on actual experience from 2009 to 2013

TRS

Disability Rates

	Female		Male			Female		Male	
Age	Current	Proposed	Current	Proposed	Age	Current	Proposed	Current	Proposed
20	0.000202	0.000560	0.000224	0.000560	40	0.000331	0.000703	0.000368	0.000703
21	0.000202	0.000563	0.000224	0.000563	41	0.000346	0.000718	0.000384	0.000718
22	0.000209	0.000565	0.000232	0.000565	42	0.000367	0.000733	0.000408	0.000733
23	0.000209	0.000574	0.000232	0.000574	43	0.000389	0.000770	0.000432	0.000770
24	0.000216	0.000583	0.000240	0.000583	44	0.000425	0.000806	0.000472	0.000806
25	0.000216	0.000593	0.000240	0.000593	45	0.000468	0.000843	0.000520	0.000843
26	0.000216	0.000602	0.000240	0.000602	46	0.000504	0.000879	0.000560	0.000879
27	0.000223	0.000611	0.000248	0.000611	47	0.000547	0.000916	0.000608	0.000916
28	0.000230	0.000611	0.000256	0.000611	48	0.000598	0.000975	0.000664	0.000975
29	0.000238	0.000612	0.000264	0.000612	49	0.000641	0.001034	0.000712	0.001034
30	0.000245	0.000612	0.000272	0.000612	50	0.000691	0.001093	0.000768	0.001093
31	0.000245	0.000613	0.000272	0.000613	51	0.000749	0.001152	0.000832	0.001152
32	0.000252	0.000613	0.000280	0.000613	52	0.000821	0.001211	0.000912	0.001211
33	0.000259	0.000622	0.000288	0.000622	53	0.000914	0.001356	0.001016	0.001356
34	0.000266	0.000631	0.000296	0.000631	54	0.001022	0.001501	0.001136	0.001501
35	0.000274	0.000641	0.000304	0.000641					
36	0.000288	0.000650	0.000320	0.000650					
37	0.000295	0.000659	0.000328	0.000659					
38	0.00031	0.000674	0.000344	0.000674					
39	0.000317	0.000689	0.000352	0.000689					

Current Assumption: Based on actual experience from 2005 to 2009.

Proposed Assumption: Based on actual experience from 2009 to 2013. Changed to unisex rates and increased most rates.

TRS

Salary Scale

Years of service	Percent increase	
	Current	Proposed
0	6.11%	8.11%
1	6.11%	7.51%
2	6.11%	6.91%
3	6.11%	6.41%
4	6.11%	6.11%
5	6.11%	6.11%
6	5.94%	5.90%
7	5.78%	5.69%
8	5.61%	5.55%
9	5.44%	5.40%
10	5.28%	5.26%
11	5.11%	5.11%
12	4.94%	4.96%
13	4.78%	4.84%
14	4.61%	4.72%
15	4.45%	4.60%
16	4.28%	4.49%
17	4.11%	4.37%
18	3.95%	4.27%
19	3.78%	4.17%
20	3.62%	4.07%
21	3.62%	3.97%
22+	3.62%	3.87%

Current Assumption: Based on actual experience from 2005 to 2009.

Proposed Assumption: Service based rates grading down from 8.1% to 3.9%

buckconsultants A Xerox Company

April 18, 2014

VIA EMAIL

Mr. Mike Barnhill
Deputy Commissioner
Department of Administration
State of Alaska
333 Willoughby Avenue
6th Floor State Office Building
Juneau, AK 99811-0208

Re: Fiscal Note for CS HB 385 (Fin) Version - $1 Billion / $2 Billion Fixed Contribution Proposal for Funding PERS and TRS

Dear Mike:

As requested, we are providing the following information for a Fiscal Note on CS HB 385 (Fin), a Proposal that transfers an amount of $3 billion from the budget reserve fund into the State of Alaska with $1 billion allocated to the Public Employees' Retirement System (PERS) and $2 billion to the Teachers' Retirement System (TRS) in fiscal year 2015. This proposal would also amend the additional State contributions in fiscal years 2016 through 2036 to a fixed $490.31 million annually, with additional appropriations as necessary to keep the systems funded consistent with actuarial standards. The amount of $239.56 million of the $490.31 million will be allocated to PERS and $250.75 million of the $490.31 million will be allocated to TRS each fiscal year beyond 2015. The proposed changes would become effective as of July 1, 2014. Our results are based on the 2012 actuarial valuation results as the 2013 actuarial valuation results are not yet final. A projected analysis of the Proposal for PERS and TRS is shown in the exhibits following this letter.

Actuarial Projection Analysis of Proposal

The proposal changes the future pace and funding pattern of state and employer contributions to PERS and TRS. It does not change the benefit provisions, expected future benefit payments, or the actuarial liabilities of PERS and TRS. In order to measure the fiscal impact of the proposal, Buck performed 30-year actuarial projections of the expected funding patterns for both the current funding policy adopted by the Alaska Retirement Management Board (ARMB), referred to as the Baseline, and the Proposal.

First, the proposal provides increased immediate funding by transferring $3 billion from the budget reserve fund to PERS and TRS in fiscal year 2015. This transfer immediately improves the funding levels of PERS and TRS and lowers future funding needs. Levels of funding at any point in time are measured by the funding ratio which equals the ratio of the systems assets divided by the accrued

liability. For both PERS and TRS, the funding ratio is expected to increase of over 2% for PERS and over 15% for TRS at the time of the transfer.

Second, future annual additional state assistance contributions, subject to appropriations, are fixed at $490.31 million per year and are paid until the funding ratio reaches 100%. Based on our projections, we estimate this will occur in fiscal year 2037 for both PERS and TRS using the allocation noted earlier. This represents an extension of the funding period of six years from the current policy which is expected to reach 100% funding by fiscal year 2031.

The overall impact to state funding of PERS and TRS is shown on Exhibit 1 and 2 attached. The fiscal impact of the $3 billion transfer lowers overall state assistance funding, and the extension of the funding period by six years increases overall employer funding. The net result is an increase in total state funding (state's contribution as an employer plus additional state assistance) from fiscal years 2015 to 2037 for PERS of $1,563 million and a decrease in total state funding for TRS of $213 million, or a total net increase of $1,350 million. The funding of other non-state employers of PERS also increases from $2,904 million to $4,442 million, or a net increase of $1,538 million. Greater detail of our projection results for both PERS and TRS is shown in Exhibits 3 through 6.

Funding Policy

It should be noted that these projections are ***not*** predictions, but rather expectations assuming all of the actuarial assumptions are exactly realized, including an 8.00% investment rate of return in each year from 2014 to 2043. To the extent actual future experience is different from what we have assumed, the actual results will increase or decrease the funding levels shown in our projections. We recommend policy makers take this into consideration when setting long-term funding policy.

There are many budgetary approaches being used today by public employers and states to fund pension systems. The most common are (1) the actuarial contribution approach, and (2) the fixed dollar or fixed contribution rate approach, typically set in statute. Alaska is currently using the actuarial contribution approach. Under this approach, the actuary performs an actuarial valuation each year to determine the contribution rate needed to fund the accruing benefit (known as normal cost) and amortize the unfunded past service liability over a defined period. The contribution rate will vary year by year given changes in experience, actuarial assumptions, methods, or plan provisions. These changes to the contribution rate keeps funding on a path to fully amortize the unfunded past service liability within the defined period. Alaska currently uses a 25 year fixed amortization period from the date portions of the unfunded liability are established.

The Proposal [CS HB 385 (Fin)] changes the funding policy for the additional state assistance contribution from the actuarial contribution approach to a fixed dollar contribution approach. Employer contributions will still be determined on the actuarial contribution approach with a cap of 22% of total payroll for PERS and 12.56% of total payroll for TRS. Future annual actuarial valuations will be

performed to measure the ongoing actuarial positions of PERS and TRS and any changes in the funding period or date when the systems are expected to reach a 100% funding ratio. An important feature of CS HB 385 (Fin) provides that, if any future actuarial analysis determines that the fixed annual state contribution amount is insufficient to amortize the unfunded past service liability over a period consistent with actuarial standards, the state will contribute, subject to appropriation, an additional fixed amount to keep the systems funded within actuarial standards. We recommend policy makers consult with the system's actuary to determine the conditions under which additional state contributions would be necessary.

Summary for Analysis of Proposal

The data, assumptions, plan provisions and methods used for the estimated costs are described in the actuarial valuation reports as of June 30, 2012 except that future contributions from the State have been based on the Proposal. We have also used the 12.50% investment rate of return in fiscal year 2013 and an 8.00% investment rate of return in all future years beyond fiscal year 2013 to project fund balances. The bill will become effective July 1, 2014.

Please let me know if you need any further information.

Sincerely,

David H. Slishinsky, ASA, EA, MAAA, FCA
Principal, Consulting Actuary

c: Ms. Kathy Lea, State of Alaska
Mr. Brandon Maitlen, State of Alaska
Mr. Kevin Worley, State of Alaska
Mr. Chris Hulla, Buck Consultants
Ms. Kyla Kaltenbach, Buck Consultants

Exhibit 1

State of Alaska PERS and TRS
Financial Projections (in Thousands)
Summary of State Assistance

Fiscal Year End	Baseline - Current ARM Board Funding Policy			$3B State Contribution in FY15; $490.31M State Contributions in FY16-FY35			Cost / (Savings) to Additional State Assistance		
	PERS	TRS	Total	PERS	TRS	Total	PERS	TRS	Total
2013	$310,528	$298,101	$608,629	$310,528	$298,101	$608,629	$0	$0	$0
2014	312,473	316,847	629,320	312,473	316,847	629,320	0	0	0
2015	519,676	455,904	975,580	1,000,000	2,000,000	3,000,000	480,324	1,544,096	2,024,420
2016	563,210	485,905	1,049,115	239,560	250,750	490,310	(323,650)	(235,155)	(558,805)
2017	555,103	492,448	1,047,551	239,560	250,750	490,310	(315,543)	(241,698)	(557,241)
2018	528,170	488,074	1,016,244	239,560	250,750	490,310	(288,610)	(237,324)	(525,934)
2019	517,221	489,890	1,007,111	239,560	250,750	490,310	(277,661)	(239,140)	(516,801)
2020	487,881	484,378	972,259	239,560	250,750	490,310	(248,321)	(233,628)	(481,949)
2021	466,935	483,595	950,530	239,560	250,750	490,310	(227,375)	(232,845)	(460,220)
2022	445,553	482,885	928,438	239,560	250,750	490,310	(205,993)	(232,135)	(438,128)
2023	424,549	482,733	907,282	239,560	250,750	490,310	(184,989)	(231,983)	(416,972)
2024	404,298	482,225	886,523	239,560	250,750	490,310	(164,738)	(231,475)	(396,213)
2025	383,915	481,478	865,393	239,560	250,750	490,310	(144,355)	(230,728)	(375,083)
2026	363,879	481,273	845,152	239,560	250,750	490,310	(124,319)	(230,523)	(354,842)
2027	342,312	480,405	822,717	239,560	250,750	490,310	(102,752)	(229,655)	(332,407)
2028	320,269	479,517	799,786	239,560	250,750	490,310	(80,709)	(228,767)	(309,476)
2029	296,545	478,207	774,752	239,560	250,750	490,310	(56,985)	(227,457)	(284,442)
2030	0	249,950	249,950	239,560	250,750	490,310	239,560	800	240,360
2031	0	0	0	239,560	250,750	490,310	239,560	250,750	490,310
2032	0	0	0	239,560	250,750	490,310	239,560	250,750	490,310
2033	0	0	0	239,560	250,750	490,310	239,560	250,750	490,310
2034	0	0	0	239,560	250,750	490,310	239,560	250,750	490,310
2035	0	0	0	239,560	250,750	490,310	239,560	250,750	490,310
2036	0	0	0	239,560	250,750	490,310	239,560	250,750	490,310
2037	0	0	0	0	0	0	0	0	0
2038	0	0	0	0	0	0	0	0	0
2039	0	0	0	0	0	0	0	0	0
2040	0	0	0	0	0	0	0	0	0
2041	0	0	0	0	0	0	0	0	0
2042	0	0	0	0	0	0	0	0	0
2043	0	0	0	0	0	0	0	0	0
Totals for 2015 & After	$6,619,516	$7,478,867	$14,098,383	$6,030,760	$7,265,750	$13,296,510	($588,756)	($213,117)	($801,873)

Exhibit 2

State of Alaska PERS and TRS
Financial Projections (in Thousands)

Summary of Total State Contributions - State's Share of Employer Contributions Plus Additional State Assistance

Fiscal Year End	Baseline - Current ARM Board Funding Policy			$3B State Contribution in FY15; $490.31M State Contributions in FY16-FY35			Total State Contribution Cost / (Savings)		
	PERS	TRS	Total	PERS	TRS	Total	PERS	TRS	Total
2013	$559,312	$298,101	$857,413	$559,312	$298,101	$857,413	$0	$0	$0
2014	558,699	316,847	875,546	558,699	316,847	875,546	0	0	0
2015	764,457	455,904	1,220,361	1,244,781	2,000,000	3,244,781	480,324	1,544,096	2,024,420
2016	807,472	485,905	1,293,377	483,822	250,750	734,572	(323,650)	(235,155)	(558,805)
2017	799,743	492,448	1,292,191	484,200	250,750	734,950	(315,543)	(241,698)	(557,241)
2018	774,002	488,074	1,262,076	485,392	250,750	736,142	(288,610)	(237,324)	(525,934)
2019	765,041	489,890	1,254,931	487,380	250,750	738,130	(277,661)	(239,140)	(516,801)
2020	738,108	484,378	1,222,486	489,787	250,750	740,537	(248,321)	(233,628)	(481,949)
2021	720,186	483,595	1,203,781	492,811	250,750	743,561	(227,375)	(232,845)	(460,220)
2022	702,268	482,885	1,185,153	496,275	250,750	747,025	(205,993)	(232,135)	(438,128)
2023	685,320	482,733	1,168,053	500,331	250,750	751,081	(184,989)	(231,983)	(416,972)
2024	669,945	482,225	1,152,170	505,207	250,750	755,957	(164,738)	(231,475)	(396,213)
2025	655,062	481,478	1,136,540	510,707	250,750	761,457	(144,355)	(230,728)	(375,083)
2026	641,281	481,273	1,122,554	516,962	250,750	767,712	(124,319)	(230,523)	(354,842)
2027	626,623	480,405	1,107,028	523,871	250,750	774,621	(102,752)	(229,655)	(332,407)
2028	612,247	479,517	1,091,764	531,538	250,750	782,288	(80,709)	(228,767)	(309,476)
2029	596,985	478,207	1,075,192	540,000	250,750	790,750	(56,985)	(227,457)	(284,442)
2030	106,053	249,950	356,003	549,206	250,750	799,956	443,153	800	443,953
2031	4,534	0	4,534	559,271	250,750	810,021	554,737	250,750	805,487
2032	3,153	0	3,153	570,147	250,750	820,897	566,994	250,750	817,744
2033	2,467	0	2,467	581,909	250,750	832,659	579,442	250,750	830,192
2034	2,006	0	2,006	595,006	250,750	845,756	593,000	250,750	843,750
2035	1,197	0	1,197	561,110	250,750	811,860	559,913	250,750	810,663
2036	626	0	626	532,227	250,750	782,977	531,601	250,750	782,351
2037	326	0	326	326	0	326	0	0	0
2038	0	0	0	0	0	0	0	0	0
2039	0	0	0	0	0	0	0	0	0
2040	0	0	0	0	0	0	0	0	0
2041	0	0	0	0	0	0	0	0	0
2042	0	0	0	0	0	0	0	0	0
2043	0	0	0	0	0	0	0	0	0
Totals 2015 & After	$10,679,102	$7,478,867	$18,157,969	$12,242,266	$7,265,750	$19,508,016	$1,563,164	($213,117)	$1,350,047

Note: Assumes TRS does not contain any State Employers.

Exhibit 3

State of Alaska PERS
Financial Projections (in Thousands)
Baseline - Level Dollar Amortization over 25 years and 12.5% Investment Return in FY13, 8% in FY14 and later years

	Investment Return: 8.00%																		
	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months										41.70%	58.30%			
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets	Municipal Er Cont's	State Er Cont's	State Assist Cont's	State Cont's	Total Er/State Cont's
2013	$11,832,030	$19,292,361	61.3%	($7,460,331)	$2,245,686	$426,731	$310,528	$118,879	$856,138	$973,954	($117,816)	$1,399,035	($924,132)	$12,189,117	$177,947	$248,784	$310,528	$559,312	$737,259
2014	12,189,117	20,109,112	60.6%	(7,919,995)	2,295,881	422,343	312,473	120,633	855,449	1,056,528	(201,079)	994,291	195,922	13,178,251	176,117	246,226	312,473	558,699	734,816
2015	13,178,251	20,885,260	63.1%	(7,707,009)	2,357,693	419,865	519,676	114,150	1,053,691	1,140,515	(86,824)	1,061,950	162,400	14,315,777	175,084	244,781	519,676	764,457	939,541
2016	14,315,777	21,614,302	66.2%	(7,298,525)	2,428,744	418,974	563,210	107,781	1,089,965	1,225,841	(135,876)	1,137,751	(76,850)	15,240,802	174,712	244,262	563,210	807,472	982,184
2017	15,240,802	22,291,137	68.4%	(7,050,335)	2,508,301	419,623	555,103	101,655	1,076,381	1,305,131	(228,750)	1,213,993	100,740	16,326,785	174,983	244,640	555,103	799,743	974,726
2018	16,326,785	22,919,638	71.2%	(6,592,853)	2,595,896	421,668	528,170	95,970	1,045,808	1,380,741	(334,933)	1,288,394	0	17,280,246	175,836	245,832	528,170	774,002	949,838
2019	17,280,246	23,501,895	73.5%	(6,221,649)	2,692,279	425,077	517,221	90,469	1,032,767	1,456,528	(423,761)	1,360,934	0	18,217,419	177,257	247,820	517,221	765,041	942,298
2020	18,217,419	24,035,658	75.8%	(5,818,239)	2,792,589	429,205	487,881	85,274	1,002,360	1,537,884	(535,524)	1,431,251	0	19,113,146	178,978	250,227	487,881	738,108	917,086
2021	19,113,146	24,512,466	78.0%	(5,399,320)	2,898,156	434,392	466,935	80,182	981,509	1,621,417	(639,908)	1,498,536	0	19,971,774	181,141	253,251	466,935	720,186	901,327
2022	19,971,774	24,925,074	80.1%	(4,953,300)	3,008,108	440,335	445,553	75,193	961,081	1,698,588	(737,507)	1,563,139	0	20,797,406	183,620	256,715	445,553	702,268	885,888
2023	20,797,406	25,278,587	82.3%	(4,481,181)	3,123,760	447,292	424,549	56,540	928,381	1,771,109	(842,728)	1,624,820	0	21,579,498	186,521	260,771	424,549	685,320	871,841
2024	21,579,498	25,570,418	84.4%	(3,990,920)	3,248,785	455,655	404,298	51,656	911,609	1,835,920	(924,311)	1,683,971	0	22,339,158	190,008	265,647	404,298	669,945	859,953
2025	22,339,158	25,795,109	86.6%	(3,455,951)	3,379,794	465,089	383,915	46,641	895,645	1,924,239	(1,028,594)	1,740,357	0	23,050,921	193,942	271,147	383,915	655,062	849,004
2026	23,050,921	25,934,450	88.9%	(2,883,529)	3,517,793	475,818	363,879	42,214	881,911	1,991,781	(1,109,870)	1,793,885	0	23,734,936	198,416	277,402	363,879	641,281	839,697
2027	23,734,936	26,004,608	91.3%	(2,269,672)	3,662,757	487,669	342,312	38,093	868,074	2,062,704	(1,194,630)	1,845,044	0	24,385,350	203,358	284,311	342,312	626,623	829,981
2028	24,385,350	25,997,577	93.8%	(1,612,227)	3,815,471	500,820	320,269	33,958	855,047	2,123,648	(1,268,601)	1,893,972	0	25,010,721	208,842	291,978	320,269	612,247	821,089
2029	25,010,721	25,917,989	96.5%	(907,268)	3,975,899	515,334	296,545	30,217	842,096	2,177,117	(1,335,021)	1,941,217	0	25,616,917	214,894	300,440	296,545	596,985	811,879
2030	25,616,917	25,769,017	99.4%	(152,100)	4,143,703	181,909	0	26,520	208,429	2,226,897	(2,018,468)	1,962,735	0	25,561,184	75,856	106,053	0	106,053	181,909
2031	25,561,184	25,549,181	100.0%	12,003	4,320,656	7,777	0	23,332	31,109	2,303,286	(2,272,177)	1,948,068	0	25,237,075	3,243	4,534	0	4,534	7,777
2032	25,237,075	25,227,017	100.0%	10,058	4,506,592	5,408	0	20,730	26,138	2,351,333	(2,325,195)	1,919,899	0	24,831,779	2,255	3,153	0	3,153	5,408
2033	24,831,779	24,821,687	100.0%	10,092	4,702,683	4,232	0	17,870	22,102	2,374,058	(2,351,956)	1,886,350	0	24,366,173	1,765	2,467	0	2,467	4,232
2034	24,366,173	24,357,984	100.0%	8,189	4,915,446	3,441	0	15,238	18,679	2,405,178	(2,386,499)	1,847,642	0	23,827,316	1,435	2,006	0	2,006	3,441
2035	23,827,316	23,817,428	100.0%	9,888	5,135,408	2,054	0	13,352	15,406	2,427,129	(2,411,723)	1,803,471	0	23,219,064	857	1,197	0	1,197	2,054
2036	23,219,064	23,210,536	100.0%	8,528	5,363,274	1,073	0	11,263	12,336	2,461,663	(2,449,327)	1,753,220	0	22,522,957	447	626	0	626	1,073
2037	22,522,957	22,515,424	100.0%	7,533	5,600,200	560	0	9,520	10,080	2,462,456	(2,452,376)	1,697,409	0	21,767,990	234	326	0	326	560
2038	21,767,990	21,761,882	100.0%	6,108	5,846,914	0	0	7,601	7,601	2,440,642	(2,433,041)	1,637,843	0	20,972,792	0	0	0	0	0
2039	20,972,792	20,968,326	100.0%	4,466	6,103,819	0	0	6,104	6,104	2,415,802	(2,409,698)	1,575,226	0	20,138,320	0	0	0	0	0
2040	20,138,320	20,135,179	100.0%	3,141	6,368,696	0	0	5,095	5,095	2,423,877	(2,418,782)	1,508,085	0	19,227,623	0	0	0	0	0
2041	19,227,623	19,225,406	100.0%	2,217	6,645,068	0	0	3,987	3,987	2,364,529	(2,360,542)	1,437,712	0	18,304,793	0	0	0	0	0
2042	18,304,793	18,303,380	100.0%	1,413	6,931,674	0	0	2,773	2,773	2,308,626	(2,305,853)	1,366,218	0	17,365,158	0	0	0	0	0
2043	17,365,158	17,364,761	100.0%	397	7,230,997	0	0	2,169	2,169	2,249,003	(2,246,834)	1,293,940	0	16,412,264	0	0	0	0	0
				Totals 2015 & After		$ 6,963,270	$6,619,516	$1,215,547	$14,798,333						$2,903,684	$4,059,586	$ 6,619,516	$10,679,102	$ 13,582,786
															21.38%			78.62%	100.00%

Exhibit 4

State of Alaska PERS
Financial Projections (in Thousands)
Level Dollar Amortization over 30 years and 12.5% Investment Return in FY13, 8% in FY14 and later years
$1B State Contribution in FY15; $239.56M State Contributions in FY16 - FY36

Investment Return: 8.00%

	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months														
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets	41.70% Municipal Er Cont's	58.30% State Er Cont's	State Assist Cont's	State Cont's	Total Er/State Cont's
2013	$11,832,030	$19,292,361	61.3%	($7,460,331)	$2,245,686	$426,731	$310,528	$118,879	$856,138	$973,954	($117,816)	$1,399,035	($924,132)	$12,189,117	$177,947	$248,784	$310,528	$559,312	$737,259
2014	12,189,117	20,109,112	60.6%	(7,919,995)	2,295,881	422,343	312,473	120,633	855,449	1,056,528	(201,079)	994,291	195,922	13,178,251	176,117	246,226	312,473	558,699	734,816
2015	13,178,251	20,885,260	63.1%	(7,707,009)	2,357,693	419,865	1,000,000	114,150	1,534,015	1,140,515	393,500	1,080,794	162,400	14,814,945	175,084	244,781	1,000,000	1,244,781	1,419,865
2016	14,814,945	21,614,302	68.5%	(6,799,357)	2,428,744	418,974	239,560	107,781	766,315	1,225,841	(459,526)	1,164,988	(76,850)	15,443,557	174,712	244,262	239,560	483,822	658,534
2017	15,443,557	22,291,137	69.3%	(6,847,580)	2,508,301	419,623	239,560	101,655	760,838	1,305,131	(544,293)	1,217,834	100,740	16,217,838	174,983	244,640	239,560	484,200	659,183
2018	16,217,838	22,919,638	70.8%	(6,701,800)	2,595,896	421,668	239,560	95,970	757,198	1,380,741	(623,543)	1,268,356	0	16,862,651	175,836	245,832	239,560	485,392	661,228
2019	16,862,651	23,501,895	71.8%	(6,639,244)	2,692,279	425,077	239,560	90,469	755,106	1,456,528	(701,422)	1,316,633	0	17,477,862	177,257	247,820	239,560	487,380	664,637
2020	17,477,862	24,035,658	72.7%	(6,557,796)	2,792,589	429,205	239,560	85,274	754,039	1,537,884	(783,845)	1,362,345	0	18,056,362	178,978	250,227	239,560	489,787	668,765
2021	18,056,362	24,512,466	73.7%	(6,456,104)	2,898,156	434,392	239,560	80,182	754,134	1,621,417	(867,283)	1,405,073	0	18,594,152	181,141	253,251	239,560	492,811	673,952
2022	18,594,152	24,925,074	74.6%	(6,330,922)	3,008,108	440,335	239,560	75,193	755,088	1,698,588	(943,500)	1,444,848	0	19,095,500	183,620	256,715	239,560	496,275	679,895
2023	19,095,500	25,278,587	75.5%	(6,183,087)	3,123,760	447,292	239,560	56,540	743,392	1,771,109	(1,027,717)	1,481,410	0	19,549,193	186,521	260,771	239,560	500,331	686,852
2024	19,549,193	25,570,418	76.5%	(6,021,225)	3,248,785	455,655	239,560	51,656	746,871	1,835,920	(1,089,049)	1,515,083	0	19,975,227	190,008	265,647	239,560	505,207	695,215
2025	19,975,227	25,795,109	77.4%	(5,819,882)	3,379,794	465,089	239,560	46,641	751,290	1,924,239	(1,172,949)	1,545,580	0	20,347,858	193,942	271,147	239,560	510,707	704,649
2026	20,347,858	25,934,450	78.5%	(5,586,592)	3,517,793	475,818	239,560	42,214	757,592	1,991,781	(1,234,189)	1,572,762	0	20,686,431	198,416	277,402	239,560	516,962	715,378
2027	20,686,431	26,004,608	79.5%	(5,318,177)	3,662,757	487,669	239,560	38,093	765,322	2,062,704	(1,297,382)	1,597,132	0	20,986,181	203,358	284,311	239,560	523,871	727,229
2028	20,986,181	25,997,577	80.7%	(5,011,396)	3,815,471	500,820	239,560	33,958	774,338	2,123,648	(1,349,310)	1,618,872	0	21,255,743	208,842	291,978	239,560	531,538	740,380
2029	21,255,743	25,917,989	82.0%	(4,662,246)	3,975,899	515,334	239,560	30,217	785,111	2,177,117	(1,392,006)	1,638,583	0	21,502,320	214,894	300,440	239,560	540,000	754,894
2030	21,502,320	25,769,017	83.4%	(4,266,697)	4,143,703	531,126	239,560	26,520	797,206	2,226,897	(1,429,691)	1,656,665	0	21,729,294	221,480	309,646	239,560	549,206	770,686
2031	21,729,294	25,549,181	85.0%	(3,819,887)	4,320,656	548,390	239,560	23,332	811,282	2,303,286	(1,492,004)	1,672,123	0	21,909,413	228,679	319,711	239,560	559,271	787,950
2032	21,909,413	25,227,017	86.8%	(3,317,604)	4,506,592	567,044	239,560	20,730	827,334	2,351,333	(1,523,999)	1,685,117	0	22,070,531	236,457	330,587	239,560	570,147	806,604
2033	22,070,531	24,821,687	88.9%	(2,751,156)	4,702,683	587,220	239,560	17,870	844,650	2,374,058	(1,529,408)	1,697,719	0	22,238,842	244,871	342,349	239,560	581,909	826,780
2034	22,238,842	24,357,984	91.3%	(2,119,142)	4,915,446	609,685	239,560	15,238	864,483	2,405,178	(1,540,695)	1,710,637	0	22,408,784	254,239	355,446	239,560	595,006	849,245
2035	22,408,784	23,817,428	94.1%	(1,408,644)	5,135,408	551,543	239,560	13,352	804,455	2,427,129	(1,622,674)	1,720,943	0	22,507,053	229,993	321,550	239,560	561,110	791,103
2036	22,507,053	23,210,536	97.0%	(703,483)	5,363,274	502,002	239,560	11,263	752,825	2,461,663	(1,708,838)	1,725,309	0	22,523,524	209,335	292,667	239,560	532,227	741,562
2037	22,523,524	22,515,424	100.0%	8,100	5,600,200	560	0	9,520	10,080	2,462,456	(2,452,376)	1,697,455	0	21,768,603	234	326	0	326	560
2038	21,768,603	21,761,882	100.0%	6,721	5,846,914	0	0	7,601	7,601	2,440,642	(2,433,041)	1,637,892	0	20,973,454	0	0	0	0	0
2039	20,973,454	20,968,326	100.0%	5,128	6,103,819	0	0	6,104	6,104	2,415,802	(2,409,698)	1,575,279	0	20,139,035	0	0	0	0	0
2040	20,139,035	20,135,179	100.0%	3,856	6,368,696	0	0	5,095	5,095	2,423,877	(2,418,782)	1,508,142	0	19,228,395	0	0	0	0	0
2041	19,228,395	19,225,406	100.0%	2,989	6,645,068	0	0	3,987	3,987	2,364,529	(2,360,542)	1,437,774	0	18,305,627	0	0	0	0	0
2042	18,305,627	18,303,380	100.0%	2,247	6,931,674	0	0	2,773	2,773	2,308,626	(2,305,853)	1,366,284	0	17,366,058	0	0	0	0	0
2043	17,366,058	17,364,761	100.0%	1,297	7,230,997	0	0	2,169	2,169	2,249,003	(2,246,834)	1,293,633	0	16,412,857	0	0	0	0	0
					Totals 2015 & After	$ 10,654,386	$ 6,030,760	$ 1,215,547	$ 17,900,693						$ 4,442,880	$ 6,211,506	$ 6,030,760	$ 12,242,266	$ 16,685,146
															26.63%			73.37%	100.00%

Exhibit 5

State of Alaska TRS
Financial Projections (in Thousands)
Baseline - Level Dollar Amortization over 25 years and 12.5% Investment Return in FY13, 8% in FY14 and later years

	Investment Return: 8.00%				Flow Amounts During Following 12 Months										
	Valuation Amounts on July 1 (Beginning of Fiscal Year)													Recognized	Ending
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Employer/State Ctb Rate	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Asset Gain/(Loss)	Actuarial Assets
2013	$4,869,154	$9,346,444	52.1%	($4,477,290)	$743,957	49.56%	$70,604	$298,101	$53,263	$421,968	$525,672	($103,704)	$570,927	($393,887)	$4,942,490
2014	4,942,490	9,651,582	51.2%	(4,709,092)	762,692	50.10%	67,056	316,847	54,446	438,349	556,844	(118,495)	402,046	90,090	5,316,131
2015	5,316,131	9,944,626	53.5%	(4,628,495)	783,438	66.31%	63,594	455,904	52,102	571,600	586,966	(15,366)	428,675	72,872	5,802,312
2016	5,802,312	10,223,597	56.8%	(4,421,285)	805,914	67.76%	60,182	485,905	49,736	595,823	618,454	(22,631)	461,350	(29,854)	6,211,177
2017	6,211,177	10,485,997	59.2%	(4,274,820)	830,268	66.16%	56,857	492,448	47,420	596,725	648,576	(51,851)	495,200	43,566	6,698,092
2018	6,698,092	10,731,508	62.4%	(4,033,416)	855,825	63.28%	53,492	488,074	45,199	586,765	675,904	(89,139)	529,114	0	7,138,067
2019	7,138,067	10,963,107	65.1%	(3,825,040)	882,669	61.18%	50,127	489,890	42,905	582,922	705,092	(122,170)	562,919	0	7,578,816
2020	7,578,816	11,177,357	67.8%	(3,598,541)	911,010	58.30%	46,741	484,378	40,631	571,750	739,563	(167,813)	596,273	0	8,007,276
2021	8,007,276	11,367,833	70.4%	(3,360,557)	940,957	56.00%	43,341	483,595	38,284	565,220	771,294	(206,074)	628,943	0	8,430,145
2022	8,430,145	11,533,410	73.1%	(3,103,265)	973,382	53.73%	40,113	482,885	35,978	558,976	799,992	(241,016)	661,306	0	8,850,435
2023	8,850,435	11,678,589	75.8%	(2,828,154)	1,008,495	51.55%	37,146	482,733	26,120	545,999	825,117	(279,118)	693,351	0	9,264,668
2024	9,264,668	11,804,774	78.5%	(2,540,106)	1,045,905	49.38%	34,243	482,225	23,847	540,315	847,540	(307,225)	725,312	0	9,682,755
2025	9,682,755	11,906,243	81.3%	(2,223,488)	1,085,268	47.26%	31,420	481,478	21,488	534,386	877,945	(343,559)	757,232	0	10,096,428
2026	10,096,428	11,978,919	84.3%	(1,882,491)	1,126,840	45.26%	28,735	481,273	19,269	529,277	915,165	(385,888)	788,541	0	10,499,081
2027	10,499,081	12,014,999	87.4%	(1,515,918)	1,170,697	43.27%	26,156	480,405	17,092	523,653	942,377	(418,724)	819,374	0	10,899,731
2028	10,899,731	12,019,893	90.7%	(1,120,162)	1,217,232	41.35%	23,808	479,517	14,972	518,297	965,075	(446,778)	850,250	0	11,303,203
2029	11,303,203	11,999,271	94.2%	(696,068)	1,266,672	39.47%	21,748	478,207	13,047	513,002	988,765	(475,763)	881,311	0	11,708,751
2030	11,708,751	11,947,250	98.0%	(238,499)	1,318,359	20.47%	19,918	249,950	11,338	281,206	1,015,267	(734,061)	903,533	0	11,878,223
2031	11,878,223	11,862,365	100.1%	15,858	1,373,136	0.24%	3,296	0	9,749	13,045	1,052,765	(1,039,720)	904,975	0	11,743,478
2032	11,743,478	11,727,157	100.1%	16,321	1,430,917	0.17%	2,433	0	8,442	10,875	1,071,218	(1,060,343)	893,325	0	11,576,460
2033	11,576,460	11,561,467	100.1%	14,993	1,491,916	0.13%	1,939	0	7,161	9,100	1,076,092	(1,066,992)	879,686	0	11,389,154
2034	11,389,154	11,375,441	100.1%	13,713	1,556,143	0.10%	1,556	0	6,069	7,625	1,087,071	(1,079,446)	864,176	0	11,173,884
2035	11,173,884	11,161,401	100.1%	12,483	1,622,872	0.07%	1,136	0	5,031	6,167	1,110,566	(1,104,399)	845,897	0	10,915,382
2036	10,915,382	10,904,315	100.1%	11,067	1,692,489	0.05%	846	0	4,231	5,077	1,108,805	(1,103,728)	825,250	0	10,636,904
2037	10,636,904	10,627,228	100.1%	9,676	1,764,921	0.03%	529	0	3,530	4,059	1,104,345	(1,100,286)	803,121	0	10,339,739
2038	10,339,739	10,331,515	100.1%	8,224	1,840,538	0.02%	368	0	2,945	3,313	1,098,370	(1,095,057)	779,573	0	10,024,255
2039	10,024,255	10,017,472	100.1%	6,783	1,919,401	0.02%	384	0	2,303	2,687	1,092,046	(1,089,359)	754,579	0	9,689,475
2040	9,689,475	9,684,161	100.1%	5,314	2,000,850	0.02%	400	0	1,801	2,201	1,079,552	(1,077,351)	728,309	0	9,340,433
2041	9,340,433	9,336,574	100.0%	3,859	2,085,904	0.01%	209	0	1,460	1,669	1,066,437	(1,064,768)	700,923	0	8,976,588
2042	8,976,588	8,974,342	100.0%	2,246	2,174,467	0.01%	217	0	1,087	1,304	1,048,163	(1,046,859)	672,579	0	8,602,308
2043	8,602,308	8,601,721	100.0%	587	2,266,698	0.00%	0	0	907	907	1,020,993	(1,020,086)	644,587	0	8,226,809
					Totals 2015 & After		$ 650,934	$ 7,478,867	$ 554,144	$ 8,683,945					

Exhibit 6

State of Alaska TRS
Financial Projections (in Thousands)
Level Dollar Amortization over 30 years and 12.5% Investment Return in FY13, 8% in FY14 and later years
$2B State Contribution in FY15; $250.75M State Contributions in FY16 - FY36

Investment Return: 8.00%

	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months									Recognized	Ending
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Employer/State Ctb Rate	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Asset Gain/(Loss)	Actuarial Assets
2013	$4,869,154	$9,346,444	52.1%	($4,477,290)	$743,957	49.56%	$70,604	$298,101	$53,263	$421,968	$525,672	($103,704)	$570,927	($393,887)	$4,942,490
2014	4,942,490	9,651,582	51.2%	(4,709,092)	762,692	50.34%	67,056	316,847	54,446	438,349	556,844	(118,495)	402,046	90,090	5,316,131
2015	5,316,131	9,944,626	53.5%	(4,628,495)	783,438	263.40%	63,594	2,000,000	52,102	2,115,696	586,966	1,528,730	489,251	72,872	7,406,984
2016	7,406,984	10,223,597	72.4%	(2,816,613)	805,914	38.58%	60,182	250,750	49,736	360,668	618,454	(257,786)	580,498	(29,854)	7,699,842
2017	7,699,842	10,485,997	73.4%	(2,786,155)	830,268	37.05%	56,857	250,750	47,420	355,027	648,576	(293,549)	604,811	43,566	8,054,670
2018	8,054,670	10,731,508	75.1%	(2,676,838)	855,825	35.55%	53,492	250,750	45,199	349,441	675,904	(326,463)	628,330	0	8,356,537
2019	8,356,537	10,963,107	76.2%	(2,606,570)	882,669	34.09%	50,127	250,750	42,905	343,782	705,092	(361,310)	651,015	0	8,646,242
2020	8,646,242	11,177,357	77.4%	(2,531,115)	911,010	32.66%	46,741	250,750	40,631	338,122	739,563	(401,441)	672,502	0	8,917,303
2021	8,917,303	11,367,833	78.4%	(2,450,530)	940,957	31.25%	43,341	250,750	38,284	332,375	771,294	(438,919)	692,611	0	9,170,995
2022	9,170,995	11,533,410	79.5%	(2,362,415)	973,382	29.88%	40,113	250,750	35,978	326,841	799,992	(473,151)	711,467	0	9,409,311
2023	9,409,311	11,678,589	80.6%	(2,269,278)	1,008,495	28.55%	37,146	250,750	26,120	314,016	825,117	(511,101)	728,960	0	9,627,170
2024	9,627,170	11,804,774	81.6%	(2,177,604)	1,045,905	27.25%	34,243	250,750	23,847	308,840	847,540	(538,700)	745,231	0	9,833,701
2025	9,833,701	11,906,243	82.6%	(2,072,542)	1,085,268	26.00%	31,420	250,750	21,488	303,658	877,945	(574,287)	760,256	0	10,019,670
2026	10,019,670	11,978,919	83.6%	(1,959,249)	1,126,840	24.80%	28,735	250,750	19,269	298,754	915,165	(616,411)	773,357	0	10,176,616
2027	10,176,616	12,014,999	84.7%	(1,838,383)	1,170,697	23.65%	26,156	250,750	17,092	293,998	942,377	(648,379)	784,567	0	10,312,804
2028	10,312,804	12,019,893	85.8%	(1,707,089)	1,217,232	22.56%	23,808	250,750	14,972	289,530	965,075	(675,545)	794,321	0	10,431,580
2029	10,431,580	11,999,271	86.9%	(1,567,691)	1,266,672	21.51%	21,748	250,750	13,047	285,545	988,765	(703,220)	802,658	0	10,531,018
2030	10,531,018	11,947,250	88.1%	(1,416,232)	1,318,359	20.53%	19,918	250,750	11,338	282,006	1,015,267	(733,261)	809,346	0	10,607,103
2031	10,607,103	11,862,365	89.4%	(1,255,262)	1,373,136	19.60%	18,342	250,750	9,749	278,841	1,052,765	(773,924)	813,713	0	10,646,892
2032	10,646,892	11,727,157	90.8%	(1,080,265)	1,430,917	18.71%	16,962	250,750	8,442	276,154	1,071,218	(795,064)	816,005	0	10,667,833
2033	10,667,833	11,561,467	92.3%	(893,634)	1,491,916	17.87%	15,796	250,750	7,161	273,707	1,076,092	(802,385)	817,377	0	10,682,825
2034	10,682,825	11,375,441	93.9%	(692,616)	1,556,143	17.07%	14,836	250,750	6,069	271,655	1,087,071	(815,416)	818,028	0	10,685,437
2035	10,685,437	11,161,401	95.7%	(475,964)	1,622,872	16.32%	14,047	250,750	5,031	269,828	1,110,566	(840,738)	817,165	0	10,661,864
2036	10,661,864	10,904,315	97.8%	(242,451)	1,692,489	15.61%	13,438	250,750	4,231	268,419	1,108,805	(840,386)	815,299	0	10,636,777
2037	10,636,777	10,627,228	100.1%	9,549	1,764,921	0.03%	529	0	3,530	4,059	1,104,345	(1,100,286)	803,111	0	10,339,602
2038	10,339,602	10,331,515	100.1%	8,087	1,840,538	0.02%	368	0	2,945	3,313	1,098,370	(1,095,057)	779,562	0	10,024,107
2039	10,024,107	10,017,472	100.1%	6,635	1,919,401	0.02%	384	0	2,303	2,687	1,092,046	(1,089,359)	754,567	0	9,689,315
2040	9,689,315	9,684,161	100.1%	5,154	2,000,850	0.02%	400	0	1,801	2,201	1,079,552	(1,077,351)	728,297	0	9,340,261
2041	9,340,261	9,336,574	100.0%	3,687	2,085,904	0.01%	209	0	1,460	1,669	1,066,437	(1,064,768)	700,910	0	8,976,403
2042	8,976,403	8,974,342	100.0%	2,061	2,174,467	0.01%	217	0	1,087	1,304	1,048,163	(1,046,859)	672,565	0	8,602,109
2043	8,602,109	8,601,721	100.0%	388	2,266,698	0.00%	0	0	907	907	1,020,993	(1,020,086)	643,762	0	8,225,785
					Totals 2015 & After		$ 733,149	$ 7,265,750	$ 554,144	$ 8,553,043					

buckconsultants A Xerox Company

April 18, 2014

VIA EMAIL

Mr. Mike Barnhill
Deputy Commissioner
Department of Administration
State of Alaska
333 Willoughby Avenue
6th Floor State Office Building
Juneau, AK 99811-0208

Re: Fiscal Note for CS HB 385 (Fin) Version - $1 Billion / $2 Billion Level % of Pay Amortization over 25 Years Proposal for Funding PERS and TRS

Dear Mike:

As requested, we are providing the following information for a Fiscal Note on CS HB 385 (Fin), a Proposal that transfers an amount of $3 billion from the budget reserve fund into the State of Alaska with $1 billion allocated to the Public Employees' Retirement System (PERS) and $2 billion to the Teachers' Retirement System (TRS) in fiscal year 2015. This proposal would also set the additional State contributions in fiscal years 2016 and thereafter based on a level percent of pay amortization of the unfunded liability over a 25 year period that is re-established in the 2015 fiscal year. The proposed changes would become effective as of July 1, 2014. Our results are based on the 2012 actuarial valuation results as the 2013 actuarial valuation results are not yet final. A projected analysis of the Proposal for PERS and TRS is shown in the exhibits following this letter.

Actuarial Projection Analysis of Proposal

The proposal changes the future pace and funding pattern of state and employer contributions to PERS and TRS. It does not change the benefit provisions, expected future benefit payments, or the actuarial liabilities of PERS and TRS. In order to measure the fiscal impact of the proposal, Buck performed 30-year actuarial projections of the expected funding patterns for both the current funding policy adopted by the Alaska Retirement Management Board (ARMB), referred to as the Baseline, and the Proposal.

First, the proposal provides increased immediate funding by transferring $3 billion from the budget reserve fund to PERS and TRS in fiscal year 2015. This transfer immediately improves the funding levels of PERS and TRS and lowers future funding needs. Levels of funding at any point in time are measured by the funding ratio which equals the ratio of the systems assets divided by the accrued

liability. For both PERS and TRS, the funding ratio is expected to increase almost 3% for PERS and 17% for TRS at the time of the transfer.

Second, future annual additional state assistance contributions are determined under the level percent amortization methodology over 25 years and are paid until the funding ratio reaches 100%. Based on our projections, we estimate this will occur in fiscal year 2040 for both PERS and TRS. This represents an extension of the funding period of nine years from the current policy which is expected to reach 100% funding by fiscal year 2031.

The overall impact to state funding of PERS and TRS is shown on Exhibit 1 and 2 attached. The fiscal impact of the $3 billion transfer lowers overall state assistance funding, and the extension of the funding period by nine years increases overall employer funding. The net result is an increase in total state funding (state's contribution as an employer plus additional state assistance) from fiscal years 2015 to 2039 for PERS of $2,134 million and an increase in total state funding for TRS of $595 million, or a total increase of $2,730 million. The funding of other non-state employers of PERS also increases from $2,904 million to $5,433 million, or a net increase of $2,529 million. Greater detail of our projection results for both PERS and TRS is shown in Exhibits 3 through 6.

Funding Policy

It should be noted that these projections are ***not*** predictions, but rather expectations assuming all of the actuarial assumptions are exactly realized, including an 8.00% investment rate of return in each year from 2014 to 2043. To the extent actual future experience is different from what we have assumed, the actual results will increase or decrease the funding levels shown in our projections. We recommend policy makers take this into consideration when setting long-term funding policy.

Summary for Analysis of Proposal

The data, assumptions, plan provisions and methods used for the estimated costs are described in the actuarial valuation reports as of June 30, 2012 except that future contributions from the State have been based on the Proposal. We have also used the 12.50% investment rate of return in fiscal year 2013 and an 8.00% investment rate of return in all future years beyond fiscal year 2013 to project fund balances. The bill will become effective July 1, 2014.

Please let me know if you need any further information.

Sincerely,

David H. Slishinsky, ASA, EA, MAAA, FCA
Principal, Consulting Actuary

c: Ms. Kathy Lea, State of Alaska
Mr. Brandon Maitlen, State of Alaska
Mr. Kevin Worley, State of Alaska
Mr. Chris Hulla, Buck Consultants
Ms. Kyla Kaltenbach, Buck Consultants

Exhibit 1

State of Alaska PERS and TRS
Financial Projections (in Thousands)
Summary of State Assistance

Fiscal Year End	Baseline - Current ARM Board Funding Policy			$3B State Contribution in FY15; Level Percent of Pay Amortization; Re-initialize amortization and asset balances in FY15			Cost / (Savings) to Additional State Assistance		
	PERS	TRS	Total	PERS	TRS	Total	PERS	TRS	Total
2013	$310,528	$298,101	$608,629	$310,528	$298,101	$608,629	$0	$0	$0
2014	312,473	316,847	629,320	312,473	316,847	629,320	0	0	0
2015	519,676	455,904	975,580	1,000,000	2,000,000	3,000,000	480,324	1,544,096	2,024,420
2016	563,210	485,905	1,049,115	188,455	156,287	344,742	(374,755)	(329,618)	(704,373)
2017	555,103	492,448	1,047,551	186,132	162,666	348,798	(368,971)	(329,782)	(698,753)
2018	528,170	488,074	1,016,244	182,657	169,536	352,193	(345,513)	(318,538)	(664,051)
2019	517,221	489,890	1,007,111	179,070	176,807	355,877	(338,151)	(313,083)	(651,234)
2020	487,881	484,378	972,259	177,066	184,564	361,630	(310,815)	(299,814)	(610,629)
2021	466,935	483,595	950,530	175,380	192,463	367,843	(291,555)	(291,132)	(582,687)
2022	445,553	482,885	928,438	174,823	200,507	375,330	(270,730)	(282,378)	(553,108)
2023	424,549	482,733	907,282	174,336	209,028	383,364	(250,213)	(273,705)	(523,918)
2024	404,298	482,225	886,523	174,934	218,552	393,486	(229,364)	(263,673)	(493,037)
2025	383,915	481,478	865,393	175,382	227,633	403,015	(208,533)	(253,845)	(462,378)
2026	363,879	481,273	845,152	176,029	236,974	413,003	(187,850)	(244,299)	(432,149)
2027	342,312	480,405	822,717	176,023	246,265	422,288	(166,289)	(234,140)	(400,429)
2028	320,269	479,517	799,786	176,808	256,034	432,842	(143,461)	(223,483)	(366,944)
2029	296,545	478,207	774,752	177,268	265,913	443,181	(119,277)	(212,294)	(331,571)
2030	0	249,950	249,950	177,862	275,790	453,652	177,862	25,840	203,702
2031	0	0	0	178,344	285,945	464,289	178,344	285,945	464,289
2032	0	0	0	178,346	295,550	473,896	178,346	295,550	473,896
2033	0	0	0	178,377	305,712	484,089	178,377	305,712	484,089
2034	0	0	0	176,786	315,844	492,630	176,786	315,844	492,630
2035	0	0	0	174,962	325,458	500,420	174,962	325,458	500,420
2036	0	0	0	173,065	334,707	507,772	173,065	334,707	507,772
2037	0	0	0	170,075	343,006	513,081	170,075	343,006	513,081
2038	0	0	0	164,880	349,374	514,254	164,880	349,374	514,254
2039	0	0	0	149,765	339,738	489,503	149,765	339,738	489,503
2040	0	0	0	0	0	0	0	0	0
2041	0	0	0	0	0	0	0	0	0
2042	0	0	0	0	0	0	0	0	0
2043	0	0	0	0	0	0	0	0	0
Totals for 2015 & After	$6,619,516	$7,478,867	$14,098,383	$5,216,825	$8,074,353	$13,291,178	($1,402,691)	$595,486	($807,205)

Exhibit 2

State of Alaska PERS and TRS
Financial Projections (in Thousands)

Summary of Total State Contributions - State's Share of Employer Contributions Plus Additional State Assistance

Fiscal Year End	Baseline - Current ARM Board Funding Policy			$3B State Contribution in FY15; Level Percent of Pay Amortization; Re-initialize amortization and asset balances in FY15			Total State Contribution Cost / (Savings)		
	PERS	TRS	Total	PERS	TRS	Total	PERS	TRS	Total
2013	$559,312	$298,101	$857,413	$559,312	$298,101	$857,413	$0	$0	$0
2014	558,699	316,847	875,546	558,699	316,847	875,546	0	0	0
2015	764,457	455,904	1,220,361	1,244,781	2,000,000	3,244,781	480,324	1,544,096	2,024,420
2016	807,472	485,905	1,293,377	432,717	156,287	589,004	(374,755)	(329,618)	(704,373)
2017	799,743	492,448	1,292,191	430,772	162,666	593,438	(368,971)	(329,782)	(698,753)
2018	774,002	488,074	1,262,076	428,489	169,536	598,025	(345,513)	(318,538)	(664,051)
2019	765,041	489,890	1,254,931	426,890	176,807	603,697	(338,151)	(313,083)	(651,234)
2020	738,108	484,378	1,222,486	427,293	184,564	611,857	(310,815)	(299,814)	(610,629)
2021	720,186	483,595	1,203,781	428,631	192,463	621,094	(291,555)	(291,132)	(582,687)
2022	702,268	482,885	1,185,153	431,538	200,507	632,045	(270,730)	(282,378)	(553,108)
2023	685,320	482,733	1,168,053	435,107	209,028	644,135	(250,213)	(273,705)	(523,918)
2024	669,945	482,225	1,152,170	440,581	218,552	659,133	(229,364)	(263,673)	(493,037)
2025	655,062	481,478	1,136,540	446,529	227,633	674,162	(208,533)	(253,845)	(462,378)
2026	641,281	481,273	1,122,554	453,431	236,974	690,405	(187,850)	(244,299)	(432,149)
2027	626,623	480,405	1,107,028	460,334	246,265	706,599	(166,289)	(234,140)	(400,429)
2028	612,247	479,517	1,091,764	468,786	256,034	724,820	(143,461)	(223,483)	(366,944)
2029	596,985	478,207	1,075,192	477,708	265,913	743,621	(119,277)	(212,294)	(331,571)
2030	106,053	249,950	356,003	487,508	275,790	763,298	381,455	25,840	407,295
2031	4,534	0	4,534	498,055	285,945	784,000	493,521	285,945	779,466
2032	3,153	0	3,153	508,933	295,550	804,483	505,780	295,550	801,330
2033	2,467	0	2,467	520,726	305,712	826,438	518,259	305,712	823,971
2034	2,006	0	2,006	532,232	315,844	848,076	530,226	315,844	846,070
2035	1,197	0	1,197	544,206	325,458	869,664	543,009	325,458	868,467
2036	626	0	626	556,820	334,707	891,527	556,194	334,707	890,901
2037	326	0	326	569,148	343,006	912,154	568,822	343,006	911,828
2038	0	0	0	580,068	349,374	929,442	580,068	349,374	929,442
2039	0	0	0	581,997	339,738	921,735	581,997	339,738	921,735
2040	0	0	0	0	0	0	0	0	0
2041	0	0	0	0	0	0	0	0	0
2042	0	0	0	0	0	0	0	0	0
2043	0	0	0	0	0	0	0	0	0
Totals 2015 & After	$10,679,102	$7,478,867	$18,157,969	$12,813,280	$8,074,353	$20,887,633	$2,134,178	$595,486	$2,729,664

Note: Assumes TRS does not contain any State Employers.

Exhibit 3

State of Alaska PERS
Financial Projections (in Thousands)
Baseline - Level Dollar Amortization over 25 years and 12.5% Investment Return in FY13, 8% in FY14 and later years

	Investment Return: 8.00%																		
	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months										41.70%	58.30%			
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets	Municipal Er Cont's	State Er Cont's	State Assist Cont's	State Cont's	Total Er/State Cont's
2013	$11,832,030	$19,292,361	61.3%	($7,460,331)	$2,245,686	$426,731	$310,528	$118,879	$856,138	$973,954	($117,816)	$1,399,035	($924,132)	$12,189,117	$177,947	$248,784	$310,528	$559,312	$737,259
2014	12,189,117	20,109,112	60.6%	(7,919,995)	2,295,881	422,343	312,473	120,633	855,449	1,056,528	(201,079)	994,291	195,922	13,178,251	176,117	246,226	312,473	558,699	734,816
2015	13,178,251	20,885,260	63.1%	(7,707,009)	2,357,693	419,865	519,676	114,150	1,053,691	1,140,515	(86,824)	1,061,950	162,400	14,315,777	175,084	244,781	519,676	764,457	939,541
2016	14,315,777	21,614,302	66.2%	(7,298,525)	2,428,744	418,974	563,210	107,781	1,089,965	1,225,841	(135,876)	1,137,751	(76,850)	15,240,802	174,712	244,262	563,210	807,472	982,184
2017	15,240,802	22,291,137	68.4%	(7,050,335)	2,508,301	419,623	555,103	101,655	1,076,381	1,305,131	(228,750)	1,213,993	100,740	16,326,785	174,983	244,640	555,103	799,743	974,726
2018	16,326,785	22,919,638	71.2%	(6,592,853)	2,595,896	421,668	528,170	95,970	1,045,808	1,380,741	(334,933)	1,288,394	0	17,280,246	175,836	245,832	528,170	774,002	949,838
2019	17,280,246	23,501,895	73.5%	(6,221,649)	2,692,279	425,077	517,221	90,469	1,032,767	1,456,528	(423,761)	1,360,934	0	18,217,419	177,257	247,820	517,221	765,041	942,298
2020	18,217,419	24,035,658	75.8%	(5,818,239)	2,792,589	429,205	487,881	85,274	1,002,360	1,537,884	(535,524)	1,431,251	0	19,113,146	178,978	250,227	487,881	738,108	917,086
2021	19,113,146	24,512,466	78.0%	(5,399,320)	2,898,156	434,392	466,935	80,182	981,509	1,621,417	(639,908)	1,498,536	0	19,971,774	181,141	253,251	466,935	720,186	901,327
2022	19,971,774	24,925,074	80.1%	(4,953,300)	3,008,108	440,335	445,553	75,193	961,081	1,698,588	(737,507)	1,563,139	0	20,797,406	183,620	256,715	445,553	702,268	885,888
2023	20,797,406	25,278,587	82.3%	(4,481,181)	3,123,760	447,292	424,549	56,540	928,381	1,771,109	(842,728)	1,624,820	0	21,579,498	186,521	260,771	424,549	685,320	871,841
2024	21,579,498	25,570,418	84.4%	(3,990,920)	3,248,785	455,655	404,298	51,656	911,609	1,835,920	(924,311)	1,683,971	0	22,339,158	190,008	265,647	404,298	669,945	859,953
2025	22,339,158	25,795,109	86.6%	(3,455,951)	3,379,794	465,089	383,915	46,641	895,645	1,924,239	(1,028,594)	1,740,357	0	23,050,921	193,942	271,147	383,915	655,062	849,004
2026	23,050,921	25,934,450	88.9%	(2,883,529)	3,517,793	475,818	363,879	42,214	881,911	1,991,781	(1,109,870)	1,793,885	0	23,734,936	198,416	277,402	363,879	641,281	839,697
2027	23,734,936	26,004,608	91.3%	(2,269,672)	3,662,757	487,669	342,312	38,093	868,074	2,062,704	(1,194,630)	1,845,044	0	24,385,350	203,358	284,311	342,312	626,623	829,981
2028	24,385,350	25,997,577	93.8%	(1,612,227)	3,815,471	500,820	320,269	33,958	855,047	2,123,648	(1,268,601)	1,893,972	0	25,010,721	208,842	291,978	320,269	612,247	821,089
2029	25,010,721	25,917,989	96.5%	(907,268)	3,975,899	515,334	296,545	30,217	842,096	2,177,117	(1,335,021)	1,941,217	0	25,616,917	214,894	300,440	296,545	596,985	811,879
2030	25,616,917	25,769,017	99.4%	(152,100)	4,143,703	181,909	0	26,520	208,429	2,226,897	(2,018,468)	1,962,735	0	25,561,184	75,856	106,053	0	106,053	181,909
2031	25,561,184	25,549,181	100.0%	12,003	4,320,656	7,777	0	23,332	31,109	2,303,286	(2,272,177)	1,948,068	0	25,237,075	3,243	4,534	0	4,534	7,777
2032	25,237,075	25,227,017	100.0%	10,058	4,506,592	5,408	0	20,730	26,138	2,351,333	(2,325,195)	1,919,899	0	24,831,779	2,255	3,153	0	3,153	5,408
2033	24,831,779	24,821,687	100.0%	10,092	4,702,683	4,232	0	17,870	22,102	2,374,058	(2,351,956)	1,886,350	0	24,366,173	1,765	2,467	0	2,467	4,232
2034	24,366,173	24,357,984	100.0%	8,189	4,915,446	3,441	0	15,238	18,679	2,405,178	(2,386,499)	1,847,642	0	23,827,316	1,435	2,006	0	2,006	3,441
2035	23,827,316	23,817,428	100.0%	9,888	5,135,408	2,054	0	13,352	15,406	2,427,129	(2,411,723)	1,803,471	0	23,219,064	857	1,197	0	1,197	2,054
2036	23,219,064	23,210,536	100.0%	8,528	5,363,274	1,073	0	11,263	12,336	2,461,663	(2,449,327)	1,753,220	0	22,522,957	447	626	0	626	1,073
2037	22,522,957	22,515,424	100.0%	7,533	5,600,200	560	0	9,520	10,080	2,462,456	(2,452,376)	1,697,409	0	21,767,990	234	326	0	326	560
2038	21,767,990	21,761,882	100.0%	6,108	5,846,914	0	0	7,601	7,601	2,440,642	(2,433,041)	1,637,843	0	20,972,792	0	0	0	0	0
2039	20,972,792	20,968,326	100.0%	4,466	6,103,819	0	0	6,104	6,104	2,415,802	(2,409,698)	1,575,226	0	20,138,320	0	0	0	0	0
2040	20,138,320	20,135,179	100.0%	3,141	6,368,696	0	0	5,095	5,095	2,423,877	(2,418,782)	1,508,085	0	19,227,623	0	0	0	0	0
2041	19,227,623	19,225,406	100.0%	2,217	6,645,068	0	0	3,987	3,987	2,364,529	(2,360,542)	1,437,712	0	18,304,793	0	0	0	0	0
2042	18,304,793	18,303,380	100.0%	1,413	6,931,674	0	0	2,773	2,773	2,308,626	(2,305,853)	1,366,218	0	17,365,158	0	0	0	0	0
2043	17,365,158	17,364,761	100.0%	397	7,230,997	0	0	2,169	2,169	2,249,003	(2,246,834)	1,293,940	0	16,412,264	0	0	0	0	0
				Totals 2015 & After		$ 6,963,270	$6,619,516	$1,215,547	$14,798,333						$2,903,684	$4,059,586	$ 6,619,516	$10,679,102	$ 13,582,786
															21.38%			78.62%	100.00%

Exhibit 4

State of Alaska PERS
Financial Projections (in Thousands)
Level Percent of Pay Amortization over 25 years and 12.5% Investment Return in FY13, 8% in FY14 and later years
$1B State Contribution in FY15; Re-initialize amortization and asset balances in FY15; Calculated State Contributions in future years

Investment Return: 8.00%

	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months														
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets	41.70% Municipal Er Cont's	58.30% State Er Cont's	State Assist Cont's	State Cont's	Total Er/State Cont's
2013	$11,832,030	$19,292,361	61.3%	($7,460,331)	$2,245,686	$426,731	$310,528	$118,879	$856,138	$973,954	($117,816)	$1,399,035	($924,132)	$12,189,117	$177,947	$248,784	$310,528	$559,312	$737,259
2014	12,189,117	20,109,112	60.6%	(7,919,995)	2,295,881	422,343	312,473	120,633	855,449	1,056,528	(201,079)	994,291	195,922	13,178,251	176,117	246,226	312,473	558,699	734,816
2015	13,364,540	20,885,260	63.1%	(7,707,009)	2,357,693	419,865	1,000,000	114,150	1,534,015	1,140,515	393,500	1,121,563	0	14,879,603	175,084	244,781	1,000,000	1,244,781	1,419,865
2016	14,879,603	21,614,302	68.8%	(6,734,699)	2,428,744	418,974	188,455	107,781	715,210	1,225,841	(510,631)	1,173,927	0	15,542,899	174,712	244,262	188,455	432,717	607,429
2017	15,542,899	22,291,137	69.7%	(6,748,238)	2,508,301	419,623	186,132	101,655	707,410	1,305,131	(597,721)	1,223,215	0	16,168,393	174,983	244,640	186,132	430,772	605,755
2018	16,168,393	22,919,638	70.5%	(6,751,245)	2,595,896	421,668	182,657	95,970	700,295	1,380,741	(680,446)	1,269,615	0	16,757,562	175,836	245,832	182,657	428,489	604,325
2019	16,757,562	23,501,895	71.3%	(6,744,333)	2,692,279	425,077	179,070	90,469	694,616	1,456,528	(761,912)	1,313,154	0	17,308,804	177,257	247,820	179,070	426,890	604,147
2020	17,308,804	24,035,658	72.0%	(6,726,854)	2,792,589	429,205	177,066	85,274	691,545	1,537,884	(846,339)	1,353,588	0	17,816,053	178,978	250,227	177,066	427,293	606,271
2021	17,816,053	24,512,466	72.7%	(6,696,413)	2,898,156	434,392	175,380	80,182	689,954	1,621,417	(931,463)	1,390,481	0	18,275,071	181,141	253,251	175,380	428,631	609,772
2022	18,275,071	24,925,074	73.3%	(6,650,003)	3,008,108	440,335	174,823	75,193	690,351	1,698,588	(1,008,237)	1,423,910	0	18,690,744	183,620	256,715	174,823	431,538	615,158
2023	18,690,744	25,278,587	73.9%	(6,587,843)	3,123,760	447,292	174,336	56,540	678,168	1,771,109	(1,092,941)	1,453,579	0	19,051,382	186,521	260,771	174,336	435,107	621,628
2024	19,051,382	25,570,418	74.5%	(6,519,036)	3,248,785	455,655	174,934	51,656	682,245	1,835,920	(1,153,675)	1,479,855	0	19,377,562	190,008	265,647	174,934	440,581	630,589
2025	19,377,562	25,795,109	75.1%	(6,417,547)	3,379,794	465,089	175,382	46,641	687,112	1,924,239	(1,237,127)	1,502,399	0	19,642,834	193,942	271,147	175,382	446,529	640,471
2026	19,642,834	25,934,450	75.7%	(6,291,616)	3,517,793	475,818	176,029	42,214	694,061	1,991,781	(1,297,720)	1,521,045	0	19,866,159	198,416	277,402	176,029	453,431	651,847
2027	19,866,159	26,004,608	76.4%	(6,138,449)	3,662,757	487,669	176,023	38,093	701,785	2,062,704	(1,360,919)	1,536,195	0	20,041,435	203,358	284,311	176,023	460,334	663,692
2028	20,041,435	25,997,577	77.1%	(5,956,142)	3,815,471	500,820	176,808	33,958	711,586	2,123,648	(1,412,062)	1,548,039	0	20,177,412	208,842	291,978	176,808	468,786	677,628
2029	20,177,412	25,917,989	77.9%	(5,740,577)	3,975,899	515,334	177,268	30,217	722,819	2,177,117	(1,454,298)	1,557,100	0	20,280,214	214,894	300,440	177,268	477,708	692,602
2030	20,280,214	25,769,017	78.7%	(5,488,803)	4,143,703	531,126	177,862	26,520	735,508	2,226,897	(1,491,389)	1,563,727	0	20,352,552	221,480	309,646	177,862	487,508	708,988
2031	20,352,552	25,549,181	79.7%	(5,196,629)	4,320,656	548,390	178,344	23,332	750,066	2,303,286	(1,553,220)	1,566,854	0	20,366,186	228,679	319,711	178,344	498,055	726,734
2032	20,366,186	25,227,017	80.7%	(4,860,831)	4,506,592	567,044	178,346	20,730	766,120	2,351,333	(1,585,213)	1,566,529	0	20,347,502	236,457	330,587	178,346	508,933	745,390
2033	20,347,502	24,821,687	82.0%	(4,474,185)	4,702,683	587,220	178,377	17,870	783,467	2,374,058	(1,590,591)	1,564,749	0	20,321,660	244,871	342,349	178,377	520,726	765,597
2034	20,321,660	24,357,984	83.4%	(4,036,324)	4,915,446	609,685	176,786	15,238	801,709	2,405,178	(1,603,469)	1,562,007	0	20,280,198	254,239	355,446	176,786	532,232	786,471
2035	20,280,198	23,817,428	85.1%	(3,537,230)	5,135,408	633,351	174,962	13,352	821,665	2,427,129	(1,605,464)	1,558,464	0	20,233,198	264,107	369,244	174,962	544,206	808,313
2036	20,233,198	23,210,536	87.2%	(2,977,338)	5,363,274	658,242	173,065	11,263	842,570	2,461,663	(1,619,093)	1,553,977	0	20,168,082	274,487	383,755	173,065	556,820	831,307
2037	20,168,082	22,515,424	89.6%	(2,347,342)	5,600,200	684,516	170,075	9,520	864,111	2,462,456	(1,598,345)	1,549,457	0	20,119,194	285,443	399,073	170,075	569,148	854,591
2038	20,119,194	21,761,882	92.5%	(1,642,688)	5,846,914	712,157	164,880	7,601	884,638	2,440,642	(1,556,004)	1,547,068	0	20,110,258	296,969	415,188	164,880	580,068	877,037
2039	20,110,258	20,968,326	95.9%	(858,068)	6,103,819	741,393	149,765	6,104	897,262	2,415,802	(1,518,540)	1,547,290	0	20,139,008	309,161	432,232	149,765	581,997	891,158
2040	20,139,008	20,135,179	100.0%	3,829	6,368,696	0	0	5,095	5,095	2,423,877	(2,418,782)	1,508,140	0	19,228,366	0	0	0	0	0
2041	19,228,366	19,225,406	100.0%	2,960	6,645,068	0	0	3,987	3,987	2,364,529	(2,360,542)	1,437,772	0	18,305,596	0	0	0	0	0
2042	18,305,596	18,303,380	100.0%	2,216	6,931,674	0	0	2,773	2,773	2,308,626	(2,305,853)	1,366,282	0	17,366,025	0	0	0	0	0
2043	17,366,025	17,364,761	100.0%	1,264	7,230,997	0	0	2,169	2,169	2,249,003	(2,246,834)	1,293,631	0	16,412,822	0	0	0	0	0
					Totals 2015 & After	$ 13,029,940	$ 5,216,825	$ 1,215,547	$ 19,462,312						$ 5,433,485	$ 7,596,455	$ 5,216,825	$ 12,813,280	$ 18,246,765
															29.78%			70.22%	100.00%

Exhibit 5

State of Alaska TRS
Financial Projections (in Thousands)
Baseline - Level Dollar Amortization over 25 years and 12.5% Investment Return in FY13, 8% in FY14 and later years

	Investment Return: 8.00%				Flow Amounts During Following 12 Months										
	Valuation Amounts on July 1 (Beginning of Fiscal Year)													Recognized	Ending
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Employer/State Ctb Rate	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Asset Gain/(Loss)	Actuarial Assets
2013	$4,869,154	$9,346,444	52.1%	($4,477,290)	$743,957	49.56%	$70,604	$298,101	$53,263	$421,968	$525,672	($103,704)	$570,927	($393,887)	$4,942,490
2014	4,942,490	9,651,582	51.2%	(4,709,092)	762,692	50.10%	67,056	316,847	54,446	438,349	556,844	(118,495)	402,046	90,090	5,316,131
2015	5,316,131	9,944,626	53.5%	(4,628,495)	783,438	66.31%	63,594	455,904	52,102	571,600	586,966	(15,366)	428,675	72,872	5,802,312
2016	5,802,312	10,223,597	56.8%	(4,421,285)	805,914	67.76%	60,182	485,905	49,736	595,823	618,454	(22,631)	461,350	(29,854)	6,211,177
2017	6,211,177	10,485,997	59.2%	(4,274,820)	830,268	66.16%	56,857	492,448	47,420	596,725	648,576	(51,851)	495,200	43,566	6,698,092
2018	6,698,092	10,731,508	62.4%	(4,033,416)	855,825	63.28%	53,492	488,074	45,199	586,765	675,904	(89,139)	529,114	0	7,138,067
2019	7,138,067	10,963,107	65.1%	(3,825,040)	882,669	61.18%	50,127	489,890	42,905	582,922	705,092	(122,170)	562,919	0	7,578,816
2020	7,578,816	11,177,357	67.8%	(3,598,541)	911,010	58.30%	46,741	484,378	40,631	571,750	739,563	(167,813)	596,273	0	8,007,276
2021	8,007,276	11,367,833	70.4%	(3,360,557)	940,957	56.00%	43,341	483,595	38,284	565,220	771,294	(206,074)	628,943	0	8,430,145
2022	8,430,145	11,533,410	73.1%	(3,103,265)	973,382	53.73%	40,113	482,885	35,978	558,976	799,992	(241,016)	661,306	0	8,850,435
2023	8,850,435	11,678,589	75.8%	(2,828,154)	1,008,495	51.55%	37,146	482,733	26,120	545,999	825,117	(279,118)	693,351	0	9,264,668
2024	9,264,668	11,804,774	78.5%	(2,540,106)	1,045,905	49.38%	34,243	482,225	23,847	540,315	847,540	(307,225)	725,312	0	9,682,755
2025	9,682,755	11,906,243	81.3%	(2,223,488)	1,085,268	47.26%	31,420	481,478	21,488	534,386	877,945	(343,559)	757,232	0	10,096,428
2026	10,096,428	11,978,919	84.3%	(1,882,491)	1,126,840	45.26%	28,735	481,273	19,269	529,277	915,165	(385,888)	788,541	0	10,499,081
2027	10,499,081	12,014,999	87.4%	(1,515,918)	1,170,697	43.27%	26,156	480,405	17,092	523,653	942,377	(418,724)	819,374	0	10,899,731
2028	10,899,731	12,019,893	90.7%	(1,120,162)	1,217,232	41.35%	23,808	479,517	14,972	518,297	965,075	(446,778)	850,250	0	11,303,203
2029	11,303,203	11,999,271	94.2%	(696,068)	1,266,672	39.47%	21,748	478,207	13,047	513,002	988,765	(475,763)	881,311	0	11,708,751
2030	11,708,751	11,947,250	98.0%	(238,499)	1,318,359	20.47%	19,918	249,950	11,338	281,206	1,015,267	(734,061)	903,533	0	11,878,223
2031	11,878,223	11,862,365	100.1%	15,858	1,373,136	0.24%	3,296	0	9,749	13,045	1,052,765	(1,039,720)	904,975	0	11,743,478
2032	11,743,478	11,727,157	100.1%	16,321	1,430,917	0.17%	2,433	0	8,442	10,875	1,071,218	(1,060,343)	893,325	0	11,576,460
2033	11,576,460	11,561,467	100.1%	14,993	1,491,916	0.13%	1,939	0	7,161	9,100	1,076,092	(1,066,992)	879,686	0	11,389,154
2034	11,389,154	11,375,441	100.1%	13,713	1,556,143	0.10%	1,556	0	6,069	7,625	1,087,071	(1,079,446)	864,176	0	11,173,884
2035	11,173,884	11,161,401	100.1%	12,483	1,622,872	0.07%	1,136	0	5,031	6,167	1,110,566	(1,104,399)	845,897	0	10,915,382
2036	10,915,382	10,904,315	100.1%	11,067	1,692,489	0.05%	846	0	4,231	5,077	1,108,805	(1,103,728)	825,250	0	10,636,904
2037	10,636,904	10,627,228	100.1%	9,676	1,764,921	0.03%	529	0	3,530	4,059	1,104,345	(1,100,286)	803,121	0	10,339,739
2038	10,339,739	10,331,515	100.1%	8,224	1,840,538	0.02%	368	0	2,945	3,313	1,098,370	(1,095,057)	779,573	0	10,024,255
2039	10,024,255	10,017,472	100.1%	6,783	1,919,401	0.02%	384	0	2,303	2,687	1,092,046	(1,089,359)	754,579	0	9,689,475
2040	9,689,475	9,684,161	100.1%	5,314	2,000,850	0.02%	400	0	1,801	2,201	1,079,552	(1,077,351)	728,309	0	9,340,433
2041	9,340,433	9,336,574	100.0%	3,859	2,085,904	0.01%	209	0	1,460	1,669	1,066,437	(1,064,768)	700,923	0	8,976,588
2042	8,976,588	8,974,342	100.0%	2,246	2,174,467	0.01%	217	0	1,087	1,304	1,048,163	(1,046,859)	672,579	0	8,602,308
2043	8,602,308	8,601,721	100.0%	587	2,266,698	0.00%	0	0	907	907	1,020,993	(1,020,086)	644,587	0	8,226,809
					Totals 2015 & After		$ 650,934	$ 7,478,867	$ 554,144	$ 8,683,945					

Exhibit 6

State of Alaska TRS
Financial Projections (in Thousands)
Level Percent of Pay Amortization over 25 years and 12.5% Investment Return in FY13, 8% in FY14 and later years
$2B State Contribution in FY15; Re-initialize amortization and asset balances in FY15; Calculated State Contributions in future years

Investment Return: 8.00%

	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months									Recognized	Ending
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Employer/State Ctb Rate	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Asset Gain/(Loss)	Actuarial Assets
2013	$4,869,154	$9,346,444	52.1%	($4,477,290)	$743,957	49.56%	$70,604	$298,101	$53,263	$421,968	$525,672	($103,704)	$570,927	($393,887)	$4,942,490
2014	4,942,490	9,651,582	51.2%	(4,709,092)	762,692	50.34%	67,056	316,847	54,446	438,349	556,844	(118,495)	402,046	90,090	5,316,131
2015	5,390,462	9,944,626	53.5%	(4,628,495)	783,438	263.40%	63,594	2,000,000	52,102	2,115,696	586,966	1,528,730	570,790	0	7,489,982
2016	7,489,982	10,223,597	73.3%	(2,733,615)	805,914	26.86%	60,182	156,287	49,736	266,205	618,454	(352,249)	589,687	0	7,727,420
2017	7,727,420	10,485,997	73.7%	(2,758,577)	830,268	26.44%	56,857	162,666	47,420	266,943	648,576	(381,633)	607,689	0	7,953,476
2018	7,953,476	10,731,508	74.1%	(2,778,032)	855,825	26.06%	53,492	169,536	45,199	268,227	675,904	(407,677)	624,941	0	8,170,740
2019	8,170,740	10,963,107	74.5%	(2,792,367)	882,669	25.71%	50,127	176,807	42,905	269,839	705,092	(435,253)	641,439	0	8,376,926
2020	8,376,926	11,177,357	74.9%	(2,800,431)	911,010	25.39%	46,741	184,564	40,631	271,936	739,563	(467,627)	656,865	0	8,566,164
2021	8,566,164	11,367,833	75.4%	(2,801,669)	940,957	25.06%	43,341	192,463	38,284	274,088	771,294	(497,206)	671,060	0	8,740,018
2022	8,740,018	11,533,410	75.8%	(2,793,392)	973,382	24.72%	40,113	200,507	35,978	276,598	799,992	(523,394)	684,173	0	8,900,797
2023	8,900,797	11,678,589	76.2%	(2,777,792)	1,008,495	24.41%	37,146	209,028	26,120	272,294	825,117	(552,823)	696,144	0	9,044,118
2024	9,044,118	11,804,774	76.6%	(2,760,656)	1,045,905	24.17%	34,243	218,552	23,847	276,642	847,540	(570,898)	707,214	0	9,180,434
2025	9,180,434	11,906,243	77.1%	(2,725,809)	1,085,268	23.87%	31,420	227,633	21,488	280,541	877,945	(597,404)	717,348	0	9,300,378
2026	9,300,378	11,978,919	77.6%	(2,678,541)	1,126,840	23.58%	28,735	236,974	19,269	284,978	915,165	(630,187)	725,914	0	9,396,105
2027	9,396,105	12,014,999	78.2%	(2,618,894)	1,170,697	23.27%	26,156	246,265	17,092	289,513	942,377	(652,864)	732,971	0	9,476,212
2028	9,476,212	12,019,893	78.8%	(2,543,681)	1,217,232	22.99%	23,808	256,034	14,972	294,814	965,075	(670,261)	739,019	0	9,544,970
2029	9,544,970	11,999,271	79.5%	(2,454,301)	1,266,672	22.71%	21,748	265,913	13,047	300,708	988,765	(688,057)	744,146	0	9,601,059
2030	9,601,059	11,947,250	80.4%	(2,346,191)	1,318,359	22.43%	19,918	275,790	11,338	307,046	1,015,267	(708,221)	748,156	0	9,640,994
2031	9,640,994	11,862,365	81.3%	(2,221,371)	1,373,136	22.16%	18,342	285,945	9,749	314,036	1,052,765	(738,729)	750,443	0	9,652,708
2032	9,652,708	11,727,157	82.3%	(2,074,449)	1,430,917	21.84%	16,962	295,550	8,442	320,954	1,071,218	(750,264)	751,257	0	9,653,701
2033	9,653,701	11,561,467	83.5%	(1,907,766)	1,491,916	21.55%	15,796	305,712	7,161	328,669	1,076,092	(747,423)	751,846	0	9,658,124
2034	9,658,124	11,375,441	84.9%	(1,717,317)	1,556,143	21.25%	14,836	315,844	6,069	336,749	1,087,071	(750,322)	752,463	0	9,660,265
2035	9,660,265	11,161,401	86.6%	(1,501,136)	1,622,872	20.92%	14,047	325,458	5,031	344,536	1,110,566	(766,030)	752,331	0	9,646,566
2036	9,646,566	10,904,315	88.5%	(1,257,749)	1,692,489	20.57%	13,438	334,707	4,231	352,376	1,108,805	(756,429)	751,995	0	9,642,132
2037	9,642,132	10,627,228	90.7%	(985,096)	1,764,921	20.17%	12,979	343,006	3,530	359,515	1,104,345	(744,830)	752,449	0	9,649,751
2038	9,649,751	10,331,515	93.4%	(681,764)	1,840,538	19.67%	12,660	349,374	2,945	364,979	1,098,370	(733,391)	753,786	0	9,670,146
2039	9,670,146	10,017,472	96.5%	(347,326)	1,919,401	18.35%	12,472	339,738	2,303	354,513	1,092,046	(737,533)	754,884	0	9,687,497
2040	9,687,497	9,684,161	100.0%	3,336	2,000,850	0.02%	400	0	1,801	2,201	1,079,552	(1,077,351)	729,131	0	9,339,277
2041	9,339,277	9,336,574	100.0%	2,703	2,085,904	0.01%	209	0	1,460	1,669	1,066,437	(1,064,768)	701,811	0	8,976,320
2042	8,976,320	8,974,342	100.0%	1,978	2,174,467	0.01%	217	0	1,087	1,304	1,048,163	(1,046,859)	673,538	0	8,602,999
2043	8,602,999	8,601,721	100.0%	1,278	2,266,698	0.00%	0	0	907	907	1,020,993	(1,020,086)	644,814	0	8,227,727
Totals 2015 & After							$ 769,979	$ 8,074,353	$ 554,144	$ 9,398,476					

buckconsultants A Xerox Company

April 18, 2014

VIA EMAIL

Mr. Mike Barnhill
Deputy Commissioner
Department of Administration
State of Alaska
333 Willoughby Avenue
6th Floor State Office Building
Juneau, AK 99811-0208

Re: Fiscal Note for CS HB 385 (Fin) Version - $1 Billion / $2 Billion Level Dollar Amortization over 25 Years Proposal for Funding PERS and TRS

Dear Mike:

As requested, we are providing the following information for a Fiscal Note on CS HB 385 (Fin), a Proposal that transfers an amount of $3 billion from the budget reserve fund into the State of Alaska with $1 billion allocated to the Public Employees' Retirement System (PERS) and $2 billion to the Teachers' Retirement System (TRS) in fiscal year 2015. This proposal would also set the additional State contributions in fiscal years 2016 and thereafter based on a level dollar amortization of the unfunded liability over a 25 year period that is re-established in the 2015 fiscal year. The proposed changes would become effective as of July 1, 2014. Our results are based on the 2012 actuarial valuation results as the 2013 actuarial valuation results are not yet final. A projected analysis of the Proposal for PERS and TRS is shown in the exhibits following this letter.

Actuarial Projection Analysis of Proposal

The proposal changes the future pace and funding pattern of state and employer contributions to PERS and TRS. It does not change the benefit provisions, expected future benefit payments, or the actuarial liabilities of PERS and TRS. In order to measure the fiscal impact of the proposal, Buck performed 30-year actuarial projections of the expected funding patterns for both the current funding policy adopted by the Alaska Retirement Management Board (ARMB), referred to as the Baseline, and the Proposal.

First, the proposal provides increased immediate funding by transferring $3 billion from the budget reserve fund to PERS and TRS in fiscal year 2015. This transfer immediately improves the funding levels of PERS and TRS and lowers future funding needs. Levels of funding at any point in time are measured by the funding ratio which equals the ratio of the systems assets divided by the accrued

liability. For both PERS and TRS, the funding ratio is expected to increase almost 3% for PERS and 17% for TRS at the time of the transfer.

Second, future annual additional state assistance contributions are determined under the level dollar amortization methodology over 25 years and are paid until the funding ratio reaches 100%. Based on our projections, we estimate this will occur in fiscal year 2040 for both PERS and TRS. This represents an extension of the funding period of nine years from the current policy which is expected to reach 100% funding by fiscal year 2031.

The overall impact to state funding of PERS and TRS is shown on Exhibit 1 and 2 attached. The fiscal impact of the $3 billion transfer lowers overall state assistance funding, and the extension of the funding period by nine years increases overall employer funding. The net result is an increase in total state funding (state's contribution as an employer plus additional state assistance) from fiscal years 2015 to 2039 for PERS of $558 million and a decrease in total state funding for TRS of $183 million, or a total increase of $375 million. The funding of other non-state employers of PERS also increases from $2,904 million to $5,113 million, or a net increase of $2,209 million. Greater detail of our projection results for both PERS and TRS is shown in Exhibits 3 through 6.

Funding Policy

It should be noted that these projections are ***not*** predictions, but rather expectations assuming all of the actuarial assumptions are exactly realized, including an 8.00% investment rate of return in each year from 2014 to 2043. To the extent actual future experience is different from what we have assumed, the actual results will increase or decrease the funding levels shown in our projections. We recommend policy makers take this into consideration when setting long-term funding policy.

Summary for Analysis of Proposal

The data, assumptions, plan provisions and methods used for the estimated costs are described in the actuarial valuation reports as of June 30, 2012 except that future contributions from the State have been based on the Proposal. We have also used the 12.50% investment rate of return in fiscal year 2013 and an 8.00% investment rate of return in all future years beyond fiscal year 2013 to project fund balances. The bill will become effective July 1, 2014.

Please let me know if you need any further information.

Sincerely,

David H. Slishinsky

David H. Slishinsky, ASA, EA, MAAA, FCA
Principal, Consulting Actuary

c: Ms. Kathy Lea, State of Alaska
Mr. Brandon Maitlen, State of Alaska
Mr. Kevin Worley, State of Alaska
Mr. Chris Hulla, Buck Consultants
Ms. Kyla Kaltenbach, Buck Consultants

Exhibit 1

State of Alaska PERS and TRS
Financial Projections (in Thousands)
Summary of State Assistance

Fiscal Year End	Baseline - Current ARM Board Funding Policy			$3B State Contribution in FY15; Level Dollar Amortization; Re-initialize amortization and asset balances in FY15			Cost / (Savings) to Additional State Assistance		
	PERS	TRS	Total	PERS	TRS	Total	PERS	TRS	Total
2013	$310,528	$298,101	$608,629	$310,528	$298,101	$608,629	$0	$0	$0
2014	312,473	316,847	629,320	312,473	316,847	629,320	0	0	0
2015	519,676	455,904	975,580	1,000,000	2,000,000	3,000,000	480,324	1,544,096	2,024,420
2016	563,210	485,905	1,049,115	353,124	223,177	576,301	(210,086)	(262,728)	(472,814)
2017	555,103	492,448	1,047,551	332,616	222,611	555,227	(222,487)	(269,837)	(492,324)
2018	528,170	488,074	1,016,244	310,375	222,255	532,630	(217,795)	(265,819)	(483,614)
2019	517,221	489,890	1,007,111	287,838	222,088	509,926	(229,383)	(267,802)	(497,185)
2020	487,881	484,378	972,259	266,708	222,280	488,988	(221,173)	(262,098)	(483,271)
2021	466,935	483,595	950,530	245,515	222,291	467,806	(221,420)	(261,304)	(482,724)
2022	445,553	482,885	928,438	225,058	222,213	447,271	(220,495)	(260,672)	(481,167)
2023	424,549	482,733	907,282	204,012	222,441	426,453	(220,537)	(260,292)	(480,829)
2024	404,298	482,225	886,523	183,706	223,468	407,174	(220,592)	(258,757)	(479,349)
2025	383,915	481,478	865,393	162,877	223,835	386,712	(221,038)	(257,643)	(478,681)
2026	363,879	481,273	845,152	141,906	223,903	365,809	(221,973)	(257,370)	(479,343)
2027	342,312	480,405	822,717	119,616	223,905	343,521	(222,696)	(256,500)	(479,196)
2028	320,269	479,517	799,786	97,827	223,899	321,726	(222,442)	(255,618)	(478,060)
2029	296,545	478,207	774,752	74,689	223,986	298,675	(221,856)	(254,221)	(476,077)
2030	0	249,950	249,950	51,479	223,583	275,062	51,479	(26,367)	25,112
2031	0	0	0	27,553	223,467	251,020	27,553	223,467	251,020
2032	0	0	0	3,491	222,430	225,921	3,491	222,430	225,921
2033	0	0	0	0	221,717	221,717	0	221,717	221,717
2034	0	0	0	0	220,608	220,608	0	220,608	220,608
2035	0	0	0	0	219,160	219,160	0	219,160	219,160
2036	0	0	0	0	217,417	217,417	0	217,417	217,417
2037	0	0	0	0	214,696	214,696	0	214,696	214,696
2038	0	0	0	0	210,781	210,781	0	210,781	210,781
2039	0	0	0	0	199,622	199,622	0	199,622	199,622
2040	0	0	0	0	0	0	0	0	0
2041	0	0	0	0	0	0	0	0	0
2042	0	0	0	0	0	0	0	0	0
2043	0	0	0	0	0	0	0	0	0
Totals for 2015 & After	$6,619,516	$7,478,867	$14,098,383	$4,088,390	$7,295,833	$11,384,223	($2,531,126)	($183,034)	($2,714,160)

Exhibit 2

State of Alaska PERS and TRS
Financial Projections (in Thousands)

Summary of Total State Contributions - State's Share of Employer Contributions Plus Additional State Assistance

Fiscal Year End	Baseline - Current ARM Board Funding Policy			$3B State Contribution in FY15; Level Dollar Amortization; Re-initialize amortization and asset balances in FY15			Total State Contribution Cost / (Savings)		
	PERS	TRS	Total	PERS	TRS	Total	PERS	TRS	Total
2013	$559,312	$298,101	$857,413	$559,312	$298,101	$857,413	$0	$0	$0
2014	558,699	316,847	875,546	558,699	316,847	875,546	0	0	0
2015	764,457	455,904	1,220,361	1,244,781	2,000,000	3,244,781	480,324	1,544,096	2,024,420
2016	807,472	485,905	1,293,377	597,386	223,177	820,563	(210,086)	(262,728)	(472,814)
2017	799,743	492,448	1,292,191	577,256	222,611	799,867	(222,487)	(269,837)	(492,324)
2018	774,002	488,074	1,262,076	556,207	222,255	778,462	(217,795)	(265,819)	(483,614)
2019	765,041	489,890	1,254,931	535,658	222,088	757,746	(229,383)	(267,802)	(497,185)
2020	738,108	484,378	1,222,486	516,935	222,280	739,215	(221,173)	(262,098)	(483,271)
2021	720,186	483,595	1,203,781	498,766	222,291	721,057	(221,420)	(261,304)	(482,724)
2022	702,268	482,885	1,185,153	481,773	222,213	703,986	(220,495)	(260,672)	(481,167)
2023	685,320	482,733	1,168,053	464,783	222,441	687,224	(220,537)	(260,292)	(480,829)
2024	669,945	482,225	1,152,170	449,353	223,468	672,821	(220,592)	(258,757)	(479,349)
2025	655,062	481,478	1,136,540	434,024	223,835	657,859	(221,038)	(257,643)	(478,681)
2026	641,281	481,273	1,122,554	419,308	223,903	643,211	(221,973)	(257,370)	(479,343)
2027	626,623	480,405	1,107,028	403,927	223,905	627,832	(222,696)	(256,500)	(479,196)
2028	612,247	479,517	1,091,764	389,805	223,899	613,704	(222,442)	(255,618)	(478,060)
2029	596,985	478,207	1,075,192	375,129	223,986	599,115	(221,856)	(254,221)	(476,077)
2030	106,053	249,950	356,003	361,125	223,583	584,708	255,072	(26,367)	228,705
2031	4,534	0	4,534	347,264	223,467	570,731	342,730	223,467	566,197
2032	3,153	0	3,153	334,078	222,430	556,508	330,925	222,430	553,355
2033	2,467	0	2,467	329,274	221,717	550,991	326,807	221,717	548,524
2034	2,006	0	2,006	326,690	220,608	547,298	324,684	220,608	545,292
2035	1,197	0	1,197	323,645	219,160	542,805	322,448	219,160	541,608
2036	626	0	626	321,434	217,417	538,851	320,808	217,417	538,225
2037	326	0	326	318,983	214,696	533,679	318,657	214,696	533,353
2038	0	0	0	316,332	210,781	527,113	316,332	210,781	527,113
2039	0	0	0	313,506	199,622	513,128	313,506	199,622	513,128
2040	0	0	0	0	0	0	0	0	0
2041	0	0	0	0	0	0	0	0	0
2042	0	0	0	0	0	0	0	0	0
2043	0	0	0	0	0	0	0	0	0
Totals 2015 & After	$10,679,102	$7,478,867	$18,157,969	$11,237,422	$7,295,833	$18,533,255	$558,320	($183,034)	$375,286

Note: Assumes TRS does not contain any State Employers.

Exhibit 3

State of Alaska PERS
Financial Projections (in Thousands)
Baseline - Level Dollar Amortization over 25 years and 12.5% Investment Return in FY13, 8% in FY14 and later years

	Investment Return: 8.00% Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months										41.70%	58.30%			
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets	Municipal Er Cont's	State Er Cont's	State Assist Cont's	State Cont's	Total Er/State Cont's
2013	$11,832,030	$19,292,361	61.3%	($7,460,331)	$2,245,686	$426,731	$310,528	$118,879	$856,138	$973,954	($117,816)	$1,399,035	($924,132)	$12,189,117	$177,947	$248,784	$310,528	$559,312	$737,259
2014	12,189,117	20,109,112	60.6%	(7,919,995)	2,295,881	422,343	312,473	120,633	855,449	1,056,528	(201,079)	994,291	195,922	13,178,251	176,117	246,226	312,473	558,699	734,816
2015	13,178,251	20,885,260	63.1%	(7,707,009)	2,357,693	419,865	519,676	114,150	1,053,691	1,140,515	(86,824)	1,061,950	162,400	14,315,777	175,084	244,781	519,676	764,457	939,541
2016	14,315,777	21,614,302	66.2%	(7,298,525)	2,428,744	418,974	563,210	107,781	1,089,965	1,225,841	(135,876)	1,137,751	(76,850)	15,240,802	174,712	244,262	563,210	807,472	982,184
2017	15,240,802	22,291,137	68.4%	(7,050,335)	2,508,301	419,623	555,103	101,655	1,076,381	1,305,131	(228,750)	1,213,993	100,740	16,326,785	174,983	244,640	555,103	799,743	974,726
2018	16,326,785	22,919,638	71.2%	(6,592,853)	2,595,896	421,668	528,170	95,970	1,045,808	1,380,741	(334,933)	1,288,394	0	17,280,246	175,836	245,832	528,170	774,002	949,838
2019	17,280,246	23,501,895	73.5%	(6,221,649)	2,692,279	425,077	517,221	90,469	1,032,767	1,456,528	(423,761)	1,360,934	0	18,217,419	177,257	247,820	517,221	765,041	942,298
2020	18,217,419	24,035,658	75.8%	(5,818,239)	2,792,589	429,205	487,881	85,274	1,002,360	1,537,884	(535,524)	1,431,251	0	19,113,146	178,978	250,227	487,881	738,108	917,086
2021	19,113,146	24,512,466	78.0%	(5,399,320)	2,898,156	434,392	466,935	80,182	981,509	1,621,417	(639,908)	1,498,536	0	19,971,774	181,141	253,251	466,935	720,186	901,327
2022	19,971,774	24,925,074	80.1%	(4,953,300)	3,008,108	440,335	445,553	75,193	961,081	1,698,588	(737,507)	1,563,139	0	20,797,406	183,620	256,715	445,553	702,268	885,888
2023	20,797,406	25,278,587	82.3%	(4,481,181)	3,123,760	447,292	424,549	56,540	928,381	1,771,109	(842,728)	1,624,820	0	21,579,498	186,521	260,771	424,549	685,320	871,841
2024	21,579,498	25,570,418	84.4%	(3,990,920)	3,248,785	455,655	404,298	51,656	911,609	1,835,920	(924,311)	1,683,971	0	22,339,158	190,008	265,647	404,298	669,945	859,953
2025	22,339,158	25,795,109	86.6%	(3,455,951)	3,379,794	465,089	383,915	46,641	895,645	1,924,239	(1,028,594)	1,740,357	0	23,050,921	193,942	271,147	383,915	655,062	849,004
2026	23,050,921	25,934,450	88.9%	(2,883,529)	3,517,793	475,818	363,879	42,214	881,911	1,991,781	(1,109,870)	1,793,885	0	23,734,936	198,416	277,402	363,879	641,281	839,697
2027	23,734,936	26,004,608	91.3%	(2,269,672)	3,662,757	487,669	342,312	38,093	868,074	2,062,704	(1,194,630)	1,845,044	0	24,385,350	203,358	284,311	342,312	626,623	829,981
2028	24,385,350	25,997,577	93.8%	(1,612,227)	3,815,471	500,820	320,269	33,958	855,047	2,123,648	(1,268,601)	1,893,972	0	25,010,721	208,842	291,978	320,269	612,247	821,089
2029	25,010,721	25,917,989	96.5%	(907,268)	3,975,899	515,334	296,545	30,217	842,096	2,177,117	(1,335,021)	1,941,217	0	25,616,917	214,894	300,440	296,545	596,985	811,879
2030	25,616,917	25,769,017	99.4%	(152,100)	4,143,703	181,909	0	26,520	208,429	2,226,897	(2,018,468)	1,962,735	0	25,561,184	75,856	106,053	0	106,053	181,909
2031	25,561,184	25,549,181	100.0%	12,003	4,320,656	7,777	0	23,332	31,109	2,303,286	(2,272,177)	1,948,068	0	25,237,075	3,243	4,534	0	4,534	7,777
2032	25,237,075	25,227,017	100.0%	10,058	4,506,592	5,408	0	20,730	26,138	2,351,333	(2,325,195)	1,919,899	0	24,831,779	2,255	3,153	0	3,153	5,408
2033	24,831,779	24,821,687	100.0%	10,092	4,702,683	4,232	0	17,870	22,102	2,374,058	(2,351,956)	1,886,350	0	24,366,173	1,765	2,467	0	2,467	4,232
2034	24,366,173	24,357,984	100.0%	8,189	4,915,446	3,441	0	15,238	18,679	2,405,178	(2,386,499)	1,847,642	0	23,827,316	1,435	2,006	0	2,006	3,441
2035	23,827,316	23,817,428	100.0%	9,888	5,135,408	2,054	0	13,352	15,406	2,427,129	(2,411,723)	1,803,471	0	23,219,064	857	1,197	0	1,197	2,054
2036	23,219,064	23,210,536	100.0%	8,528	5,363,274	1,073	0	11,263	12,336	2,461,663	(2,449,327)	1,753,220	0	22,522,957	447	626	0	626	1,073
2037	22,522,957	22,515,424	100.0%	7,533	5,600,200	560	0	9,520	10,080	2,462,456	(2,452,376)	1,697,409	0	21,767,990	234	326	0	326	560
2038	21,767,990	21,761,882	100.0%	6,108	5,846,914	0	0	7,601	7,601	2,440,642	(2,433,041)	1,637,843	0	20,972,792	0	0	0	0	0
2039	20,972,792	20,968,326	100.0%	4,466	6,103,819	0	0	6,104	6,104	2,415,802	(2,409,698)	1,575,226	0	20,138,320	0	0	0	0	0
2040	20,138,320	20,135,179	100.0%	3,141	6,368,696	0	0	5,095	5,095	2,423,877	(2,418,782)	1,508,085	0	19,227,623	0	0	0	0	0
2041	19,227,623	19,225,406	100.0%	2,217	6,645,068	0	0	3,987	3,987	2,364,529	(2,360,542)	1,437,712	0	18,304,793	0	0	0	0	0
2042	18,304,793	18,303,380	100.0%	1,413	6,931,674	0	0	2,773	2,773	2,308,626	(2,305,853)	1,366,218	0	17,365,158	0	0	0	0	0
2043	17,365,158	17,364,761	100.0%	397	7,230,997	0	0	2,169	2,169	2,249,003	(2,246,834)	1,293,940	0	16,412,264	0	0	0	0	0
				Totals 2015 & After		$ 6,963,270	$6,619,516	$1,215,547	$14,798,333						$2,903,684	$4,059,586	$ 6,619,516	$10,679,102	$ 13,582,786
															21.38%			78.62%	100.00%

Exhibit 4

State of Alaska PERS
Financial Projections (in Thousands)
Level Dollar Amortization over 25 years and 12.5% Investment Return in FY13, 8% in FY14 and later years
$1B State Contribution in FY15; Re-initialize amortization and asset balances in FY15; Calculated State Contributions in future years

Investment Return: 8.00%

	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months														
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets	41.70% Municipal Er Cont's	58.30% State Er Cont's	State Assist Cont's	State Cont's	Total Er/State Cont's
2013	$11,832,030	$19,292,361	61.3%	($7,460,331)	$2,245,686	$426,731	$310,528	$118,879	$856,138	$973,954	($117,816)	$1,399,035	($924,132)	$12,189,117	$177,947	$248,784	$310,528	$559,312	$737,259
2014	12,189,117	20,109,112	60.6%	(7,919,995)	2,295,881	422,343	312,473	120,633	855,449	1,056,528	(201,079)	994,291	195,922	13,178,251	176,117	246,226	312,473	558,699	734,816
2015	13,364,540	20,885,260	63.1%	(7,707,009)	2,357,693	419,865	1,000,000	114,150	1,534,015	1,140,515	393,500	1,121,563	0	14,879,603	175,084	244,781	1,000,000	1,244,781	1,419,865
2016	14,879,603	21,614,302	68.8%	(6,734,699)	2,428,744	418,974	353,124	107,781	879,879	1,225,841	(345,962)	1,187,101	0	15,720,742	174,712	244,262	353,124	597,386	772,098
2017	15,720,742	22,291,137	70.5%	(6,570,395)	2,508,301	419,623	332,616	101,655	853,894	1,305,131	(451,237)	1,249,161	0	16,518,666	174,983	244,640	332,616	577,256	752,239
2018	16,518,666	22,919,638	72.1%	(6,400,972)	2,595,896	421,668	310,375	95,970	828,013	1,380,741	(552,728)	1,307,855	0	17,273,793	175,836	245,832	310,375	556,207	732,043
2019	17,273,793	23,501,895	73.5%	(6,228,102)	2,692,279	425,077	287,838	90,469	803,384	1,456,528	(653,144)	1,363,154	0	17,983,803	177,257	247,820	287,838	535,658	712,915
2020	17,983,803	24,035,658	74.8%	(6,051,855)	2,792,589	429,205	266,708	85,274	781,187	1,537,884	(756,697)	1,414,759	0	18,641,865	178,978	250,227	266,708	516,935	695,913
2021	18,641,865	24,512,466	76.1%	(5,870,601)	2,898,156	434,392	245,515	80,182	760,089	1,621,417	(861,328)	1,462,156	0	19,242,693	181,141	253,251	245,515	498,766	679,907
2022	19,242,693	24,925,074	77.2%	(5,682,381)	3,008,108	440,335	225,058	75,193	740,586	1,698,588	(958,002)	1,505,338	0	19,790,029	183,620	256,715	225,058	481,773	665,393
2023	19,790,029	25,278,587	78.3%	(5,488,558)	3,123,760	447,292	204,012	56,540	707,844	1,771,109	(1,063,265)	1,543,896	0	20,270,660	186,521	260,771	204,012	464,783	651,304
2024	20,270,660	25,570,418	79.3%	(5,299,758)	3,248,785	455,655	183,706	51,656	691,017	1,835,920	(1,144,903)	1,578,099	0	20,703,856	190,008	265,647	183,706	449,353	639,361
2025	20,703,856	25,795,109	80.3%	(5,091,253)	3,379,794	465,089	162,877	46,641	674,607	1,924,239	(1,249,632)	1,607,502	0	21,061,726	193,942	271,147	162,877	434,024	627,966
2026	21,061,726	25,934,450	81.2%	(4,872,724)	3,517,793	475,818	141,906	42,214	659,938	1,991,781	(1,331,843)	1,631,826	0	21,361,709	198,416	277,402	141,906	419,308	617,724
2027	21,361,709	26,004,608	82.1%	(4,642,899)	3,662,757	487,669	119,616	38,093	645,378	2,062,704	(1,417,326)	1,651,326	0	21,595,709	203,358	284,311	119,616	403,927	607,285
2028	21,595,709	25,997,577	83.1%	(4,401,868)	3,815,471	500,820	97,827	33,958	632,605	2,123,648	(1,491,043)	1,666,062	0	21,770,728	208,842	291,978	97,827	389,805	598,647
2029	21,770,728	25,917,989	84.0%	(4,147,261)	3,975,899	515,334	74,689	30,217	620,240	2,177,117	(1,556,877)	1,676,359	0	21,890,210	214,894	300,440	74,689	375,129	590,023
2030	21,890,210	25,769,017	84.9%	(3,878,807)	4,143,703	531,126	51,479	26,520	609,125	2,226,897	(1,617,772)	1,682,417	0	21,954,855	221,480	309,646	51,479	361,125	582,605
2031	21,954,855	25,549,181	85.9%	(3,594,326)	4,320,656	548,390	27,553	23,332	599,275	2,303,286	(1,704,011)	1,682,974	0	21,933,818	228,679	319,711	27,553	347,264	575,943
2032	21,933,818	25,227,017	86.9%	(3,293,199)	4,506,592	567,044	3,491	20,730	591,265	2,351,333	(1,760,068)	1,677,951	0	21,851,701	236,457	330,587	3,491	334,078	570,535
2033	21,851,701	24,821,687	88.0%	(2,969,986)	4,702,683	564,792	0	17,870	582,662	2,374,058	(1,791,396)	1,669,934	0	21,730,239	235,518	329,274	0	329,274	564,792
2034	21,730,239	24,357,984	89.2%	(2,627,745)	4,915,446	560,361	0	15,238	575,599	2,405,178	(1,829,579)	1,658,616	0	21,559,276	233,671	326,690	0	326,690	560,361
2035	21,559,276	23,817,428	90.5%	(2,258,152)	5,135,408	555,138	0	13,352	568,490	2,427,129	(1,858,639)	1,643,725	0	21,344,362	231,493	323,645	0	323,645	555,138
2036	21,344,362	23,210,536	92.0%	(1,866,174)	5,363,274	551,345	0	11,263	562,608	2,461,663	(1,899,055)	1,624,831	0	21,070,138	229,911	321,434	0	321,434	551,345
2037	21,070,138	22,515,424	93.6%	(1,445,286)	5,600,200	547,140	0	9,520	556,660	2,462,456	(1,905,796)	1,602,626	0	20,766,968	228,157	318,983	0	318,983	547,140
2038	20,766,968	21,761,882	95.4%	(994,914)	5,846,914	542,594	0	7,601	550,195	2,440,642	(1,890,447)	1,579,048	0	20,455,569	226,262	316,332	0	316,332	542,594
2039	20,455,569	20,968,326	97.6%	(512,757)	6,103,819	537,746	0	6,104	543,850	2,415,802	(1,871,952)	1,554,944	0	20,138,561	224,240	313,506	0	313,506	537,746
2040	20,138,561	20,135,179	100.0%	3,382	6,368,696	0	0	5,095	5,095	2,423,877	(2,418,782)	1,508,104	0	19,227,883	0	0	0	0	0
2041	19,227,883	19,225,406	100.0%	2,477	6,645,068	0	0	3,987	3,987	2,364,529	(2,360,542)	1,437,733	0	18,305,074	0	0	0	0	0
2042	18,305,074	18,303,380	100.0%	1,694	6,931,674	0	0	2,773	2,773	2,308,626	(2,305,853)	1,366,240	0	17,365,461	0	0	0	0	0
2043	17,365,461	17,364,761	100.0%	700	7,230,997	0	0	2,169	2,169	2,249,003	(2,246,834)	1,293,586	0	16,412,213	0	0	0	0	0
				Totals 2015 & After		$ 12,262,492	$ 4,088,390	$ 1,215,547	$ 17,566,429						$ 5,113,460	$ 7,149,032	$ 4,088,390	$ 11,237,422	$ 16,350,882
															31.27%			68.73%	100.00%

Exhibit 5

State of Alaska TRS
Financial Projections (in Thousands)
Baseline - Level Dollar Amortization over 25 years and 12.5% Investment Return in FY13, 8% in FY14 and later years

	Investment Return: 8.00%				Flow Amounts During Following 12 Months										
	Valuation Amounts on July 1 (Beginning of Fiscal Year)													Recognized	Ending
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Employer/State Ctb Rate	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Asset Gain/(Loss)	Actuarial Assets
2013	$4,869,154	$9,346,444	52.1%	($4,477,290)	$743,957	49.56%	$70,604	$298,101	$53,263	$421,968	$525,672	($103,704)	$570,927	($393,887)	$4,942,490
2014	4,942,490	9,651,582	51.2%	(4,709,092)	762,692	50.10%	67,056	316,847	54,446	438,349	556,844	(118,495)	402,046	90,090	5,316,131
2015	5,316,131	9,944,626	53.5%	(4,628,495)	783,438	66.31%	63,594	455,904	52,102	571,600	586,966	(15,366)	428,675	72,872	5,802,312
2016	5,802,312	10,223,597	56.8%	(4,421,285)	805,914	67.76%	60,182	485,905	49,736	595,823	618,454	(22,631)	461,350	(29,854)	6,211,177
2017	6,211,177	10,485,997	59.2%	(4,274,820)	830,268	66.16%	56,857	492,448	47,420	596,725	648,576	(51,851)	495,200	43,566	6,698,092
2018	6,698,092	10,731,508	62.4%	(4,033,416)	855,825	63.28%	53,492	488,074	45,199	586,765	675,904	(89,139)	529,114	0	7,138,067
2019	7,138,067	10,963,107	65.1%	(3,825,040)	882,669	61.18%	50,127	489,890	42,905	582,922	705,092	(122,170)	562,919	0	7,578,816
2020	7,578,816	11,177,357	67.8%	(3,598,541)	911,010	58.30%	46,741	484,378	40,631	571,750	739,563	(167,813)	596,273	0	8,007,276
2021	8,007,276	11,367,833	70.4%	(3,360,557)	940,957	56.00%	43,341	483,595	38,284	565,220	771,294	(206,074)	628,943	0	8,430,145
2022	8,430,145	11,533,410	73.1%	(3,103,265)	973,382	53.73%	40,113	482,885	35,978	558,976	799,992	(241,016)	661,306	0	8,850,435
2023	8,850,435	11,678,589	75.8%	(2,828,154)	1,008,495	51.55%	37,146	482,733	26,120	545,999	825,117	(279,118)	693,351	0	9,264,668
2024	9,264,668	11,804,774	78.5%	(2,540,106)	1,045,905	49.38%	34,243	482,225	23,847	540,315	847,540	(307,225)	725,312	0	9,682,755
2025	9,682,755	11,906,243	81.3%	(2,223,488)	1,085,268	47.26%	31,420	481,478	21,488	534,386	877,945	(343,559)	757,232	0	10,096,428
2026	10,096,428	11,978,919	84.3%	(1,882,491)	1,126,840	45.26%	28,735	481,273	19,269	529,277	915,165	(385,888)	788,541	0	10,499,081
2027	10,499,081	12,014,999	87.4%	(1,515,918)	1,170,697	43.27%	26,156	480,405	17,092	523,653	942,377	(418,724)	819,374	0	10,899,731
2028	10,899,731	12,019,893	90.7%	(1,120,162)	1,217,232	41.35%	23,808	479,517	14,972	518,297	965,075	(446,778)	850,250	0	11,303,203
2029	11,303,203	11,999,271	94.2%	(696,068)	1,266,672	39.47%	21,748	478,207	13,047	513,002	988,765	(475,763)	881,311	0	11,708,751
2030	11,708,751	11,947,250	98.0%	(238,499)	1,318,359	20.47%	19,918	249,950	11,338	281,206	1,015,267	(734,061)	903,533	0	11,878,223
2031	11,878,223	11,862,365	100.1%	15,858	1,373,136	0.24%	3,296	0	9,749	13,045	1,052,765	(1,039,720)	904,975	0	11,743,478
2032	11,743,478	11,727,157	100.1%	16,321	1,430,917	0.17%	2,433	0	8,442	10,875	1,071,218	(1,060,343)	893,325	0	11,576,460
2033	11,576,460	11,561,467	100.1%	14,993	1,491,916	0.13%	1,939	0	7,161	9,100	1,076,092	(1,066,992)	879,686	0	11,389,154
2034	11,389,154	11,375,441	100.1%	13,713	1,556,143	0.10%	1,556	0	6,069	7,625	1,087,071	(1,079,446)	864,176	0	11,173,884
2035	11,173,884	11,161,401	100.1%	12,483	1,622,872	0.07%	1,136	0	5,031	6,167	1,110,566	(1,104,399)	845,897	0	10,915,382
2036	10,915,382	10,904,315	100.1%	11,067	1,692,489	0.05%	846	0	4,231	5,077	1,108,805	(1,103,728)	825,250	0	10,636,904
2037	10,636,904	10,627,228	100.1%	9,676	1,764,921	0.03%	529	0	3,530	4,059	1,104,345	(1,100,286)	803,121	0	10,339,739
2038	10,339,739	10,331,515	100.1%	8,224	1,840,538	0.02%	368	0	2,945	3,313	1,098,370	(1,095,057)	779,573	0	10,024,255
2039	10,024,255	10,017,472	100.1%	6,783	1,919,401	0.02%	384	0	2,303	2,687	1,092,046	(1,089,359)	754,579	0	9,689,475
2040	9,689,475	9,684,161	100.1%	5,314	2,000,850	0.02%	400	0	1,801	2,201	1,079,552	(1,077,351)	728,309	0	9,340,433
2041	9,340,433	9,336,574	100.0%	3,859	2,085,904	0.01%	209	0	1,460	1,669	1,066,437	(1,064,768)	700,923	0	8,976,588
2042	8,976,588	8,974,342	100.0%	2,246	2,174,467	0.01%	217	0	1,087	1,304	1,048,163	(1,046,859)	672,579	0	8,602,308
2043	8,602,308	8,601,721	100.0%	587	2,266,698	0.00%	0	0	907	907	1,020,993	(1,020,086)	644,587	0	8,226,809
					Totals 2015 & After		$ 650,934	$ 7,478,867	$ 554,144	$ 8,683,945					

Exhibit 6

State of Alaska TRS
Financial Projections (in Thousands)
Level Dollar Amortization over 25 years and 12.5% Investment Return in FY13, 8% in FY14 and later years
$2B State Contribution in FY15; Re-initialize amortization and asset balances in FY15; Calculated State Contributions in future years

Investment Return: 8.00%

	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months									Recognized	Ending
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Employer/State Ctb Rate	Employer Contribs	State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Asset Gain/(Loss)	Actuarial Assets
2013	$4,869,154	$9,346,444	52.1%	($4,477,290)	$743,957	49.56%	$70,604	$298,101	$53,263	$421,968	$525,672	($103,704)	$570,927	($393,887)	$4,942,490
2014	4,942,490	9,651,582	51.2%	(4,709,092)	762,692	50.34%	67,056	316,847	54,446	438,349	556,844	(118,495)	402,046	90,090	5,316,131
2015	5,390,462	9,944,626	53.5%	(4,628,495)	783,438	263.40%	63,594	2,000,000	52,102	2,115,696	586,966	1,528,730	570,790	0	7,489,982
2016	7,489,982	10,223,597	73.3%	(2,733,615)	805,914	35.16%	60,182	223,177	49,736	333,095	618,454	(285,359)	595,038	0	7,799,661
2017	7,799,661	10,485,997	74.4%	(2,686,336)	830,268	33.66%	56,857	222,611	47,420	326,888	648,576	(321,688)	618,264	0	8,096,237
2018	8,096,237	10,731,508	75.4%	(2,635,271)	855,825	32.22%	53,492	222,255	45,199	320,946	675,904	(354,958)	640,579	0	8,381,858
2019	8,381,858	10,963,107	76.5%	(2,581,249)	882,669	30.84%	50,127	222,088	42,905	315,120	705,092	(389,972)	661,951	0	8,653,837
2020	8,653,837	11,177,357	77.4%	(2,523,520)	911,010	29.53%	46,741	222,280	40,631	309,652	739,563	(429,911)	682,035	0	8,905,961
2021	8,905,961	11,367,833	78.3%	(2,461,872)	940,957	28.23%	43,341	222,291	38,284	303,916	771,294	(467,378)	700,630	0	9,139,213
2022	9,139,213	11,533,410	79.2%	(2,394,197)	973,382	26.95%	40,113	222,213	35,978	298,304	799,992	(501,688)	717,845	0	9,355,370
2023	9,355,370	11,678,589	80.1%	(2,323,219)	1,008,495	25.74%	37,146	222,441	26,120	285,707	825,117	(539,410)	733,583	0	9,549,543
2024	9,549,543	11,804,774	80.9%	(2,255,231)	1,045,905	24.64%	34,243	223,468	23,847	281,558	847,540	(565,982)	748,041	0	9,731,602
2025	9,731,602	11,906,243	81.7%	(2,174,641)	1,085,268	23.52%	31,420	223,835	21,488	276,743	877,945	(601,202)	761,138	0	9,891,538
2026	9,891,538	11,978,919	82.6%	(2,087,381)	1,126,840	22.42%	28,735	223,903	19,269	271,907	915,165	(643,258)	772,161	0	10,020,441
2027	10,020,441	12,014,999	83.4%	(1,994,558)	1,170,697	21.36%	26,156	223,905	17,092	267,153	942,377	(675,224)	781,129	0	10,126,346
2028	10,126,346	12,019,893	84.2%	(1,893,547)	1,217,232	20.35%	23,808	223,899	14,972	262,679	965,075	(702,396)	788,459	0	10,212,409
2029	10,212,409	11,999,271	85.1%	(1,786,862)	1,266,672	19.40%	21,748	223,986	13,047	258,781	988,765	(729,984)	794,187	0	10,276,612
2030	10,276,612	11,947,250	86.0%	(1,670,638)	1,318,359	18.47%	19,918	223,583	11,338	254,839	1,015,267	(760,428)	798,024	0	10,314,208
2031	10,314,208	11,862,365	86.9%	(1,548,157)	1,373,136	17.61%	18,342	223,467	9,749	251,558	1,052,765	(801,207)	799,302	0	10,312,303
2032	10,312,303	11,727,157	87.9%	(1,414,854)	1,430,917	16.73%	16,962	222,430	8,442	247,834	1,071,218	(823,384)	798,175	0	10,287,094
2033	10,287,094	11,561,467	89.0%	(1,274,373)	1,491,916	15.92%	15,796	221,717	7,161	244,674	1,076,092	(831,418)	795,798	0	10,251,474
2034	10,251,474	11,375,441	90.1%	(1,123,967)	1,556,143	15.13%	14,836	220,608	6,069	241,513	1,087,071	(845,558)	792,312	0	10,198,228
2035	10,198,228	11,161,401	91.4%	(963,173)	1,622,872	14.37%	14,047	219,160	5,031	238,238	1,110,566	(872,328)	786,865	0	10,112,765
2036	10,112,765	10,904,315	92.7%	(791,550)	1,692,489	13.64%	13,438	217,417	4,231	235,086	1,108,805	(873,719)	779,908	0	10,018,954
2037	10,018,954	10,627,228	94.3%	(608,274)	1,764,921	12.90%	12,979	214,696	3,530	231,205	1,104,345	(873,140)	772,330	0	9,918,144
2038	9,918,144	10,331,515	96.0%	(413,371)	1,840,538	12.14%	12,660	210,781	2,945	226,386	1,098,370	(871,984)	764,170	0	9,810,330
2039	9,810,330	10,017,472	97.9%	(207,142)	1,919,401	11.05%	12,472	199,622	2,303	214,397	1,092,046	(877,649)	754,889	0	9,687,570
2040	9,687,570	9,684,161	100.0%	3,409	2,000,850	0.02%	400	0	1,801	2,201	1,079,552	(1,077,351)	729,137	0	9,339,356
2041	9,339,356	9,336,574	100.0%	2,782	2,085,904	0.01%	209	0	1,460	1,669	1,066,437	(1,064,768)	701,817	0	8,976,405
2042	8,976,405	8,974,342	100.0%	2,063	2,174,467	0.01%	217	0	1,087	1,304	1,048,163	(1,046,859)	673,545	0	8,603,091
2043	8,603,091	8,601,721	100.0%	1,370	2,266,698	0.00%	0	0	907	907	1,020,993	(1,020,086)	644,821	0	8,227,826
					Totals 2015 & After		$ 769,979	$ 7,295,833	$ 554,144	$ 8,619,956					

PERS & TRS Gross Salaries - FY 2008 through FY 2014 Actuals

Employer Name	FY2008 Gross Salaries	FY2009 Gross Salaries	FY2010 Gross Salaries	FY2011 Gross Salaries	FY2012 Gross Salaries	FY2013 Gross Salaries	FY2014 Gross Salaries
PERS Gross Salaries							
101 - STATE OF ALASKA	887,341,020.78	938,534,114.16	996,327,680.11	1,037,930,527.62	1,070,280,358.98	1,121,294,752.66	1,157,568,993.83
102 - SOUTHWEST REGION SD	2,332,222.20	2,364,292.40	2,305,440.98	2,212,881.83	2,371,906.57	2,378,357.97	2,497,403.51
103 - ANNETTE ISLAND SD	536,830.27	579,334.88	625,669.02	622,485.94	723,077.97	829,938.77	849,448.88
104 - BERING STRAIT SD	7,200,716.32	7,415,538.19	7,936,225.50	8,081,057.33	8,504,179.36	8,305,950.01	8,458,260.79
105 - CHATHAM SD	424,590.77	380,350.80	462,288.12	460,594.95	482,078.61	491,418.61	432,109.65
106 - ALASKA MUNICIPAL LEAGUE	181,914.42	292,544.49	304,368.58	229,791.26	243,800.91	264,333.96	278,823.62
107 - CITY OF VALDEZ	5,448,143.45	6,081,779.17	6,703,158.14	6,876,387.38	7,473,732.04	7,480,331.30	7,573,814.73
108 - JUNEAU BOROUGH SD	9,917,471.02	10,585,835.60	11,589,162.89	12,259,879.22	12,473,560.12	11,932,268.10	11,560,800.37
109 - MATANUSKA-SUSITNA BOROUGH	14,252,985.32	15,790,263.87	16,747,994.52	16,813,839.57	17,492,921.90	19,279,808.69	19,339,708.93
110 - MATANUSKA-SUSITNA BOROUGH SD	18,648,816.74	21,207,037.23	25,239,097.89	26,985,324.13	27,500,336.09	28,605,581.57	28,790,609.82
111 - ANCHORAGE SD	82,043,456.04	87,734,422.02	95,357,062.58	98,110,659.91	98,327,249.20	95,844,182.82	92,434,293.28
112 - COPPER RIVER SD	1,211,013.55	1,185,003.42	1,214,765.98	1,247,895.41	1,205,801.16	1,183,394.45	1,029,219.41
113 - UNIVERSITY OF ALASKA	127,596,664.16	127,882,052.78	128,579,981.06	126,650,666.35	126,179,730.78	119,270,919.40	117,274,824.63
115 - CITY OF KENAI	5,535,102.49	5,987,242.59	6,414,820.56	6,680,174.62	6,988,281.38	7,373,309.29	7,533,493.48
116 - FAIRBANKS NORTH STAR BOROUGH	20,243,653.23	20,964,327.63	22,019,181.54	22,682,189.78	22,824,277.43	23,936,383.89	24,420,131.18
117 - FAIRBANKS NORTH STAR BOROUGH SD	27,804,144.09	28,690,284.52	31,563,596.07	33,599,554.65	35,116,599.23	35,160,439.31	35,192,710.80
118 - DENALI BOROUGH SD	926,113.06	915,854.32	975,536.92	935,222.46	1,138,156.00	1,081,371.09	1,120,229.37
120 - CITY AND BOROUGH OF SITKA	9,275,777.99	9,967,518.25	9,847,709.07	10,129,946.34	10,194,158.76	10,141,983.64	10,736,883.52
121 - CHUGACH SD	264,560.75	334,273.20	427,818.55	480,226.70	352,945.12	461,815.80	462,699.53
122 - KETCHIKAN GATEWAY BOROUGH	4,496,728.27	4,955,914.74	5,183,875.96	5,157,188.13	5,259,714.71	5,458,556.09	5,504,834.64
123 - CITY OF SOLDOTNA	2,756,756.83	3,137,560.66	3,241,989.75	3,281,148.68	3,244,399.97	3,457,253.99	3,810,241.87
124 - IDITAROD AREA SD	927,417.13	928,433.86	984,504.17	903,024.55	1,078,226.81	952,314.24	936,271.52
125 - KUSPUK SD	1,568,014.40	1,660,176.83	1,675,819.71	1,754,695.02	1,724,056.48	1,428,849.80	1,155,982.15
126 - CITY AND BOROUGH OF JUNEAU	29,921,000.27	32,020,282.43	33,349,083.56	34,343,663.99	35,640,642.15	34,111,073.09	34,854,473.19
128 - CITY OF KODIAK	6,115,285.22	6,346,054.14	6,404,563.40	6,560,660.37	6,961,251.76	6,781,354.62	7,133,830.53
129 - CITY OF FAIRBANKS	7,508,115.24	8,072,044.99	8,376,856.60	8,640,289.95	8,987,992.44	9,187,044.07	9,371,590.73
131 - CITY OF WASILLA	5,657,732.26	5,833,732.94	6,157,026.92	6,347,498.32	6,608,275.45	6,756,995.16	6,711,732.64
132 - CITY OF SKAGWAY	-	-	-	-	-	-	-
133 - SITKA BOROUGH SD	2,008,606.78	2,229,051.94	2,325,744.28	2,422,698.79	2,579,473.06	2,720,300.35	2,938,606.28
134 - CITY OF PALMER	3,696,142.65	4,222,427.85	4,569,795.05	4,449,900.34	4,221,134.37	4,045,793.93	4,019,422.78
135 - CITY AND BOROUGH OF WRANGELL	2,844,794.56	3,187,778.06	3,340,859.09	3,502,559.39	3,588,777.27	3,686,002.35	3,799,357.91
136 - CITY OF BETHEL	5,950,472.38	6,078,965.35	6,441,109.75	6,378,878.96	6,412,272.28	6,786,178.81	6,824,353.08
137 - VALDEZ CITY SD	1,837,975.25	1,971,487.29	2,031,079.46	2,206,481.17	2,198,539.68	2,163,768.25	2,009,918.68
138 - HOONAH CITY SD	420,843.98	428,761.54	451,592.17	594,625.31	628,530.81	686,785.09	775,506.17
139 - CITY OF NOME	2,357,532.31	2,412,848.11	2,553,620.43	2,656,169.82	2,920,341.46	2,911,063.36	3,056,952.00
140 - CITY OF KOTZEBUE	3,681,140.57	3,885,607.05	3,460,025.87	4,116,992.96	4,048,192.61	4,195,340.47	4,378,905.79
141 - GALENA CITY SD	3,239,488.60	3,399,428.31	3,500,417.48	3,902,663.04	3,751,455.81	3,789,293.52	3,400,414.36
143 - PETERSBURG BOROUGH	4,132,111.57	4,179,224.36	4,392,232.60	4,615,692.40	4,828,735.03	4,762,012.77	4,926,138.87
144 - BRISTOL BAY BOROUGH	1,539,223.55	1,800,995.88	1,999,099.53	2,129,469.00	2,243,826.40	2,204,339.32	2,452,548.43
145 - NORTH SLOPE BOROUGH	43,970,710.70	47,451,906.17	50,257,167.58	57,398,630.29	60,893,386.70	61,396,659.97	64,837,651.84
146 - WRANGELL PUBLIC SD	677,139.71	662,000.47	743,786.94	852,365.31	913,024.93	990,320.70	951,922.09
148 - CITY OF CORDOVA	2,268,455.47	2,488,992.97	2,544,703.81	2,622,783.02	2,651,665.25	2,457,694.04	2,988,916.98
149 - NOME CITY SD	1,861,231.75	1,767,244.89	1,723,396.60	1,835,984.79	1,991,580.60	1,993,526.34	1,984,403.26
151 - CITY OF KING COVE	1,011,684.54	1,048,819.94	1,081,178.99	1,062,531.49	1,111,138.36	1,101,292.01	1,099,848.90
152 - ALASKA HOUSING FINANCE CORPORATIOI	17,991,324.32	19,143,605.61	20,154,712.62	21,311,701.97	22,373,145.86	23,209,427.38	23,516,105.22
153 - LOWER YUKON SD	5,231,344.18	5,973,035.80	5,924,588.19	6,146,065.57	6,251,391.49	6,185,308.34	6,365,653.17
154 - NORTHWEST ARCTIC BOROUGH SD	6,535,685.55	6,561,273.98	7,545,531.81	7,417,415.69	6,155,381.34	6,837,122.40	7,240,120.64
155 - SOUTHEAST ISLAND SD	658,381.96	675,860.01	715,703.71	663,096.05	627,937.73	692,585.32	734,602.07
156 - PRIBILOF SD	452,110.08	461,740.35	368,874.92	379,872.61	339,179.71	353,080.87	329,930.87

Prepared by the Division of Retirement and Benefits

PERS & TRS Gross Salaries - FY 2008 through FY 2014 Actuals

Employer Name	FY2008 Gross Salaries	FY2009 Gross Salaries	FY2010 Gross Salaries	FY2011 Gross Salaries	FY2012 Gross Salaries	FY2013 Gross Salaries	FY2014 Gross Salaries
157 - LOWER KUSKOKWIM SD	15,859,654.46	16,223,265.49	17,018,662.96	17,197,026.27	16,946,249.53	16,922,587.50	17,486,766.75
158 - KODIAK ISLAND BOROUGH SD	5,107,374.56	5,421,612.15	5,737,622.67	5,909,126.54	6,076,211.69	6,090,865.71	6,055,493.36
159 - YUKON FLATS SD	552,706.59	1,003,769.34	1,151,801.57	1,254,333.37	1,144,374.43	1,091,459.91	1,146,198.26
160 - YUKON / KOYUKUK SD	1,416,757.54	1,631,343.35	1,868,752.69	1,830,821.68	1,862,342.17	2,110,958.56	2,169,208.90
161 - NORTH SLOPE BOROUGH SD	8,126,658.35	9,552,349.67	11,011,600.03	10,950,163.05	11,604,272.84	11,179,129.84	10,829,484.19
162 - ALEUTIAN REGION SD	195,558.71	150,151.92	97,244.14	137,313.25	175,803.90	158,129.58	136,407.34
163 - CORDOVA COMMUNITY MEDICAL CENTER	2,451,348.50	2,669,159.94	2,685,245.98	2,402,347.01	2,361,313.00	2,531,928.72	3,034,243.26
164 - LAKE AND PENINSULA BOROUGH SD	1,975,177.23	1,833,175.17	1,803,849.65	1,875,599.35	1,797,568.02	1,885,772.12	1,975,180.79
165 - SITKA COMMUNITY HOSPITAL	6,009,855.56	6,235,741.95	6,419,048.00	7,267,180.16	8,359,135.52	9,036,447.13	9,738,224.65
166 - TANANA SD	136,510.01	94,572.87	37,716.88	84,425.64	52,848.52	119,639.30	145,031.12
167 - SOUTHEAST REGIONAL RESOURCE CENTI	1,595,621.11	1,700,199.10	1,633,947.12	1,790,912.72	1,594,381.80	1,459,304.35	1,487,567.78
168 - HYDABURG CITY SD	111,476.03	132,883.91	96,514.93	99,364.65	266,078.46	249,180.65	137,661.10
169 - CITY OF TANANA	112,363.02	105,094.40	161,092.75	134,375.18	126,450.31	131,121.36	119,149.83
170 - NORTH PACIFIC FISHERY MGMT COUNCIL	1,371,881.65	1,387,050.64	1,392,153.51	1,403,665.16	1,426,642.20	1,298,524.52	1,286,644.87
171 - CITY OF BARROW	1,125,664.13	1,487,131.87	1,268,941.73	1,436,617.04	1,289,533.19	1,388,236.74	1,526,343.77
172 - CITY OF SAINT PAUL	1,071,248.96	1,122,927.98	1,305,861.61	1,400,032.82	1,386,309.42	1,493,048.00	1,528,939.92
173 - MUNICIPALITY OF ANCHORAGE	161,180,694.62	173,976,711.74	169,566,391.60	173,186,492.91	178,868,685.49	189,081,733.66	185,842,013.21
174 - KODIAK ISLAND BOROUGH	2,431,400.48	2,574,158.01	2,715,618.26	2,880,219.38	2,891,039.09	3,151,947.42	3,180,843.32
175 - NOME JOINT UTILITY SYSTEM	906,897.07	798,564.42	844,574.36	952,144.33	933,539.22	907,448.95	969,069.17
176 - CITY OF SAND POINT	849,227.79	904,846.50	819,749.44	1,120,219.90	1,122,691.92	1,153,491.04	1,164,574.32
177 - KETCHIKAN GATEWAY BOROUGH SD	4,132,518.05	4,338,441.69	4,672,736.10	4,752,348.90	4,951,355.28	5,142,437.26	5,626,316.52
178 - CITY OF DILLINGHAM	2,253,683.63	2,209,548.69	2,336,329.10	2,366,490.65	2,887,077.99	2,663,647.18	2,762,997.97
179 - CITY OF UNALASKA	8,743,076.04	9,031,637.81	9,311,688.84	9,334,117.66	9,659,755.31	10,144,256.75	10,524,114.13
180 - KENAI PENINSULA BOROUGH	14,799,912.31	15,178,006.18	17,694,896.95	17,761,050.55	18,424,065.25	19,027,219.51	19,908,565.20
181 - CITY OF KETCHIKAN	8,354,795.13	9,061,760.67	8,934,720.34	8,332,776.80	8,681,184.07	8,956,822.92	9,042,780.96
182 - CITY OF SEWARD	4,123,414.35	4,360,888.80	4,690,862.20	4,660,214.11	4,963,598.51	4,770,409.05	4,798,521.39
183 - CITY OF FORT YUKON	292,367.06	317,192.20	322,481.70	367,166.91	435,404.39	474,175.22	382,451.99
184 - BRISTOL BAY BOROUGH SD	486,359.30	498,853.24	509,117.96	574,141.01	501,006.43	525,791.07	527,700.66
185 - CORDOVA CITY SD	661,560.01	776,180.33	741,770.21	704,221.30	676,829.08	760,054.52	743,509.52
186 - CITY OF CRAIG	1,550,615.83	1,588,211.34	1,710,800.25	1,335,153.70	1,278,463.35	1,437,070.71	1,559,005.99
187 - PETERSBURG MEDICAL CENTER	3,642,391.67	3,724,275.39	4,065,540.10	4,171,755.26	3,930,482.67	5,013,862.67	5,275,589.62
189 - HAINES BOROUGH	1,767,790.09	1,826,493.82	1,951,054.98	2,113,996.13	2,140,704.49	2,322,420.18	2,284,717.48
190 - KENAI PENINSULA BOROUGH SD	13,730,289.91	14,430,807.24	15,942,621.39	16,403,562.34	17,382,542.16	18,005,046.80	18,772,734.25
191 - CITY OF NORTH POLE	2,027,913.81	2,439,208.75	2,510,078.00	2,552,535.33	2,607,911.65	2,542,096.55	2,636,879.50
192 - CITY OF GALENA	1,513,365.19	1,779,981.64	989,382.97	879,750.06	765,775.82	895,736.21	885,664.70
193 - CITY OF NENANA	310,781.70	324,436.35	328,628.54	338,531.57	325,797.71	312,903.84	131,885.36
195 - YUPIIT SD	1,930,446.48	1,675,239.97	1,900,119.32	2,117,046.12	2,136,811.50	1,901,814.95	1,740,564.42
196 - NENANA CITY SD	1,062,751.02	1,131,177.68	1,088,962.75	1,274,102.52	1,385,613.79	1,336,645.83	1,289,599.48
198 - CITY OF SAXMAN	107,971.46	116,742.65	111,114.50	126,633.11	132,159.96	141,301.94	134,279.97
199 - CITY OF HOONAH	764,304.44	821,760.93	847,205.67	873,694.38	995,396.53	1,111,415.59	1,162,215.47
200 - CITY OF PELICAN	161,583.91	156,857.07	152,283.47	120,600.40	109,791.14	119,243.58	105,057.31
202 - CITY OF WHITTIER	906,468.27	980,093.71	918,369.54	844,026.85	911,913.70	1,008,664.44	1,091,421.33
203 - ANCHORAGE COMMUNITY DEVELOP AUTH	1,563,498.22	1,558,353.70	1,648,470.09	1,684,507.30	1,838,347.74	1,997,481.36	2,114,114.43
204 - CRAIG CITY SD	762,589.01	949,621.31	1,012,994.40	1,005,084.20	977,304.37	974,692.06	935,378.01
205 - DILLINGHAM CITY SD	1,399,553.54	1,635,046.77	1,558,033.00	1,357,205.71	1,506,215.02	1,566,945.05	1,536,944.33
206 - CITY OF THORNE BAY	403,569.96	405,929.51	353,056.17	365,416.92	425,502.83	366,506.26	407,354.35
208 - CITY OF AKUTAN	309,275.70	355,116.46	400,872.94	554,736.70	469,790.08	658,067.27	721,456.43
209 - UNALASKA CITY SD	853,476.36	894,444.84	945,593.68	995,894.46	1,090,538.24	1,151,432.21	1,109,550.10
211 - KASHUNAMIUT SD	1,153,516.24	1,293,020.08	1,455,852.42	1,636,525.98	1,546,956.69	1,490,746.27	1,602,943.60
215 - CITY OF HOMER	5,558,404.51	5,904,469.93	5,805,470.48	5,841,402.21	5,878,126.13	6,407,419.90	6,400,101.88

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PERS & TRS Gross Salaries - FY 2008 through FY 2014 Actuals

Employer Name	FY2008 Gross Salaries	FY2009 Gross Salaries	FY2010 Gross Salaries	FY2011 Gross Salaries	FY2012 Gross Salaries	FY2013 Gross Salaries	FY2014 Gross Salaries
218 - SPECIAL EDUCATION SERVICE AGENCY	258,710.74	251,094.49	386,252.15	377,467.21	355,777.41	260,181.27	230,152.77
219 - BARTLETT REGIONAL HOSPITAL	22,192,148.09	24,409,980.39	26,590,442.11	28,418,686.41	29,291,099.89	28,991,489.20	28,524,465.14
220 - NORTHWEST ARCTIC BOROUGH	1,274,446.04	1,512,839.36	1,700,008.58	1,968,292.00	2,216,215.12	2,172,772.59	2,407,034.40
221 - SAINT MARY'S SD	398,874.04	443,762.92	427,431.37	506,928.85	487,969.00	555,900.10	654,492.80
223 - BRISTOL BAY HOUSING AUTHORITY	1,280,244.38	1,324,739.17	1,512,280.55	1,597,649.36	1,516,005.14	1,636,206.48	1,718,813.56
224 - COPPER RIVER BASIN RHA	362,710.54	424,545.88	530,096.29	583,224.29	626,494.78	622,090.30	536,400.95
225 - SKAGWAY CITY SD	316,099.43	346,751.30	367,195.17	305,271.94	281,335.41	262,001.55	246,598.44
227 - CITY OF KLAWOCK	563,057.24	571,811.11	676,733.72	687,026.73	664,829.10	700,834.81	706,863.67
228 - PETERSBURG CITY SD	904,530.87	962,084.22	1,017,413.91	962,382.21	978,031.15	1,024,897.32	1,040,996.86
230 - ALEUTIANS EAST BOROUGH	1,083,904.96	1,070,387.58	1,061,877.15	839,978.56	696,056.50	748,644.11	780,985.02
232 - BERING STRAITS CRSA	-	-	-	13,461.56	1,923.08	-	-
235 - CITY OF HUSLIA	138,393.00	136,595.00	136,709.00	137,930.00	125,863.40	139,147.68	133,337.88
237 - CITY OF KALTAG	31,137.00	32,456.00	25,185.95	24,907.00	31,247.26	23,043.98	34,197.40
240 - HAINES BOROUGH SD	662,597.49	775,588.74	854,564.03	855,162.49	824,937.70	915,356.97	830,014.42
241 - CITY OF NOORVIK	152,358.28	28,245.25	-	-	-	-	-
242 - CITY OF ELIM	3,573.32	14,006.46	19,177.88	19,338.61	22,261.44	23,406.56	22,843.45
243 - CITY OF ATKA	50,795.65	91,472.09	174,458.15	131,680.78	121,532.33	113,096.61	127,431.55
244 - ALEUTIANS EAST BOROUGH SD	695,837.93	767,203.64	821,078.79	906,745.80	890,967.99	914,461.99	1,047,868.73
245 - ALEUTIANS WEST CRSA	53,647.68	50,949.60	55,294.79	60,567.96	-	-	-
246 - DELTA/GREELY SD	1,377,497.79	1,455,993.35	1,610,489.64	1,671,856.50	1,767,749.56	1,903,969.40	1,990,014.59
247 - LAKE AND PENINSULA BOROUGH	416,170.76	300,430.05	283,449.40	285,051.78	267,468.53	251,915.48	263,231.78
248 - CITY AND BOROUGH OF YAKUTAT	700,300.28	719,655.81	714,756.81	741,837.57	795,752.31	773,973.01	821,646.84
249 - CITY OF UNALAKLEET	291,374.80	456,309.26	457,730.67	512,059.42	466,652.36	493,004.32	568,466.51
251 - KLAWOCK CITY SD	423,405.26	447,794.84	482,421.51	516,679.07	540,006.78	586,310.61	527,544.46
254 - CITY OF MEKORYUK	12,265.24	1,244.39	-	-	-	-	-
255 - ALASKA GATEWAY SD	1,018,524.34	958,151.84	1,068,425.40	1,267,275.81	1,379,248.51	1,299,874.80	1,335,605.09
256 - CITY OF SAINT GEORGE	132,465.35	114,145.47	-	-	-	-	-
257 - PELICAN CITY SD	107,980.33	75,839.85	98,421.75	76,897.78	64,483.35	77,619.95	70,384.25
258 - DENALI BOROUGH	361,669.39	397,487.25	431,651.70	452,902.88	520,783.77	472,729.69	465,483.50
259 - CITY OF ALLAKAKET	6,370.00	-	-	-	-	-	-
260 - CITY OF KACHEMAK	18,530.00	19,120.00	20,570.00	20,220.00	20,890.00	22,210.00	24,907.00
262 - COOK INLET HOUSING AUTHORITY	4,587,406.00	4,884,622.71	5,652,681.52	6,295,940.18	6,787,925.01	6,650,691.70	6,946,639.75
263 - INTERIOR RHA	1,006,170.64	994,932.99	1,274,393.82	1,393,998.48	1,554,603.05	1,667,930.91	1,455,787.08
264 - YAKUTAT SD	289,940.88	322,795.58	348,461.62	351,927.90	369,894.52	333,993.57	317,528.13
265 - KAKE CITY SD	385,444.21	390,473.01	370,963.79	363,104.48	424,540.94	476,757.49	550,395.55
266 - CITY OF QUINHAGAK	22,331.32	17,308.77	-	-	-	-	-
267 - ALEUTIAN HOUSING AUTHORITY	977,552.70	1,090,686.46	1,258,320.89	1,020,809.85	1,265,561.21	1,278,569.33	1,340,755.78
270 - BERING STRAITS RHA	986,844.23	1,115,962.77	1,243,214.38	1,460,234.10	1,402,862.79	1,446,578.78	1,514,108.33
271 - CITY OF EGEGIK	73,331.20	74,995.20	78,753.60	80,006.40	83,340.80	90,009.60	99,179.20
275 - ILISAGVIK COLLEGE	4,562,286.11	4,574,780.26	4,503,878.82	4,788,179.60	5,322,056.84	5,490,169.81	5,246,774.61
276 - NORTH PACIFIC RIM HA	1,278,073.36	1,163,857.48	1,210,866.79	1,227,016.58	1,237,911.30	1,300,329.20	1,363,316.27
278 - SAXMAN SEAPORT	70,626.00	53,828.00	35,760.00	35,120.00	34,776.00	13,035.47	-
279 - TLINGIT-HAIDA RHA	2,811,633.01	3,029,223.76	3,193,852.70	3,403,961.66	3,823,364.23	3,343,921.98	3,237,584.41
280 - CITY OF TOKSOOK BAY	28,490.78	29,906.84	30,270.00	30,319.00	21,895.00	26,788.88	15,427.60
281 - BARANOF ISLAND HA	479,327.02	421,963.39	524,257.20	600,521.95	662,387.73	718,614.81	735,285.80
282 - CITY OF DELTA JUNCTION	239,451.89	291,449.59	318,778.10	290,001.97	245,355.95	297,297.43	301,857.72
283 - CITY OF ANDERSON	26,705.02	-	-	-	-	-	-
284 - INTER-ISLAND FERRY AUTHORITY	1,142,589.14	1,238,330.88	1,194,428.59	1,229,317.50	1,036,021.27	1,105,741.58	1,116,893.80
286 - CITY OF SELDOVIA	80,578.22	85,872.60	88,354.79	89,493.05	85,836.37	83,484.33	91,477.54
287 - CITY OF KOYUK	-	-	31,150.07	-	-	-	-

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PERS & TRS Gross Salaries - FY 2008 through FY 2014 Actuals

Employer Name	FY2008 Gross Salaries	FY2009 Gross Salaries	FY2010 Gross Salaries	FY2011 Gross Salaries	FY2012 Gross Salaries	FY2013 Gross Salaries	FY2014 Gross Salaries
288 - NORTHWEST INUPIAT HOUSING AUTHORIT	933,383.41	957,135.76	1,043,549.36	1,185,206.43	1,306,493.89	1,277,823.53	1,177,278.25
290 - CITY OF UPPER KALSKAG	29,622.25	29,555.64	30,899.74	27,882.13	29,229.62	32,779.92	32,103.50
291 - CITY OF SHAKTOOLIK	25,773.05	22,743.64	27,153.00	25,812.80	28,674.43	37,121.37	32,894.84
293 - TAGIUGMIULLU NUNAMIULLU HOUSING AU	1,401,028.97	1,509,960.28	1,400,824.66	1,462,632.65	1,343,762.79	1,302,103.63	1,318,586.75
296 - MUNICIPALITY OF SKAGWAY	1,821,085.83	2,592,564.05	2,888,986.67	2,929,586.13	3,030,075.95	3,166,306.07	3,430,006.44
297 - CITY OF NULATO	9,187.74	127,836.49	119,573.17	130,365.79	122,534.61	111,476.52	156,141.89
298 - CITY OF ANIAK	-	71,166.25	119,530.70	135,818.00	76,340.00	119,290.79	62,481.00
299 - ALASKA GASLINE DEVELOPMENT CORPOF	-	-	-	-	-	-	607,985.94
PERS Totals	**1,748,977,449.50**	**1,851,898,472.92**	**1,947,201,017.42**	**2,017,899,861.18**	**2,074,659,740.90**	**2,136,641,115.67**	**2,178,098,429.49**

Amounts are correct to the best of our knowledge at the time this was created. Historical salary records can change over time if employers submit correcting records.

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PERS & TRS Gross Salaries - FY 2008 through FY 2014 Actuals

Employer Name	FY2008 Gross Salaries	FY2009 Gross Salaries	FY2010 Gross Salaries	FY2011 Gross Salaries	FY2012 Gross Salaries	FY2013 Gross Salaries	FY2014 Gross Salaries
TRS Gross Salaries							
701 - ANCHORAGE SD	213,989,670.07	226,341,116.81	249,883,984.48	254,861,517.90	259,020,544.28	259,718,629.93	257,338,148.36
704 - CORDOVA CITY SD	2,098,793.40	2,106,980.27	2,318,648.84	2,293,841.39	2,291,954.06	2,235,253.91	1,997,867.19
705 - CRAIG CITY SD	2,588,076.62	2,663,643.73	2,769,088.09	2,186,676.26	2,440,701.20	2,216,922.45	2,261,551.35
706 - FAIRBANKS NORTH STAR BOROUGH SD	63,922,843.52	65,151,141.98	70,351,704.36	74,078,470.19	75,542,082.37	76,208,268.23	75,283,060.33
707 - HAINES BOROUGH SD	1,537,787.78	1,596,236.33	1,708,495.40	1,789,437.00	1,812,507.66	1,796,454.67	1,773,545.15
708 - HOONAH CITY SD	909,126.56	725,294.10	793,073.57	968,068.32	1,126,705.96	1,158,927.35	1,120,778.49
709 - HYDABURG CITY SD	631,788.36	479,416.23	467,565.64	483,781.40	526,075.42	466,709.00	557,804.95
710 - JUNEAU BOROUGH SD	24,171,324.10	25,577,585.61	27,311,109.17	29,209,405.94	29,205,664.94	28,225,796.53	27,833,356.76
712 - KAKE CITY SD	576,302.99	623,789.56	662,891.05	680,640.05	738,406.59	734,437.98	799,810.01
714 - KETCHIKAN GATEWAY BOROUGH SD	11,268,371.66	12,263,526.94	12,818,644.33	13,303,786.77	12,888,707.00	13,054,754.85	13,756,982.14
717 - KLAWOCK CITY SD	1,019,563.46	1,114,319.42	1,085,209.41	1,257,826.39	1,303,534.53	1,338,754.25	1,212,307.32
718 - KODIAK ISLAND BOROUGH SD	14,839,287.26	15,215,098.03	15,815,124.08	16,559,648.12	16,137,588.38	15,760,417.53	14,527,785.69
719 - NENANA CITY SD	1,601,855.33	1,860,880.43	1,873,362.68	1,814,208.71	1,957,929.06	1,985,533.32	1,908,022.81
720 - NOME CITY SD	3,638,428.43	3,750,260.59	3,792,508.91	4,097,020.43	4,183,271.02	4,506,511.95	4,820,474.13
722 - MATANUSKA-SUSITNA BOROUGH SD	69,051,672.77	74,364,632.25	80,096,963.04	85,010,388.50	82,408,506.92	85,814,699.79	88,806,900.50
723 - PELICAN CITY SD	121,099.96	124,510.96	121,165.96	125,680.96	134,267.86	66,006.10	63,070.00
724 - PETERSBURG CITY SD	2,894,270.69	3,014,801.99	3,148,648.66	3,145,305.10	2,935,290.02	3,098,654.65	3,244,619.30
727 - SITKA BOROUGH SD	8,223,006.77	8,248,822.66	8,424,251.91	8,451,757.41	8,495,844.99	8,860,571.81	9,119,046.95
728 - SKAGWAY CITY SD	770,945.17	769,286.96	777,008.27	646,662.92	683,923.36	656,774.52	730,303.32
729 - UNALASKA CITY SD	2,367,084.44	2,369,898.70	2,533,015.98	2,649,838.52	2,756,029.10	2,749,571.74	2,891,496.25
730 - VALDEZ CITY SD	4,457,558.24	4,360,005.57	4,562,433.16	4,740,475.39	4,705,379.89	4,838,625.64	4,540,515.72
731 - WRANGELL PUBLIC SD	1,783,535.51	1,766,665.41	1,808,194.98	1,978,937.46	2,121,624.48	1,978,074.62	2,019,041.08
732 - YAKUTAT SD	764,067.25	858,354.12	784,885.01	863,396.01	824,747.34	856,810.87	827,167.72
733 - UNIVERSITY OF ALASKA	44,881,428.09	45,765,860.59	46,022,362.06	45,083,050.27	44,524,664.31	41,688,561.91	40,430,283.33
735 - GALENA CITY SD	4,484,069.88	4,633,728.12	4,749,101.91	4,923,359.86	4,833,025.95	4,853,318.00	5,191,154.70
736 - NORTH SLOPE BOROUGH SD	12,197,791.24	15,179,251.55	17,048,889.37	15,233,630.99	17,239,838.63	16,839,336.05	16,986,170.08
737 - STATE OF ALASKA	4,972,727.36	4,864,903.64	5,097,602.79	5,387,925.07	6,059,619.58	5,834,565.26	5,919,825.33
742 - BRISTOL BAY BOROUGH SD	897,265.97	959,464.20	985,186.32	1,058,373.22	1,052,273.01	1,089,951.34	893,040.74
743 - SOUTHEAST REGIONAL RESOURCE CENT	603,776.78	656,990.58	760,789.29	804,484.03	652,432.88	642,377.70	597,954.72
744 - DILLINGHAM CITY SD	3,222,440.99	2,915,677.64	2,839,373.86	3,105,222.38	3,523,106.20	3,878,619.38	4,016,905.09
746 - KENAI PENINSULA BOROUGH SD	41,009,753.13	43,200,763.84	46,669,579.96	48,504,341.43	49,806,535.30	49,947,218.02	50,739,168.28
748 - SAINT MARY'S SD	850,390.84	897,588.58	963,907.44	1,073,375.24	1,035,459.18	1,047,301.59	1,106,069.92
751 - NORTHWEST ARCTIC BOROUGH SD	12,910,487.13	12,718,800.30	13,268,107.17	13,710,895.07	13,139,491.87	14,419,858.24	14,843,552.53
752 - BERING STRAIT SD	12,859,251.74	13,993,263.29	15,720,539.92	15,866,118.05	16,662,904.30	17,261,829.42	16,911,149.68
753 - LOWER YUKON SD	10,404,493.73	11,770,525.30	11,929,445.78	12,411,317.43	12,742,799.10	12,948,674.98	13,793,144.67
754 - LOWER KUSKOKWIM SD	24,325,590.13	26,315,393.29	27,131,166.41	28,238,365.35	28,138,477.87	28,520,698.92	28,601,530.84
755 - KUSPUK SD	2,904,324.86	2,962,838.62	2,819,446.15	2,955,277.01	2,989,994.94	2,837,424.11	2,651,918.98
756 - SOUTHWEST REGION SD	5,208,836.23	5,030,651.79	5,131,547.46	5,122,369.44	5,269,196.54	5,117,030.30	5,260,759.76
757 - LAKE AND PENINSULA BOROUGH SD	3,469,045.37	3,690,330.98	3,755,103.51	3,431,876.81	3,599,100.44	3,591,250.80	3,545,958.17
758 - ALEUTIAN REGION SD	422,057.61	407,897.28	357,841.02	328,478.50	344,967.66	403,545.96	445,344.30
759 - PRIBILOF SD	759,797.17	732,303.71	751,453.55	636,122.47	701,740.26	596,373.52	694,420.47
761 - IDITAROD AREA SD	1,749,904.01	1,622,167.25	1,674,762.38	1,350,275.62	1,334,818.27	1,708,936.35	1,758,156.05
762 - YUKON / KOYUKUK SD	3,838,992.20	3,714,173.52	4,386,241.81	4,439,545.23	4,322,903.14	4,803,992.45	4,773,287.69
763 - YUKON FLATS SD	2,306,932.96	2,352,524.24	2,568,313.11	2,672,869.38	2,793,975.06	2,577,162.12	2,516,197.25
764 - DENALI BOROUGH SD	1,973,607.85	1,959,597.33	1,658,970.31	1,842,551.59	1,764,407.02	2,093,591.43	1,954,140.69
765 - DELTA/GREELY SD	4,285,730.33	4,240,613.18	4,049,027.73	4,081,672.15	3,880,118.29	3,987,804.60	3,924,817.06
766 - ALASKA GATEWAY SD	2,259,446.25	2,292,799.07	2,434,442.34	2,628,901.29	2,741,505.97	2,846,639.87	2,844,808.29
767 - COPPER RIVER SD	2,643,942.70	2,684,120.56	2,787,132.02	2,688,889.90	2,636,145.97	2,541,825.05	2,346,338.50
768 - CHATHAM SD	1,350,036.00	1,088,278.99	1,235,516.66	1,160,691.94	1,198,031.65	1,289,245.95	1,224,838.83

Prepared by the Division of Retirement and Benefits

PERS & TRS Gross Salaries - FY 2008 through FY 2014 Actuals

Employer Name	FY2008 Gross Salaries	FY2009 Gross Salaries	FY2010 Gross Salaries	FY2011 Gross Salaries	FY2012 Gross Salaries	FY2013 Gross Salaries	FY2014 Gross Salaries
769 - SOUTHEAST ISLAND SD	1,549,761.02	1,547,628.79	1,436,994.66	1,586,654.58	1,606,069.05	1,798,503.41	2,068,007.12
770 - ANNETTE ISLAND SD	1,877,948.85	2,209,204.20	2,246,774.05	2,235,257.82	2,233,346.65	2,380,438.90	2,111,081.18
771 - CHUGACH SD	1,207,963.37	1,307,921.51	1,451,695.57	1,435,805.56	1,461,910.98	1,452,778.32	1,362,826.34
775 - TANANA SD	274,662.78	337,094.49	342,853.75	334,392.36	272,806.16	326,936.03	385,161.70
777 - KASHUNAMIUT SD	1,878,519.70	1,933,540.00	1,773,982.04	1,760,286.70	1,598,683.04	1,482,288.90	1,692,031.28
778 - YUPIIT SD	2,856,034.13	3,067,866.76	3,321,026.98	3,675,863.68	3,867,189.52	3,886,205.67	3,155,764.92
779 - SPECIAL EDUCATION SERVICE AGENCY	1,144,328.64	1,150,797.69	1,354,761.81	1,352,476.71	1,217,317.36	1,219,086.20	956,566.01
780 - ALEUTIANS EAST BOROUGH SD	2,289,163.92	2,456,183.15	2,444,328.73	2,397,864.84	2,472,179.21	2,385,240.59	2,359,957.34
TRS Totals	**653,096,963.30**	**686,007,012.68**	**735,076,244.90**	**754,715,353.11**	**761,958,321.79**	**766,625,773.03**	**765,495,987.36**
PERS & TRS Combined Totals	**2,402,074,412.80**	**2,537,905,485.60**	**2,682,277,262.32**	**2,772,615,214.29**	**2,836,618,062.69**	**2,903,266,888.70**	**2,943,594,416.85**

Amounts are correct to the best of our knowledge at the time this was created. Historical salary records can change over time if employers submit correcting records.

Prepared by the Division of Retirement and Benefits

Alaska Retirement Management Board
2015 Meeting Calendar

February 11 – Wednesday	Committee Meetings: Audit Legislative
February 12-13 Thursday-Friday Juneau	*Review Capital Market Assumptions *Manager Presentations
April 22 – Wednesday	Committee Meetings: Legislative
April 23-24 Thursday-Friday Anchorage	*Adopt Asset Allocation *Performance Measurement – 4th Quarter *Buck Consulting Actuary Report *GRS Actuary Certification *Review Private Equity Annual Plan *Manager Presentations
June 17 – Wednesday	Committee Meetings: Audit
June 18-19 Thursday-Friday Anchorage	*Final Actuary Report/Adopt Valuation/Contribution Rates *Performance Measurement – 1st Quarter *Manager Presentations
September 23 – Wednesday	Committee Meetings: Audit Budget Real Assets Salary Review
September 24-25 Thursday-Friday Fairbanks	*Audit Results/Assets – KPMG *Approve Budget *Performance Measurement – 2nd Quarter *Real Estate Annual Plan *Real Estate Evaluation – Townsend Group *Manager Presentations
October _____ New York City	Education Conference
October ___	Audit Committee
December 2 – Wednesday	Committee Meetings: Audit Legislative
December 3-4 Thursday-Friday Anchorage	Audit Report - KPMG Performance Measurement – 3rd Quarter Manager Review (Questionnaire) Private Equity Review *Manager Presentations

ALASKA RETIREMENT MANAGEMENT BOARD
M E M O R A N D U M

To: ARMB Trustees
From: Judy Hall
Date: December 5, 2014
Subject: Financial Disclosures

As required by AS 37.10.230 and Alaska Retirement Management Board policy relating to investment conduct and reporting, trustees and staff must disclose certain financial interests. We are hereby submitting to you a list of disclosures for individual transactions made by trustees and staff.

Name	Position Title	Disclosure Type	Disclosure Date
Victor Djajalie	Investment Officer	Equities	11/4/14
Scott Jones	Comptroller	Equities	11/6/14
Nicholas Orr	Investment Officer	Equities	9/9/14