Agenda

ND Teachers' Fund for Retirement Board Meeting

Thursday, July 23, 2015
10:00 am
Peace Garden Room
State Capitol, Bismarck, ND

1. Call to Order and Approval of Agenda – Pres. Gessner (Board action)

2. Approval of Minutes of April 30, 2015 Meeting – Pres. Gessner (Board action) 5 min

3. Trustee Re-appointment – Pres. Gessner (Information) 5 min

4. Election of 2015-16 Officers – Pres. Gessner (Board action) 5 min

5. Asset Liability Study - Oral Presentations (Information) 120 min
   10:15 Segal Rogerscasey – Kim Nicholl, Dan Westerheide, Dave Palmerino
   11:15 Callan Associates - Jay Kloepfer, Julia Moriarty

LUNCH BREAK

6. Quarterly Investment Update – Dave Hunter (Information) 15 min

7. Asset Liability Study Discussion – Fay Kopp, Dave Hunter (Board Action) 30 min

8. SIB pension governance presentation – Fay Kopp, Dave Hunter (Information) 10 min

9. RIO Budget – Fay Kopp, Jan Murtha (Information) 15 min

10. Experience Study Implementation – Fay Kopp, Shelly Schumacher (Information) 15 min

11. U.S. Supreme Ct Ruling – Same Sex Marriage – Fay Kopp, Jan Murtha (Information) 15 min

12. Quarterly Audit Services Update – Terra Miller Bowley (Information) 15 min

13. Annual TFFR Program Review – Pres. Gessner, Fay Kopp (Board Action) 30 min

14. Annual TFFR Customer Satisfaction Reports – Pres. Gessner, Fay Kopp (Board action) 15 min

15. Trustee Education – Fay Kopp (Information) 5 min

16. Consent Agenda (Board action) 5 min
    - Disability and QDRO applications

    *Executive Session possible if Board discusses confidential information under NDCC 15-39.1-30.

17. Other Business

18. Adjournment

Next Board Meeting: Special – July 24, 2015 (SIB pension governance presentation)
Regular – September 24, 2015

Any person who requires an auxiliary aid or service should contact the Deputy Executive Director of the Retirement and Investment Office at 701-328-9885 at least three (3) days before the scheduled meeting.

NORTH DAKOTA TEACHERS' FUND FOR RETIREMENT
MINUTES OF THE
APRIL 30, 2015, BOARD MEETING

BOARD MEMBERS PRESENT:	Mike Gessner, President Mike Burton, Trustee Kim Franz, Trustee Rob Lech, Trustee (video conference) Mel Olson, Trustee Kelly Schmidt, State Treasurer
ABSENT:	Kirsten Baesler, State Superintendent
STAFF PRESENT:	Terra Miller Bowley, Audit Services Supervisor David Hunter, ED/CIO Fay Kopp, Deputy ED/CRO Darlene Roppel, Retirement Assistant Shelly Schumacher, Retirement Program Manager
OTHERS PRESENT:	Clarence Corneil Jan Corneil Tanya Dybal, Segal Janilyn Murtha, Attorney General's Office Kim Nicholl, Segal Matthew Strom, Segal Ken Tupa, NDRTA

CALL TO ORDER:

Mr. Mike Gessner, President of the Teachers' Fund for Retirement (TFFR) Board of Trustees, called the board meeting to order at 1:30 p.m. on Thursday, April 30, 2015, at Workforce Safety & Insurance Office (WSI), 1600 E Century Avenue, Bismarck, ND.

THE FOLLOWING MEMBERS WERE PRESENT REPRESENTING A QUORUM: MR. BURTON, MRS. FRANZ, MR. GESSNER, MR. LECH, MR. OLSON, AND TREASURER SCHMIDT.

Supt. Baesler was absent.

APPROVAL OF AGENDA:

The Board considered the meeting agenda.

MRS. FRANZ MOVED AND MR. BURTON SECONDED TO APPROVE THE AGENDA AS PRESENTED.

AYES: TREASURER SCHMIDT, MR. BURTON, MR. LECH, MRS. FRANZ, MR. OLSON, AND PRESIDENT GESSNER
NAYS: NONE
MOTION CARRIED.
ABSENT: SUPT. BAESLER

MINUTES:

The board considered the minutes of the TFFR board meeting held March 26, 2015.

MRS. FRANZ MOVED AND MR. BURTON SECONDED TO APPROVE THE MINUTES OF THE TFFR BOARD MEETING HELD MARCH 26, 2015.

AYES: MR. LECH, MR. OLSON, TREASURER SCHMIDT, MR. BURTON, MRS. FRANZ, AND PRESIDENT GESSNER
NAYS: NONE
MOTION CARRIED.
ABSENT: SUPT. BAESLER

ACTUARIAL EXPERIENCE STUDY:

Ms. Kim Nicholl, Mr. Matt Strom and Ms. Tanya Dybal, Segal Consulting, presented the TFFR Actuarial Experience Study which covers the period July 1, 2009 to June 30, 2014. A copy of the report is on file at the Retirement and Investment Office (RIO).

An experience study is done every five years as required by North Dakota state statutes. Economic and demographic information from past experience ("actual") and assumptions ("expected") is compared. It also includes recommendations for modifying certain actuarial assumptions and the actuarial impact of those recommendations on TFFR. Based on the experience study results, the actuary made the following recommendations:

1. Inflation-lower from 3.00% to 2.75%.
2. Productivity-leave at 1.50%.
3. Payroll growth-leave at 3.25% and maintain the conservative approach.
4. Salary scale-No change to merit rates. Total rates decreased by 0.25% due to lower recommended inflation.
5. Investment return-Reduce from 8.00% to 7.75%.
6. Administrative expense-explicit load to normal cost equal to prior year administrative expenses plus inflation.
7. Turnover-lower rates for members with less than 15 years of service and for males with 20 or more years of service.
8. Disability-No change.
9. Active retirement-Unisex, increased rates for members retiring early with reduced benefits; lower rates at younger ages for members retiring with unreduced benefits; increased rates for females around age 65. No change to the 10% rate increase in the first year that members become eligible for unreduced benefits.
10. Inactive retirements-5% at early retirement ages and 100% at normal retirement age.
11. Healthy mortality -- RP-2014 Healthy Annuitant table set back one year, multiplied by 50% for ages under 75 and grading up to 100% by age 80. The MP-2014 improvement scale is applied.

12. Disabled mortality -- RP-2014 Disabled Mortality table set forward four years.
13. Active mortality -- RP-2014 Employee Mortality table with generational mortality improvement using scale MP-2014.
14. Spouse information-No changes.

The cost impact the recommended assumption changes would have on the fund was reviewed. Based on the July 1, 2014 actuarial valuation, the actuarial accrued liability would increase by $155.7 million from $3,138.8 million to $3,294.5 million. The unfunded actuarial accrued liability would also increase by $155.7 million from $1,198.3 million to $1,354.0 million. TFFR's funded ratio would decrease by 2.9% from 61.8% to 58.9%. The plan's normal cost would increase by $5.0 million from $63.0 million to $68.0 million. The actuarial determined contribution rate would increase by 2.18% from 11.57% to 13.75%. The effective amortization period would increase by 10 years from 24 years to 34 years. Projections of future funding levels were also reviewed comparing current assumptions with recommended demographic assumptions only, and all recommended demographic and economic assumptions.

After lengthy board discussion of the inflation, payroll growth, salary increase, investment return and mortality assumptions, as well as other findings, recommendations, and concerns,

MR. OLSON MOVED AND MR. BURTON SECONDED TO ADOPT THE SEGAL RECOMMENDATIONS AS DESCRIBED IN THE 2014 ACTUARIAL EXPERIENCE STUDY REPORT.

AYES: MRS. FRANZ, MR. OLSON, MR. BURTON, AND PRESIDENT GESSNER
NAYS: TREASURER SCHMIDT AND MR. LECH
MOTION CARRIED.
ABSENT: SUPT. BAESLER

RESOLUTION FOR CLARENCE CORNEIL:

President Gessner recognized Mr. Corneil for his 12 years of distinguished service on the TFFR board from 2002 to 2014, and also on the State Investment Board (SIB). He read the following resolution:

ND TFFR Board Resolution in Appreciation of Clarence Corneil

WHEREAS, Mr. Clarence Corneil served as trustee of the ND Teachers' Fund for Retirement Board representing retired members with distinction for 12 years, from 2002 to 2014; and

WHEREAS, Mr. Corneil also honorably served as trustee and parliamentarian of the ND State Investment Board representing TFFR members during his tenure; and

WHEREAS, Mr. Corneil dedicated his professional career to the ND education community in a career spanning nearly four decades having worked as a teacher and principal in Dickinson and Dickinson area schools until his retirement in 1997; and

WHEREAS, Mr. Corneil has been actively involved in numerous professional, civic, community, church, and state activities and associations; and

WHEREAS, Mr. Corneil has been a passionate defender of defined benefit plans and their ability to provide retirement security, and has been dedicated to protecting the interests of the pension system and its active and retired members; and

WHEREAS, Mr. Corneil provided steadfast leadership on pension issues, and supported efforts to strengthen TFFR's funding structure, prudently invest fund assets, and safeguard its financial integrity; and

WHEREAS, Mr. Corneil has distinguished himself as a knowledgeable and experienced trustee whose commitment to integrity and excellence have earned him the respect of those who have worked with him; now therefore, be it

RESOLVED, that the TFFR Board express its heartfelt thanks to Mr. Corneil for his dedicated and compassionate service to the Board, and for his positive leadership and unwavering support of educators, students, and citizens of North Dakota leaving a legacy of trust and caring for others; and be it further

RESOLVED, that the Board wishes Clarence Corneil, and his wife, Jan, good health and happiness in their retirement; and be it further

RESOLVED, that a copy of this Resolution be presented to Mr. Corneil, printed in the official TFFR Board minutes, and submitted to the National Council on Teacher Retirement, on behalf of the many lives he has so positively touched.

DATED this 30th day of April, 2015

TREASURER SCHMIDT MOVED AND MRS. FRANZ SECONDED TO APPROVE THE RESOLUTION HONORING MR. CORNEIL.

AYES: MRS. FRANZ, MR. BURTON, MR. LECH, MR. OLSON, TREASURER SCHMIDT, AND PRESIDENT GESSNER.
NAYS: NONE
MOTION CARRIED.
ABSENT: SUPT. BAESLER

On behalf of the board and staff, President Gessner presented Mr. Corneil with a retirement gift. Mr. Corneil commented on his tenure with the board.

The board recessed at 3:15 p.m. for cake and coffee in Mr. Corneil's honor.

The board reconvened at 3:35 p.m.

2015 LEGISLATIVE REPORT:

Mrs. Fay Kopp, Deputy Executive Director/Chief Retirement Officer, gave an overview of the Legislative session as it applied to TFFR. As reported earlier, TFFR's technical corrections bill, HB 1064, was approved and signed by the Governor. RIO's budget bill, SB 2022, was not approved before the 2015 Legislature adjourned. Therefore, RIO and PERS are consulting with the Attorney General's Office on how this may affect agency operations and what actions need to be taken.

ASSET LIABILITY STUDY PLANNING:

Mrs. Kopp explained the next study the TFFR Board will be conducting is the Asset Liability Study (ALS). The purpose of the study is to identify the optimal distribution of TFFR funds among the various asset classes that offers the highest probability of consistently achieving investment objectives within the confines of a predetermined level of risk. This study must be done every five years. Callan and Associates conducted the last study. After discussion of several options,

MRS. FRANZ MOVED AND TREASURER SCHMIDT SECONDED TO REQUEST PRESENTATIONS AND COST PROPOSALS FOR AN ASSET LIABILITY STUDY FROM CALLAN AND SEGAL ROGERSCASEY TO BE PRESENTED AT THE JULY 23, 2015, TFFR BOARD MEETING WITH THE BOARD MAKING THE SELECTION BASED ON THE PRESENTATIONS AND PROPOSALS.

AYES: MR. OLSON, MR. LECH, MRS. FRANZ, TREASURER SCHMIDT, MR. BURTON, AND PRESIDENT GESSNER.
NAYS: NONE
MOTION CARRIED.
ABSENT: SUPT. BAESLER

GASB UPDATE:

Mrs. Shelly Schumacher, Retirement Program Manager, reported CliftonLarsonAllen (CLA) completed the audit of the GASB schedules, and has finalized their Independent Audit Report dated April 10, 2015, on the Schedule of Employer Allocations and Schedule of Pension Amounts by Employer. These will now be published on the RIO website so they are available to employers.

Mrs. Schumacher will also be attending four business manager workshops throughout the state May 5-8, 2015, where she will present training on the GASB requirements.

GASB talking points will also be added to the RIO website to assist TFFR staff, employers, and others in communicating the pension standards.

2015-16 BOARD CALENDAR AND EDUCATION PLAN:

Mrs. Kopp reviewed the proposed 2015-16 board calendar and education plan. Six meetings have been scheduled for the year, but additional board meetings may be called if needed.

TREASURER SCHMIDT MOVED AND MR. OLSON SECONDED TO APPROVE THE 2015-16 BOARD CALENDAR AND EDUCATION PLAN.

AYES: MR. BURTON, MRS. FRANZ, MR. OLSON, TREASURER SCHMIDT, MR. LECH, AND PRESIDENT GESSNER.
NAYS: NONE
MOTION CARRIED.
ABSENT: SUPT. BAESLER

CONSENT AGENDA:

MRS. FRANZ MOVED AND TREASURER SCHMIDT SECONDED TO APPROVE THE CONSENT AGENDA WHICH INCLUDES ONE QUALIFIED DOMESTIC RELATIONS ORDER (QDRO): 2015-2Q.

AYES: MRS. FRANZ, MR. LECH, TREASURER SCHMIDT, MR. BURTON, MR. OLSON, AND PRESIDENT GESSNER.
NAYS: NONE
MOTION CARRIED.
ABSENT: SUPT. BAESLER

OTHER BUSINESS:

The next board meeting will be held July 23, 2015, at the State Capitol. The meeting may be scheduled to begin at 10 a.m. for asset liability study presentations.

ADJOURNMENT:

With no further business to come before the Board, President Gessner adjourned the meeting at 4:12 p.m.

Respectfully Submitted:

_____
Mr. Mike Gessner, President
Teachers' Fund for Retirement Board

_____
Darlene Roppel
Reporting Secretary

MEMORANDUM

TO: **TFFR Board**

FROM: **Fay Kopp**

DATE: **July 16, 2015**

SUBJ: **Trustee Appointment**

I am pleased to inform the Board that Governor Dalrymple has re-appointed Rob Lech to continue serving on the TFFR Board for another 5-year term (July 1, 2015 – June 30, 2020). Rob has been on the board since 2013 and represents active school administrators. He is currently Vice President of the TFFR Board, and also serves on the SIB representing TFFR.

Many thanks to Rob for accepting this appointment. Rob's leadership, dedication and efforts on behalf of active and retired TFFR members is greatly appreciated.

MEMORANDUM

TO: TFFR Board
FROM: Fay Kopp
DATE: July 16, 2015
SUBJ: Election of Officers

The TFFR Board is required by state law to elect officers at the first meeting of each fiscal year. Current board assignments are attached. For the 2015-16 year, the Board will need to elect the positions of President and Vice President. The Board should also select trustees to represent TFFR on the State Investment Board (one active administrator, one active teacher, one retired member); the SIB Audit Committee (one SIB member); and an SIB alternate (one non SIB member). The State Treasurer is required by virtue of her position to serve on the State Investment Board, so that is not subject to Board assignment.

Statutory references are included below for your information.

Teachers' Fund for Retirement (TFFR)

15-39.1-05.1. Board composition - Terms - Voting.

1. The authority to set policy for the fund rests in a board of trustees composed as follows:

a. The governor shall appoint, from a list of three nominees submitted to the governor by the North Dakota education association, two board members who are actively employed in full-time positions not classified as school administrators. A board member appointed under this subdivision who terminates employment may not continue to serve as a member of the board.

b. The governor shall appoint, from a list of three nominees submitted to the governor by the North Dakota council of educational leaders, one board member who is actively employed as a full-time school administrator. A board member appointed under this subdivision who terminates employment may not continue to serve as a member of the board.

c. The governor shall appoint, from a list of three nominees submitted to the governor by the North Dakota retired teachers association, two board members who are the retired members of the fund.

d. The state treasurer and the superintendent of public instruction.

2. All current appointees of the board shall serve the remainder of their terms as members of the board until their terms expire and their successors are appointed. The first newly appointed board member under subdivision a of subsection 1 must be appointed to serve an initial term of four years. The first newly appointed board member under subdivision c of subsection 1 must be elected to serve an initial term of five years. Newly appointed board members shall serve a term of five years. Each newly appointed term begins on July first.

3. Each board member is entitled to one vote, and four members constitute a quorum. Four votes are required for resolution or action by the board.

15-39.1-06. Organization of board.

The board may hold meetings as necessary for the transaction of business and a meeting may be called by the president or any two members of the board upon reasonable notice to the other members of the board. The president for the ensuing year must be elected at the first meeting following July first of each year.

15-39.1-07. Vacancies - Rulemaking power.

Vacancies which may occur among the appointed members of the board must be filled by the governor and the appointee shall complete the term for which the original member was selected. The board may adopt such rules as may be necessary to fulfill the responsibilities of the board.

15-39.1-08. Compensation of members.

Members of the board, excluding ex officio members, are entitled to receive one hundred forty-eight dollars as compensation per day and necessary mileage and travel expenses as provided in sections 44-08-04 and 54-06-09 for attending meetings of the board. No member of the board may lose regular salary, vacation pay, vacation or any personal leave, or be denied right of attendance by the state or political subdivision thereof while serving on official business of the fund.

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State Investment Board
21-10-01. State investment board - Membership - Term - Compensation

1. The North Dakota state investment board consists of the governor, the state treasurer, the commissioner of university and school lands, the director of workforce safety and insurance, the insurance commissioner, three members of the teachers' fund for retirement board or the board's designees who need not be members of the fund as selected by that board, two of the elected members of the public employees retirement system board as selected by that board, and one member of the public employees retirement system board as selected by that board. The director of workforce safety and insurance may appoint a designee, subject to approval by the workforce safety and insurance board of directors, to attend the meetings, participate, and vote when the director is unable to attend. The teachers' fund for retirement board may appoint an alternate designee with full voting privileges to attend meetings of the state investment board when a selected member is unable to attend. The public employees retirement system board may appoint an alternate designee with full voting privileges from the public employees retirement system board to attend meetings of the state investment board when a selected member is unable to attend. The members of the state investment board, except elected and appointed officials and the director of workforce safety and insurance or the director's designee, are entitled to receive as compensation one hundred forty-eight dollars per day and necessary mileage and travel expenses as provided in sections 44-08-04 and 54-06-09 for attending meetings of the state investment board.

Enclosure

TFFR Board

2014 - 2015 Assignments

Officers of the board

- ❑ President Mike Gessner
- ❑ Vice President Rob Lech

Board members serving on the SIB

- ❑ Mike Gessner
- ❑ Rob Lech
- ❑ Mel Olson
- ❑ State Treasurer Schmidt (ex-officio)

SIB Audit Committee

- ❑ Mike Gessner

SIB alternate

- ❑ Kim Franz

MEMORANDUM

TO: **TFFR Board**

FROM: **Fay Kopp**

DATE: **July 16, 2015**

SUBJ: **Asset Liability Study**

As you know, state law (NDCC 15-39.1-05.2) requires the TFFR Board to establish investment policy for the TFFR trust fund which includes acceptable rates of return, liquidity, levels of risk, and long-range asset allocation targets. State statutes (NDCC 21-10-02.1) also require the governing body of each fund (TFFR) to use the staff and consultants of the Retirement and Investment Office in developing asset allocation and investment policies.

At the April 30, 2015 TFFR meeting, the Board decided to request presentations and cost proposals from Segal (TFFR/RIO actuarial consultant) and Callan (SIB/RIO investment consultant) to conduct TFFR's Asset Liability Study.

Each firm was contacted and invited to submit a proposal by June 30, 2015. The proposal should include an overview of the asset liability study, process used to conduct the study, schedule and deliverables, experience and qualifications, cost of study (fixed fee for study plus travel expenses reimbursed upon approval), and any other information the firms believe would be beneficial for the Board. Proposals received from both Segal and Callan are included in your board packet for your review.

Representatives from each firm will present their proposals at the July 23 TFFR board meeting. Each presentation should be about 30-45 minutes with 15 minutes for Q & A (maximum of one hour per presenter).

The presentations and proposals will be discussed by the Board and staff during the afternoon session of the board meeting.

Attachments

North Dakota Teachers' Fund for Retirement

Presentation for Asset Liability Modeling Consulting Services

July 23, 2015

Segal Rogerscasey

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Presenting Today

Segal Rogerscasey

Daniel F Westerheide
Senior Vice President
Asset Liability Modeling Practice Leader
dwesterheide@segalrc.com
T 617.424.7327
www.segalrc.com

Segal Rogerscasey

David Palmerino, FSA, CFA
Vice President
dpalmerino@segalrc.com
T 212.251.5428
www.segalrc.com

Segal Consulting

Kim Nicholl, FSA
Senior Vice President
National Public Sector Retirement Practice Leader
knicholl@segalco.com
T 312.984.8527
www.segalco.com

Introduction – *Our Consulting Structure*

- Independent, employee-owned
- 45+ years of investment consulting experience
- More than 300 clients representing over $400 billion in assets
- Diverse employee base with dedicated research and consulting teams
- Unbiased advice
- Rigorous quality control processes
- Fundamental and strategic research process
- Full service investment consulting firm
- Founding member of the Global Investment Research Alliance

The Segal Group, Inc.

CEO and Senior Management Team

Segal Consulting

Strategic HR and Benefits Consulting for:

- Multiemployer Funds
- Public Sector and Government Entities

Sibson Consulting

Strategic HR and Benefits Consulting for:

- Public and Private Corporations
- Not-for-Profit Organizations
- Sports Leagues
- Higher Education Institutions

Segal Select Insurance

Insurance Brokerage Consulting Services for:

- Multiemployer Funds
- Public Sector and Government Entities

Segal Rogerscasey

Investment Consulting Services for:

- Public, Private and Multiemployer Plans
- Foundations and Endowments
- Financial Services Firms and Institutional Asset Owners

PRACTICES

Defined Contribution Consulting:

Defined Contribution Investment Consulting

Defined Contribution Vendor Searches

Defined Contribution Research

Investment Consulting:

Asset Allocation and Investment Strategies

Asset/Liability Modeling

Manager Searches

Performance Measurement

Alternative Investment Research

Implemented Investment Solutions:

Fiduciary Services

Model Portfolios

MasterManager℠

Strategy-Specific Hedge Fund Portfolios

Retire Funds

Specialty Funds

Advisor Solutions *(provided by Rogerscasey, A Division of Segal Advisors)*

RESEARCH

Beta Research | Alpha Research | Global Portfolio Solutions

REGIONS/OFFICES

United States

Atlanta, Boston, Cleveland, Darien, Los Angeles, New York

Canada

Toronto*

Ireland

Dublin

*Segal Rogerscasey Canada

Introduction – *Our Numbers in a Snapshot*

45 years of serving clients	**100%** employee-owned and independent	**300+** clients across a diverse client base
~30 Public Sector pension investment clients	**16.5b** dollars of assets under management	**10** ALM studies completed in past three years
100+ employees in 4 U.S. regions & Canada	**30+** person research team	**1** dedicated firm

Services – *Traditional Solutions*

Traditional Investment Consulting Services		
Asset/Liability Analysis • Discuss capital markets • Construct the liability model • Asset Allocation • Select candidate portfolios • Prepare asset/liability simulations • Analyze results and recommend asset allocation	***Asset Allocation, Investment Structure Design, and Policy*** • Confirm objectives and risk parameters • Conduct efficient frontier modeling • Determine specific asset allocation targets/ranges • Spending policy analysis • Determine risk tolerance • Establish active/passive mix • Determine types and numbers of managers • Identify appropriate benchmarks	***Investment Manager Evaluation and Selection*** • Establish selection criteria • Evaluate existing managers • Identify candidates • Provide quantitative/qualitative data on managers • Intensive review of finalists • Retain and transition managers and establish manager guidelines • Provide transaction cost analysis • Negotiate fees
Performance Reporting, Analysis, and Manager Monitoring • Monthly and quarterly reporting • Assess performance against peers and benchmarks • Provide risk analysis • Present capital markets review • Provide insight into manager skill through performance attribution and risk decomposition analysis • Benchmark manager to analyze style	***Non-Traditional Investments*** • Structure investments in non-traditional asset classes including private equity, hedge funds, and hard assets such as timber and real estate • Evaluate appropriate vehicles, strategies, and styles in each area • Perform business due diligence • Provide investment process due diligence • Quarterly reporting and analysis • Ongoing monitoring	***Ongoing Program Monitoring and Consulting*** • Respond to questions and issues raised by staff and board • Identify opportunities for consideration by board • Provide independent research opinions and papers • Provide continuous monitoring of managers and overall program

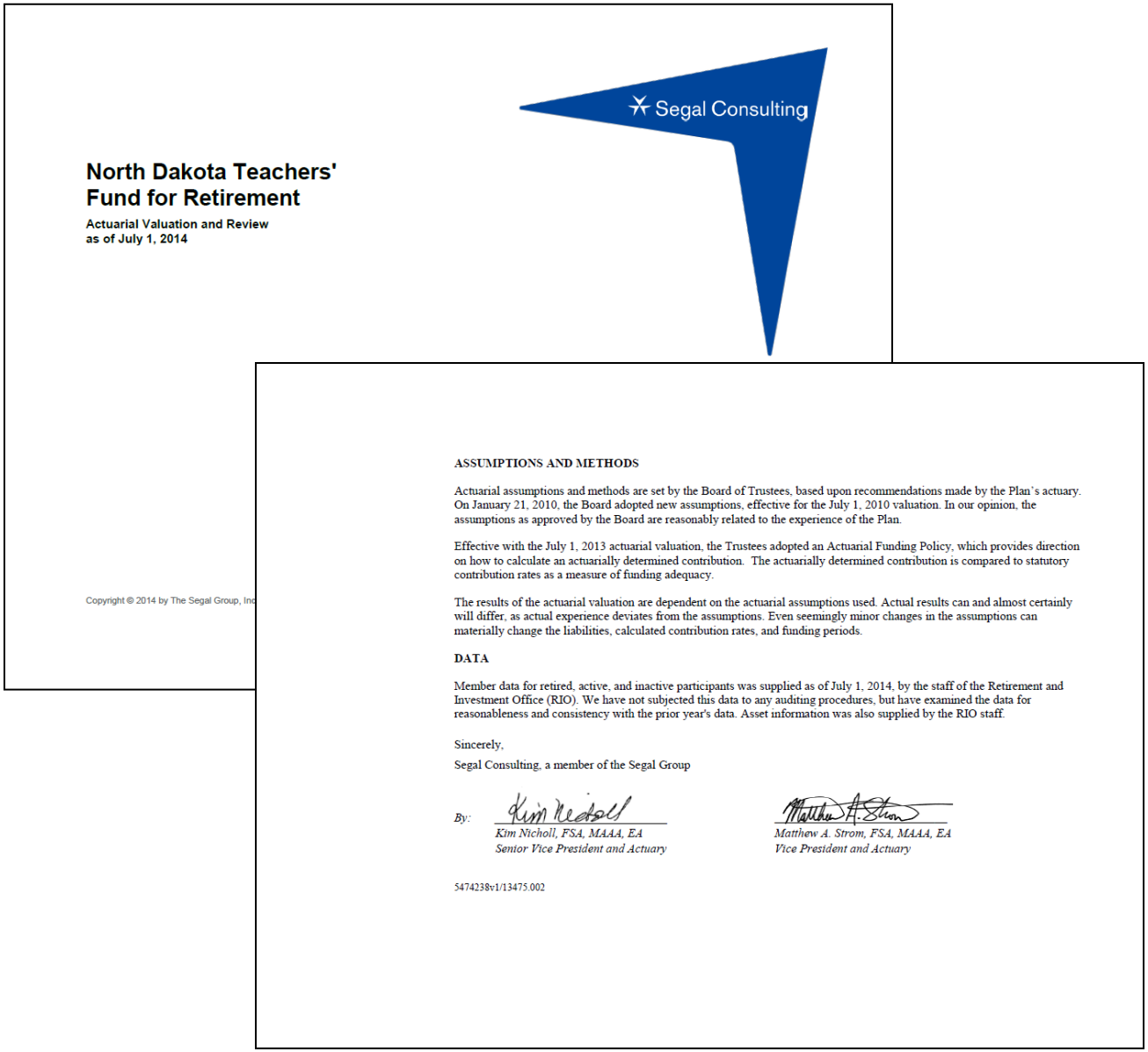
Introduction – *Our Statement of Core Values*

- We begin with a premise that the primary goal of any pension fund is to reliably provide the promised benefits to its members
- We believe the best way to achieve this goal is to operate with cohesive, well-articulated, and integrated benefits, funding, and investment philosophies
- We understand that investment risk is a necessary part of pension plan sponsorship but plan sponsors should only take as much risk as necessary to achieve plan objectives, and we are expert in its quantification and management
- We think that all risk taken within the pension plan should be compensated
  - We think a lot about the risk factors inherent in the liability structure when considering which asset classes may be suitable for investment allocation
- We have experience designing, implementing, and quantifying the impact of innovative risk management techniques
- We are committed to operating as an independent consulting firm, and we develop and maintain our models in-house

A winning team committed to excellence for our people and clients

Liability Modeling

Liability Modeling



Segal Consulting

North Dakota Teachers' Fund for Retirement

Actuarial Valuation and Review as of July 1, 2014

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ASSUMPTIONS AND METHODS

Actuarial assumptions and methods are set by the Board of Trustees, based upon recommendations made by the Plan's actuary. On January 21, 2010, the Board adopted new assumptions, effective for the July 1, 2010 valuation. In our opinion, the assumptions as approved by the Board are reasonably related to the experience of the Plan.

Effective with the July 1, 2013 actuarial valuation, the Trustees adopted an Actuarial Funding Policy, which provides direction on how to calculate an actuarially determined contribution. The actuarially determined contribution is compared to statutory contribution rates as a measure of funding adequacy.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates, and funding periods.

DATA

Member data for retired, active, and inactive participants was supplied as of July 1, 2014, by the staff of the Retirement and Investment Office (RIO). We have not subjected this data to any auditing procedures, but have examined the data for reasonableness and consistency with the prior year's data. Asset information was also supplied by the RIO staff.

Sincerely,

Segal Consulting, a member of the Segal Group

By: *Kim Nicholl, FSA, MAAA, EA*
Senior Vice President and Actuary

Matthew A. Strom, FSA, MAAA, EA
Vice President and Actuary

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- Segal has served as the Fund's actuary since 2011
- Gives us insight and unparalleled expertise regarding the Fund's liability structure
- We understand the funding methodology, assumptions, and items of interest to the Board
- Allows us to operate seamlessly between our liability model and capital markets simulation model

Liability Modeling

- The member census and plan provision used in the July 1, 2015 actuarial valuation will be the basis for the liability model
- We project the benefit payments that will come out of the fund every year – discounting these projected benefit payments at the plans expected return assumption allows us to calculate liability values
- Open group modeling required assumptions regarding future new entrants
- Pay-related plans require assumptions regarding how the projection of future salaries may be impacted by future inflation (*e.g.,* low inflation periods may be accompanied by lower than normal pay increases)
- The plan does not offer automatic COLA and there is limited appetite for future ad-hoc COLA, so the role of inflation-linked securities as a hedging asset are limited to the role of inflation is setting the salary scale assumption
- Once the liabilities and normal costs are calculated the model calculates a whole host of valuation-type metrics at future valuation years (*e.g.,* actuarially determined contribution)

Current Asset/Liability Position

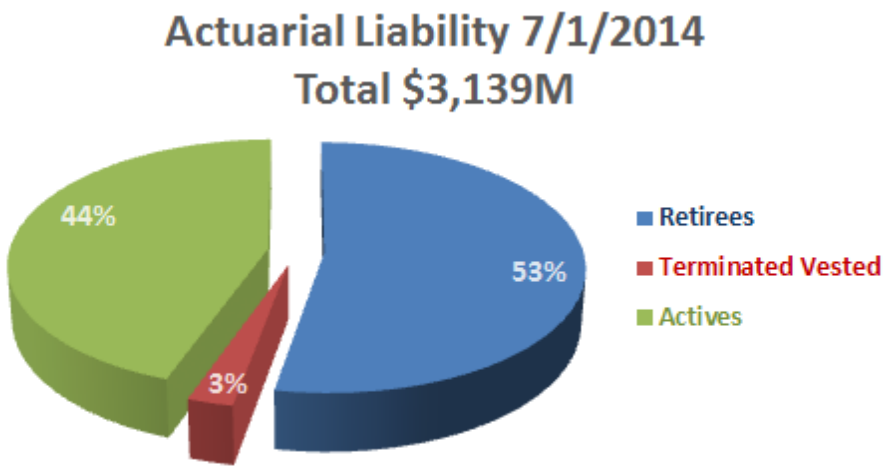
- The most recently completed valuation is July 1, 2014 – some key metrics below
- Note: the valuation of July 1, 2015 will incorporate a number of assumption changes based on the recently completed assumption study, notably the discount rate will change to 7.75%

Plan Membership at July 1, 2014	Number	Avg Age
Retirees and beneficiaries	7,747	71.0
Inactive vested members	1,509	49.6
Inactive non-vested members	661	38.3
Active members	10,305	42.9

Liability Data	2014	2013
Discount rate	8.00%	8.00%
Accrued liability	3,138,799,773	2,997,139,087
Normal cost	62,980,534	56,751,722
Normal cost rate	10.63%	10.15%
Benefit payments (yr prior)	158,350,355	145,943,323
GASB discount rate	8.00%	8.00%

Asset/Liability Data	2014	2013
Actuarial value assets	1,940,473,504	1,762,321,644
Market value assets	2,090,977,056	1,839,583,960
MV funded ratio	66.6%	61.4%
Actuarially determined contribution	11.57%	10.26%
Actual contribution rate	12.75%	10.75%
GASB deficit	1,047,822,717	1,157,555,127

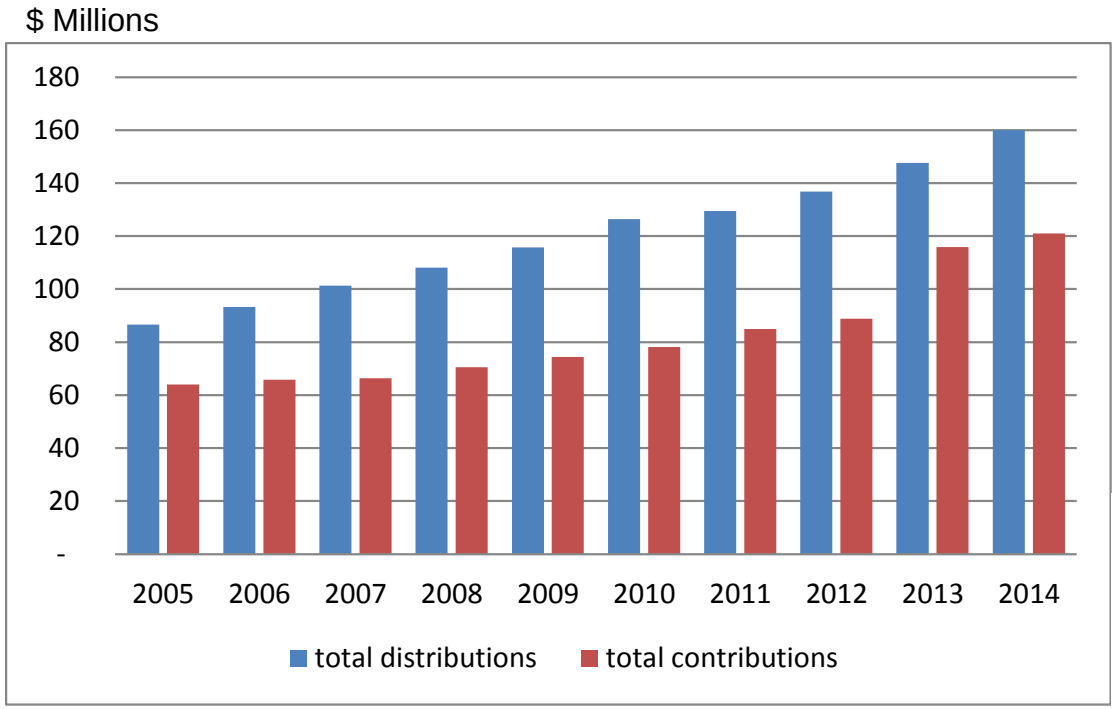
Maturity Profile of the System



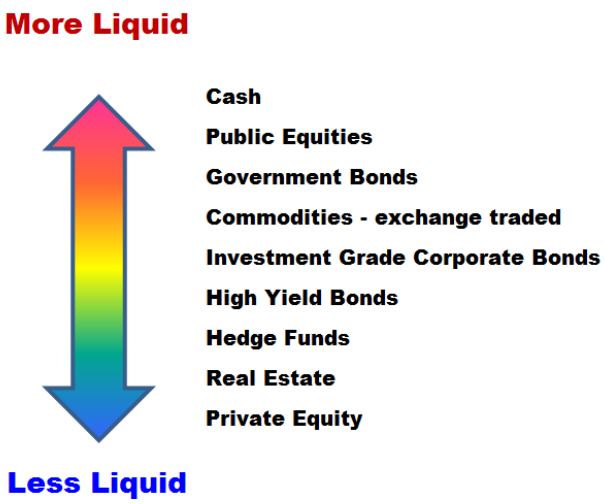
	$ Millions	%
Retirees / Beneficiaries	1,662	53%
Inactive members	79	3%
Active members	1,398	44%
Total	3,139	100%

- Similar to individuals, defined benefit plans have life cycles
- Young plans have a large percentage of the liability associated with active members
- Mature plans have significant retiree populations
- Maturity profile can affect return needs and liquidity capacity

Liquidity Profile



- Distributions have been in excess of contributions for some time
- For plan sponsors with negative net cash flow profiles, the liquidity profile of the portfolio allocation is critical for long-term success



- **Develop Asset Class Universe and Select Candidate Portfolios**

Strategic Asset Classes

- Should be investable at institutional scale. Market size, depth and liquidity should support meaningful allocations

- Should have differentiable risk/return characteristics versus other strategic asset classes
  - We build asset classes from a factor level foundation
  - Key factors include: interest rates (real / inflation expectations), inflation experience, business cycle risk, liquidity, etc.

- Focus on forward-looking assumptions
  - Current valuation levels
  - Current market pricing for key economic factors such as interest rates, inflation, risk, etc. as well as long-term normalized levels

Public Plan:
Individual Circumstances Drive Asset Class Considerations

Plan Status/Liability Profile

Funded Status

- Fully/Partially/Underfunded

Liquidity Considerations

- Benefit Payments
- Administrative Costs
- Lump Sum Provisions
- Contribution Forecasts

Liability Growth Return Target

- Salary Growth
- Inflation-linked
- Benefit Improvements

OBJECTIVE FUNCTION:
To pay promised benefits to a specific group of public employees as they come due.

Regulatory

- GASB
- Asset Class Restrictions

Sponsor Risk Tolerance

- Willingness to Take Risk
- Financial Strength/Cash Flow

Market Environment Portfolio Position

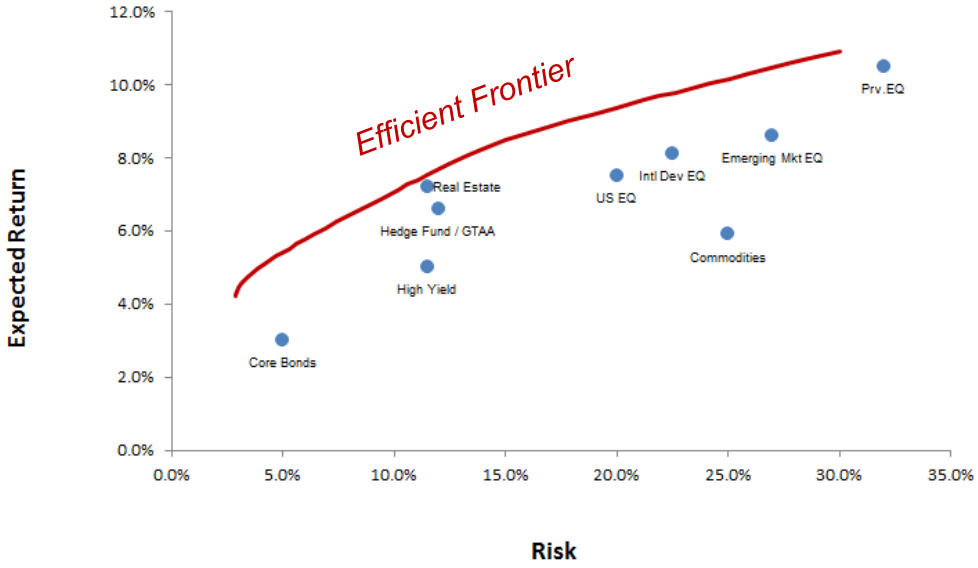
- Forward-Looking Market View
- Level of Risk in Markets
- Current Portfolio Position

Institutional Circumstances

Efficient Frontiers – Role of Mean/Variance Optimization

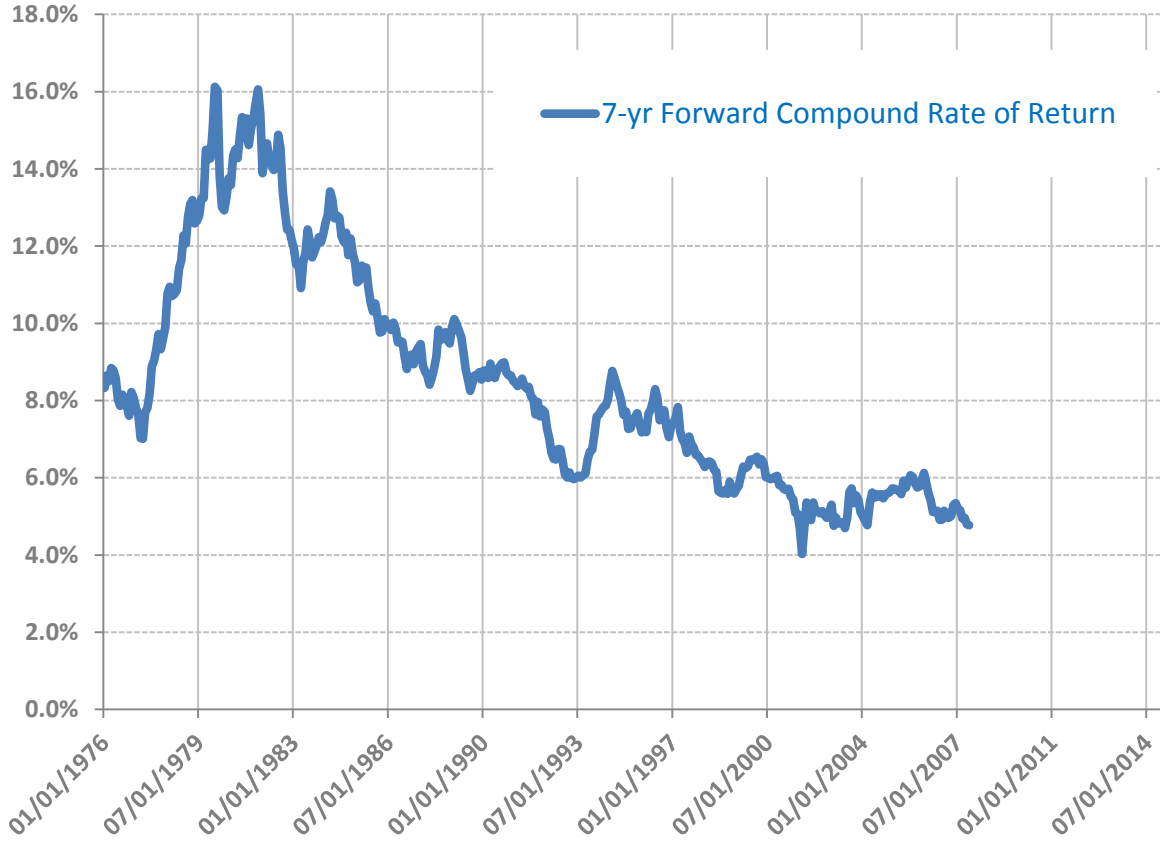
- Mean/variance optimization (MVO) and resulting efficient frontiers is an important part of developing alternative candidate portfolios
- Important to recognize limitations of mean/variance optimization at the same time
- Ultimately the candidate portfolios will be selected through a dialogue with TFFR where the results of the MVO exercise will be one component, but not the only component, used to inform that discussion

Efficient Frontier Illustration

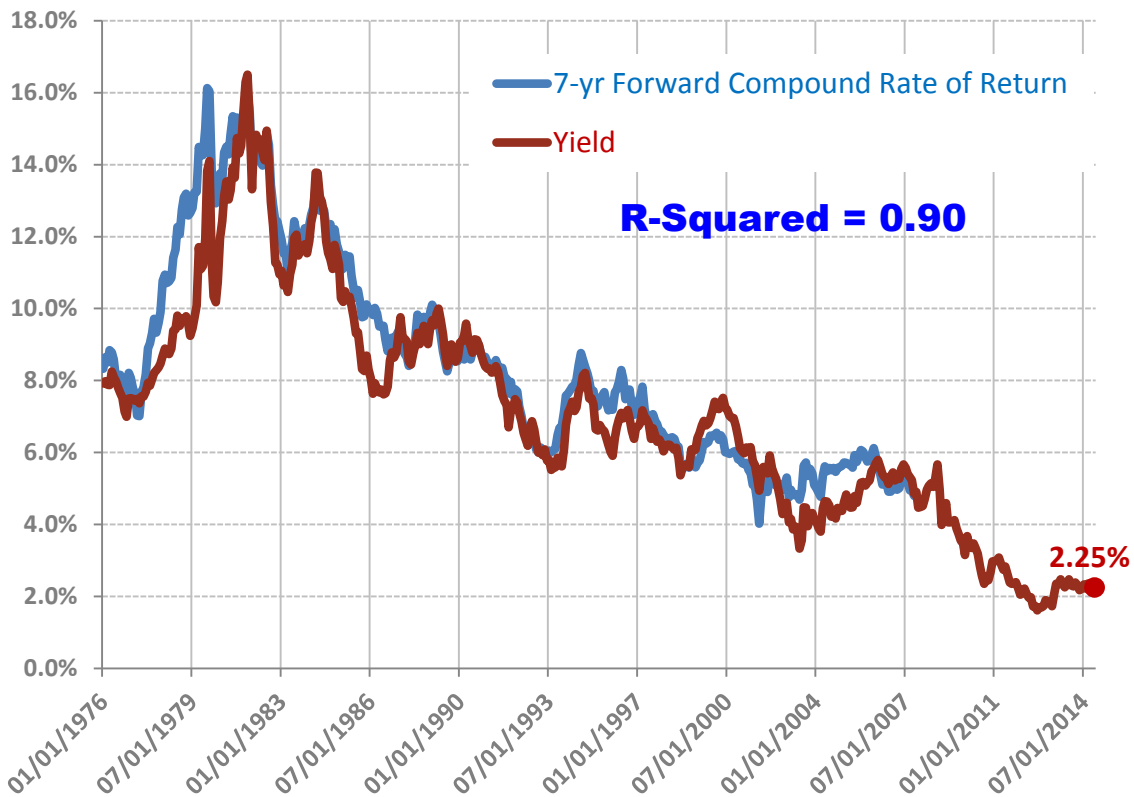


Capital Market Assumptions

Core Fixed Income Historical Returns



Core Fixed Income Historical Returns

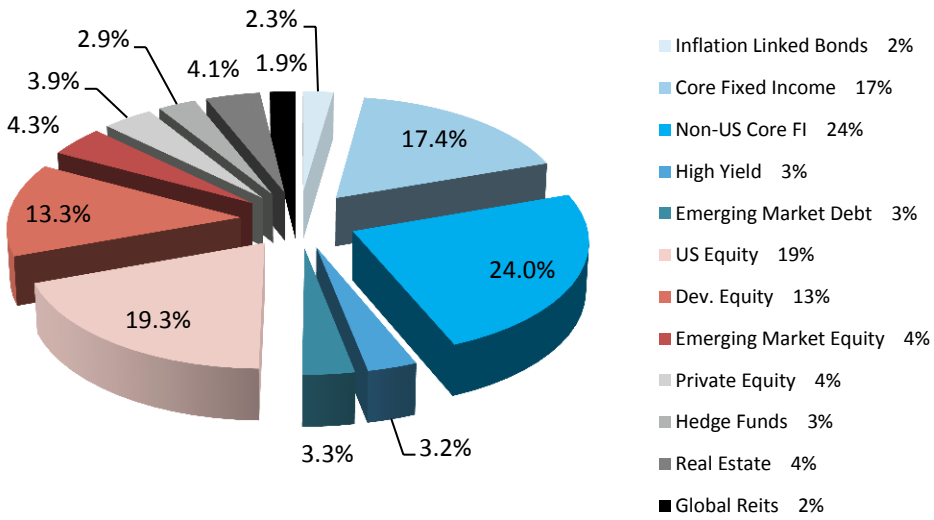


- For investment grade bonds, current yield is a strong predictor of future return
- R-squared between current yield and 7-year forward compound rate of return is 0.9
- Note yields today are 2.25% ~ 7-year forward compound rate of return

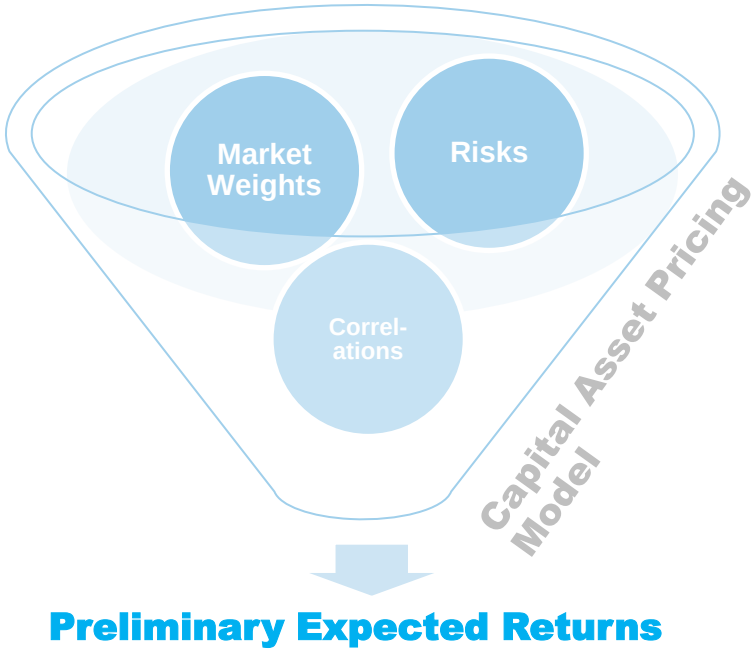
Capital Market Assumption Development

- We combine various measures of valuation to determine our long-term capital market assumptions
- Top-down approaches use reverse optimization and the Capital Asset Pricing Model (CAPM)

Estimated Global Investible Market Portfolio



Reverse Optimization



2015 Asset Class Assumptions (20 Year)

		Average Return	Standard Deviation	Compound Return
Fixed - Income	Cash	3.3%	2.0%	3.3%
	Inflation Linked Bonds	3.3%	5.5%	3.2%
	Core Fixed Income	3.9%	5.0%	3.8%
	Dev. Mkts. Fixed Income (U)	2.5%	10.0%	2.0%
	High Yield	6.8%	12.5%	6.0%
	Emerging Markets Debt (50% LC)	7.2%	10.5%	6.7%
	Municipal Bonds	5.1%	6.0%	4.9%
	Global Fixed Income (U)	3.2%	8.2%	2.9%
	Long -Term Fixed Income	3.6%	11.5%	3.0%
Equity	US Equity	9.0%	18.5%	7.4%
	Developed Equity (U)	9.7%	21.0%	7.7%
	Emerging Markets Equity	12.0%	24.0%	9.4%
	Global Equity (U)	9.3%	18.9%	7.7%
	Global REITs	8.3%	20.5%	6.3%
Alternatives	Private Equity	14.1%	24.5%	11.4%
	Hedge Fund of Funds	5.9%	6.3%	5.7%
	Equity Long/Short	8.1%	10.8%	7.6%
	Credit-Event -Driven	7.9%	6.1%	7.7%
	Global Macro	6.3%	7.2%	6.1%
	Commodities	6.3%	21.0%	4.2%
	Real Estate (UL)	6.8%	12.0%	6.1%
Real Assets	Timber	8.0%	10.0%	7.5%
	Farmland	9.0%	13.0%	8.2%
	Oil & Gas	13.1%	35.0%	7.5%
	Infrastructure	8.6%	15.0%	7.6%

Key Observations:

- Forward-looking expected returns are lower than historical realized returns
- Fixed income returns are low given today's yield levels but alternative sources of fixed income still offer reasonable value on a relative basis
- We continue to embrace international diversification particularly in the equity space
- Alternatives offer attractive risk adjusted returns but plan sponsors must be mindful of illiquidity where relevant

Disclaimer

All numbers represent Segal Rogerscasey's forward looking asset class assumptions, and as such, reflect estimates as of a certain date. These assumptions are not a guarantee of future performance, do reflect high levels of uncertainty and are subject to change without notice.

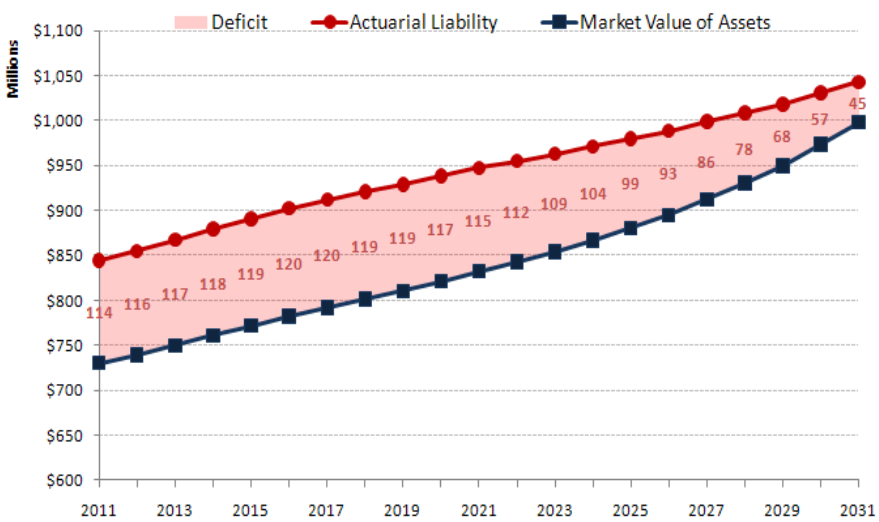
Deterministic and Stochastic Projections

Deterministic Projections

- Deterministic projections project the pension fund dynamics through time under a prescribed set of assumptions
  - Assets, liabilities, benefit payments, and contributions are projected through time
  - Portfolio returns, salary growth, etc. are determined in advance and projected
- **Advantages:**
  - Easy to understand
  - Excellent for scenario and sensitivity analysis
- **Disadvantages:**
  - Difficult to capture real world nature of investment returns: **volatility and risk**

Illustration
Deterministic Projections – *Fund Earns Actuarial Discount Rate*

- Assume an annual rate of return of 8.0%
  - Employees and Employers contribute 7.5% of pay
  - Deficit of the fund is reduced over the next twenty years
  - But 7.5% contributions are not enough to cover the current deficit



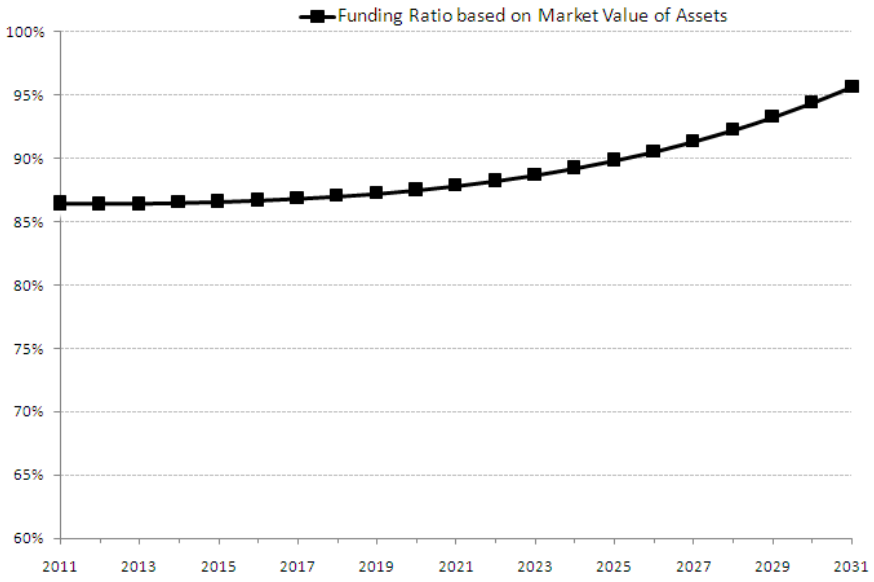
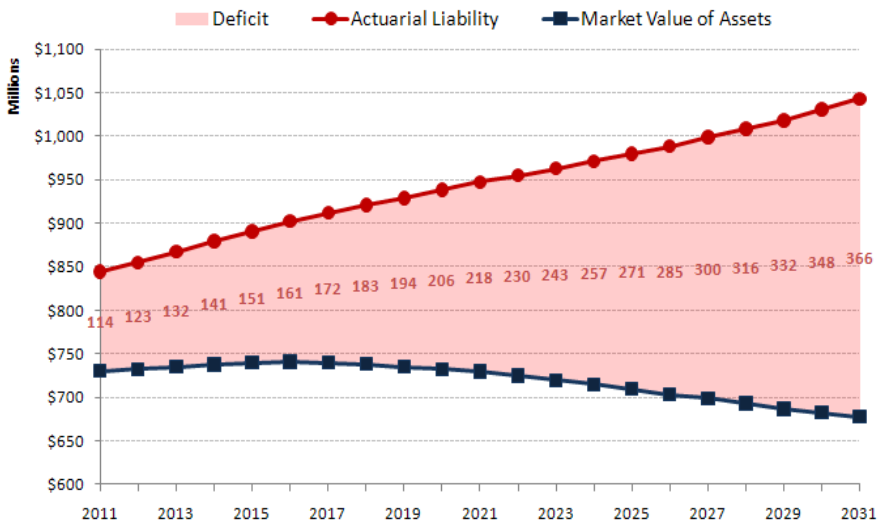
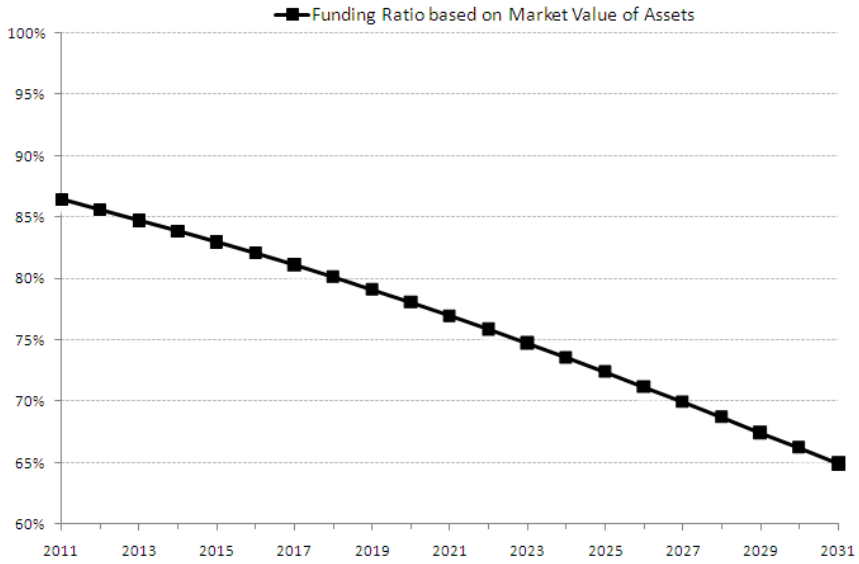


Illustration **Deterministic Projections –** *Fund Earns Less Than Actuarial Discount Rate*

- Assume an annual rate of return of 7.0%
  - Employees and Employers contribute 7.5% of pay
  - Deficit of the fund triples over the next twenty years to $366 Million



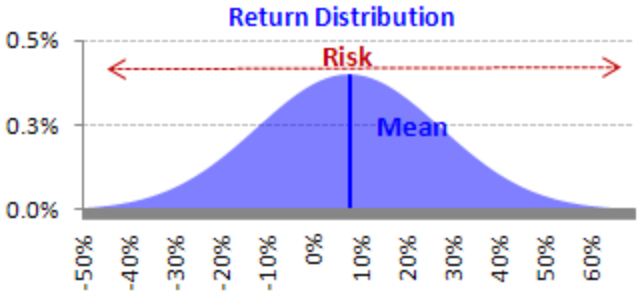


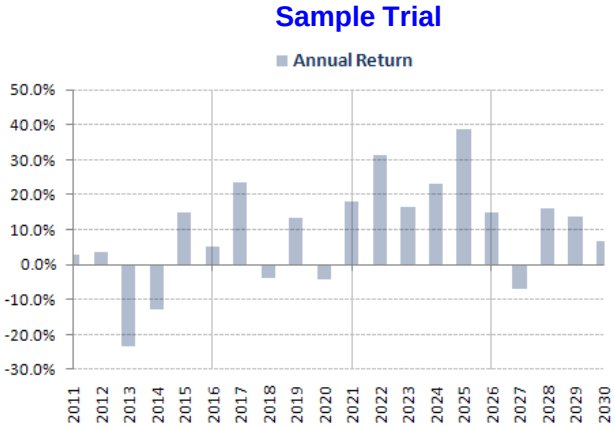
Stochastic Projections – *Monte Carlo Simulations*

Pension fund investing is complex

Monte Carlo simulation is recognition that the future can play out many different ways!

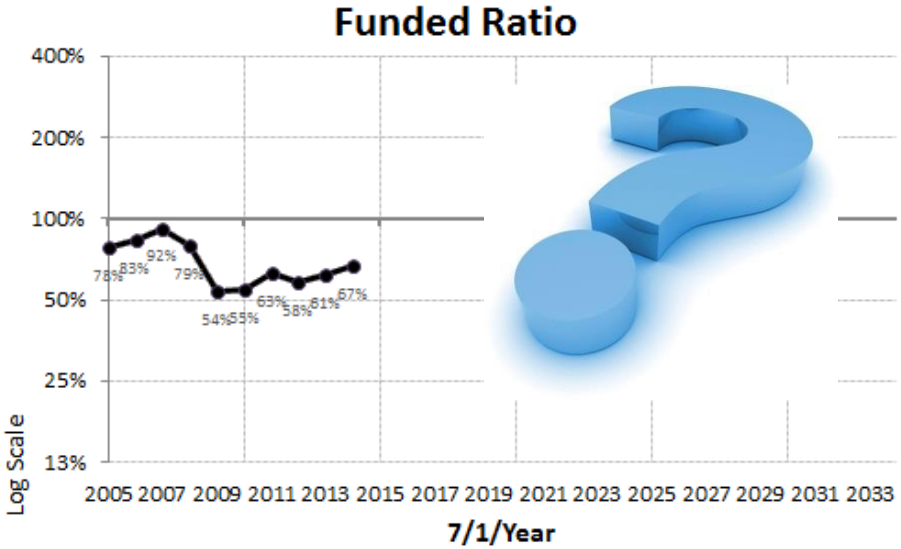
- Pension fund investing involves:
  - Capital markets
  - Actuarial liabilities
  - Cashflow timing / Regulations
- Stochastic modeling simulates future trends by determining investment returns, rates of inflation, etc., randomly based on quantitative models



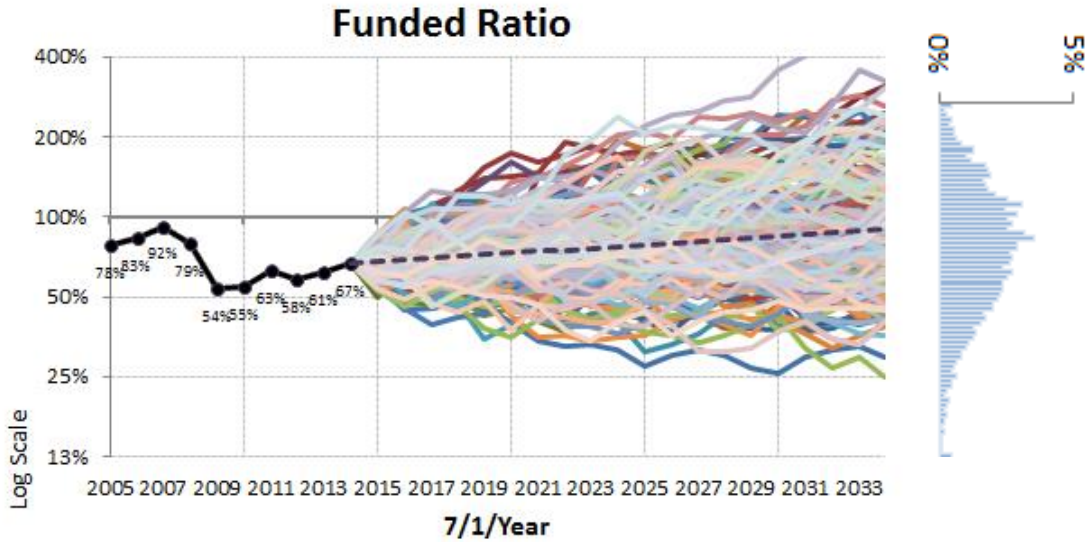


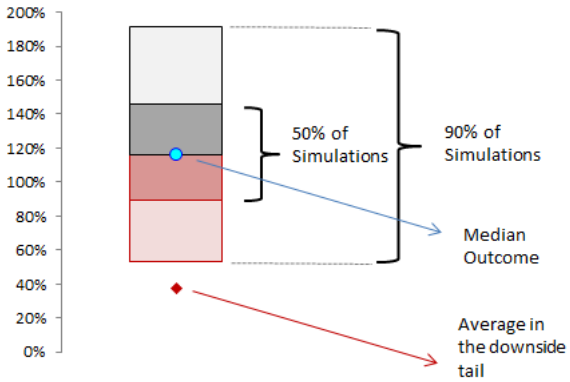
- **Advantages:**
  - Captures real world nature of investment returns: **volatility and risk**
  - Enables decision makers to assess trade-offs of various investment portfolios, investment strategies and contribution policies
- **Disadvantages:**
  - More complex

Stochastic Asset Liability Modeling (ALM) – What is it?



- Asset Liability Modeling enables the Fund to better understand future trends in key plan metrics
- Investment returns rarely follow straight paths but rather exhibit much volatility
- While future events are uncontrollable, Funds can control their exposure to risk and shape their future outcomes





Stochastic Forecast Illustration
Funded Ratio: 10 Year Horizon

Chart 1

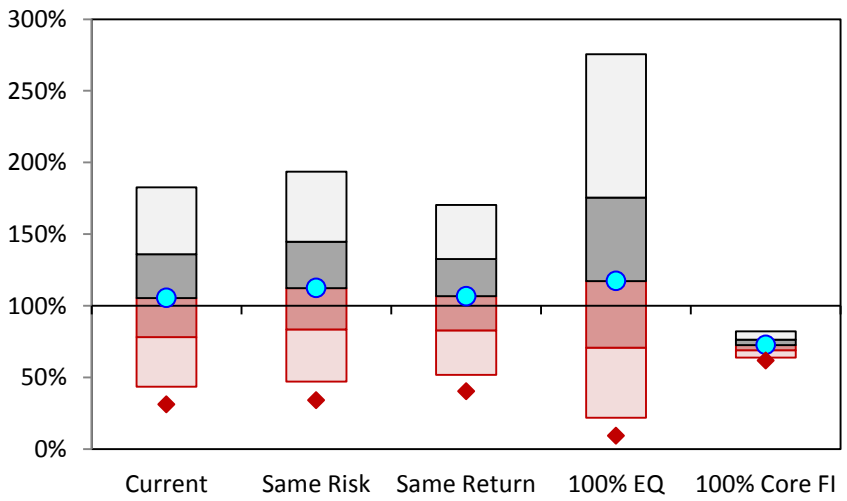
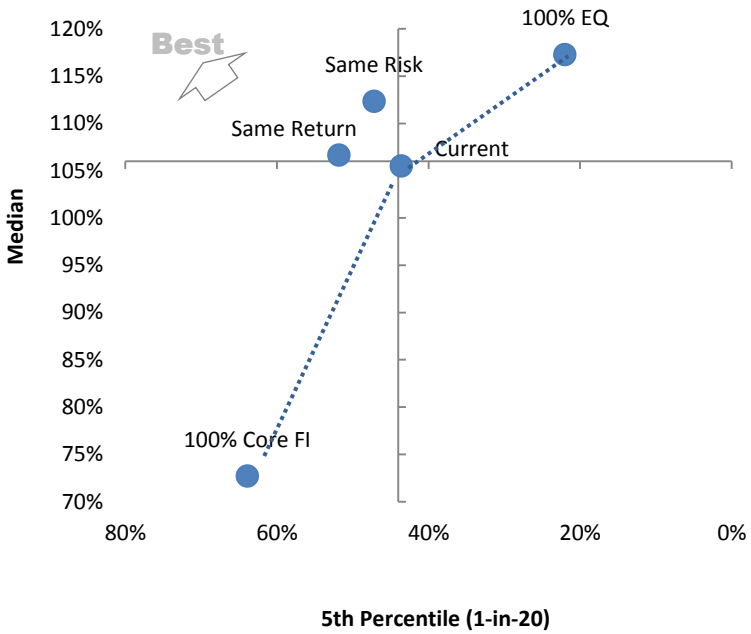


Chart 2



Funded Ratio	Current	Same Risk	Same Return	100% EQ	100% Core FI
95th	183%	194%	170%	275%	82%
75th	136%	145%	133%	175%	76%
50th	106%	112%	107%	117%	73%
25th	78%	84%	83%	71%	69%
5th	44%	47%	52%	22%	64%
CVaR5th	31%	34%	40%	9%	62%
Prob. Fully Funded	56%	62%	58%	59%	0%

5,000 Monte Carlo Simulations

Analysis of Existing Plan Structure

Strategic Asset Class	Weight
Domestic Equity	31%
International Equity	21%
Domestic Fixed Income	17%
International Fixed Income	5%
Global Real Estate	10%
Other Real Assets	10%
Private Equity	5%
Cash	1%

Objectives of an Asset Liability Modeling Study

- Comprehensive review of how future forecasted economic scenarios impact Fund's specific finances
  - Even if no changes are ultimately made the ALM process provides a wealth of information regarding trends of the Fund's financial health
- Consideration of new asset classes and alternative portfolios
  - Through quantitative analysis and qualitative discussion the cost and benefits of new asset classes and new portfolio constructions are considered and modeled
- Comparison of relative risk/reward trade-offs of alternative portfolios on meaningful financial variables
  - TFFR will select variables that are important to them (e.g., funded status ranges, probability of being 100% funded, future surplus (deficit) levels, return profiles)
  - Using those variables you will see the relative costs and benefits of alternative asset allocations through the stochastic modeling output

Timeline

Work Plan Timeline

Assumes we are awarded the assignment in late August 2015

Time	Task
Early September 2015	➢ Discuss asset class universe and constraints ➢ Discuss capital market assumptions
Mid-September 2015	➢ Calibrate our economic simulator to the chosen capital market assumptions
Late September 2015	➢ Run mean-variance optimization ➢ Present a set of candidate portfolios for further consideration/study
October 1, 2015	➢ Actuarial Valuation as of July 1, 2015 completed
Early October 2015	➢ Build the liability model using July 1, 2015 census data
Mid October 2015	➢ Review initial set of candidate portfolios versus final liability model ➢ Discuss and decide key projection parameters and decision variables for modeling and presentation
Late October 2015	➢ Run deterministic and stochastic projections ➢ Create preliminary results/report present to sub-committee
Mid November 2015	➢ Follow-up analysis and create/present final report

Why Segal?

- ✓ Unparalleled experience in both actuarial and investment consulting
- ✓ Proven track-record providing competent and reliable service to TFFR
- ✓ Committed to asset / liability modeling
- ✓ Knowledge of the Fund's actuarial liability
- ✓ Innovative and client-focused consulting from dedicated client service teams
- ✓ Fully developed in-house ALM suite for complete customization and prioritization
- ✓ A focus on you, not us

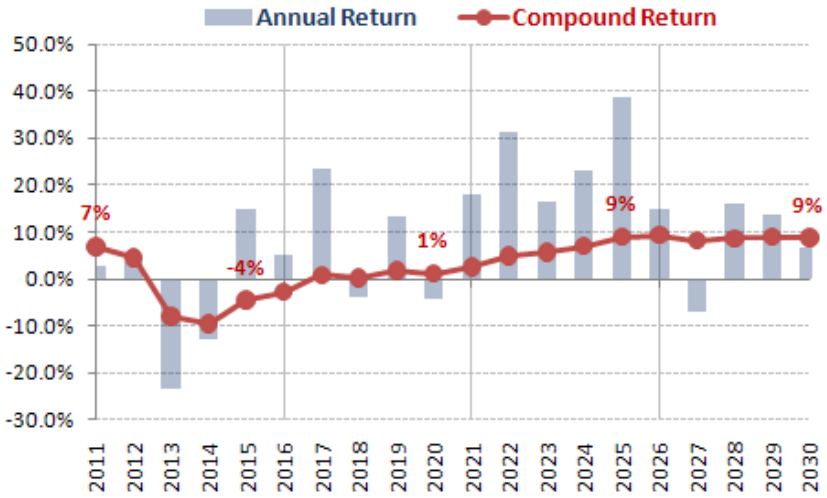
Our greatest assets are our people and the clients' trust that they earn.

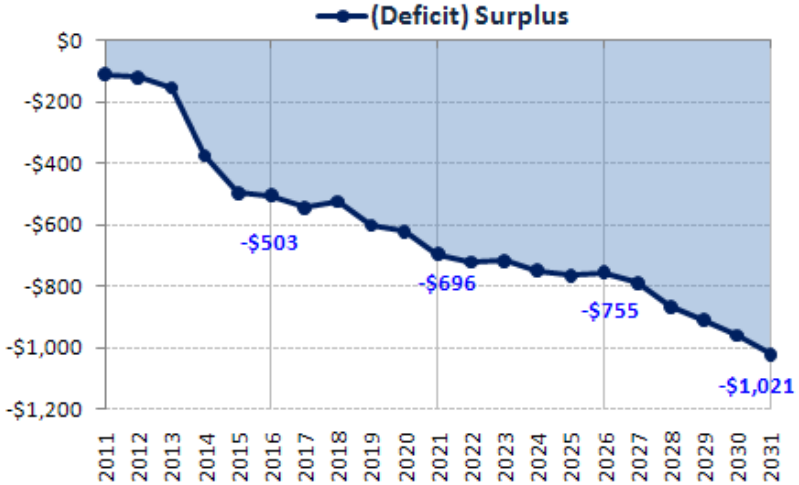
Questions?

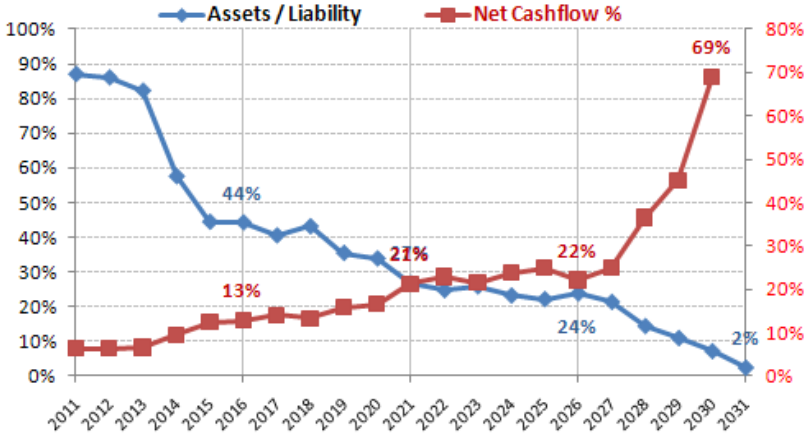
Appendix

Pension Fund Investing is for the Long-term?

- Sample trial
- Simulation results in a 9.0% annual compound rate of return
- But, the Fund is insolvent long-term
- Poor returns in the short-term combined with the large negative cashflows results in a death-spiral where the Fund can't earn it's way out of the deficit

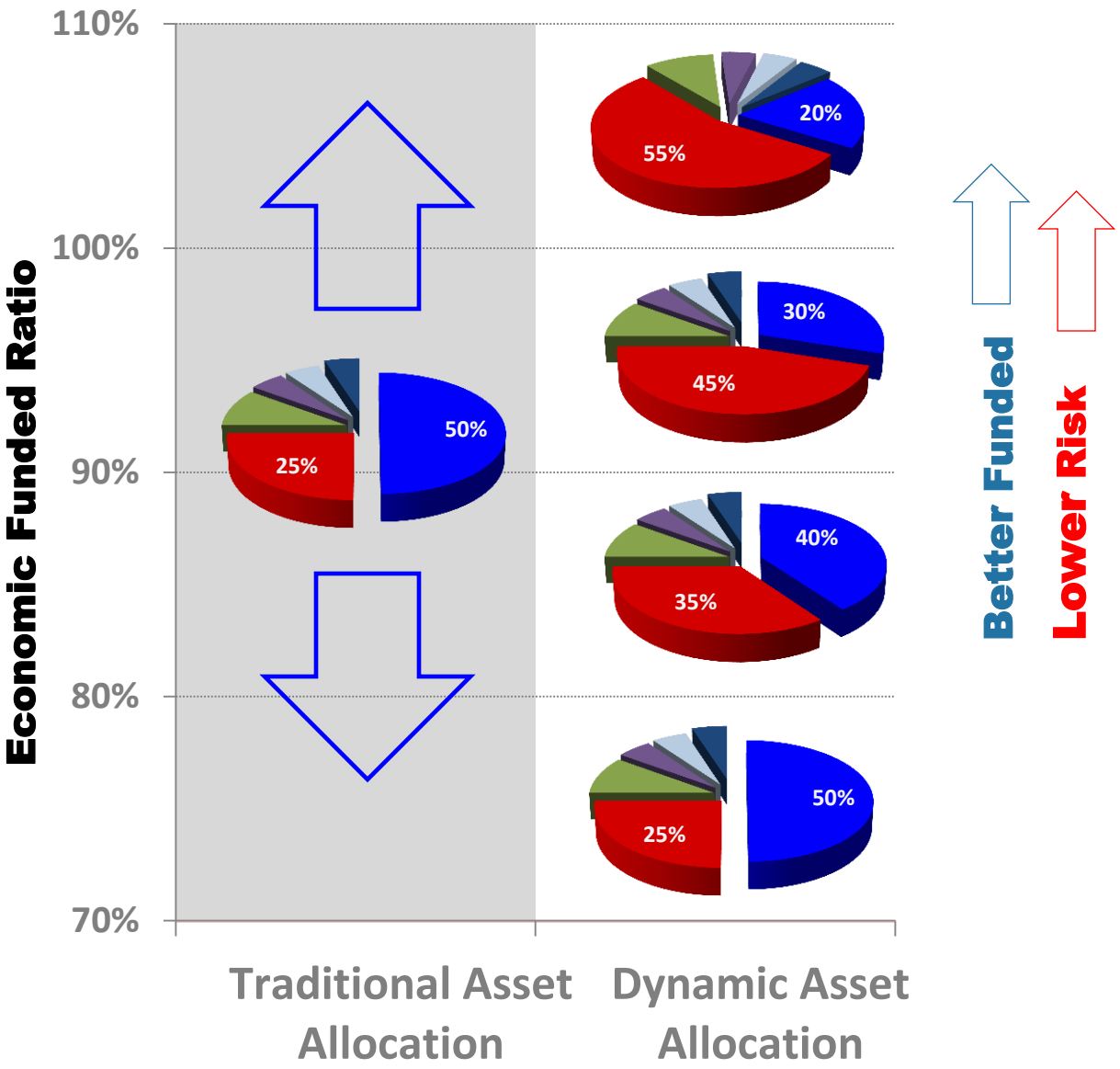




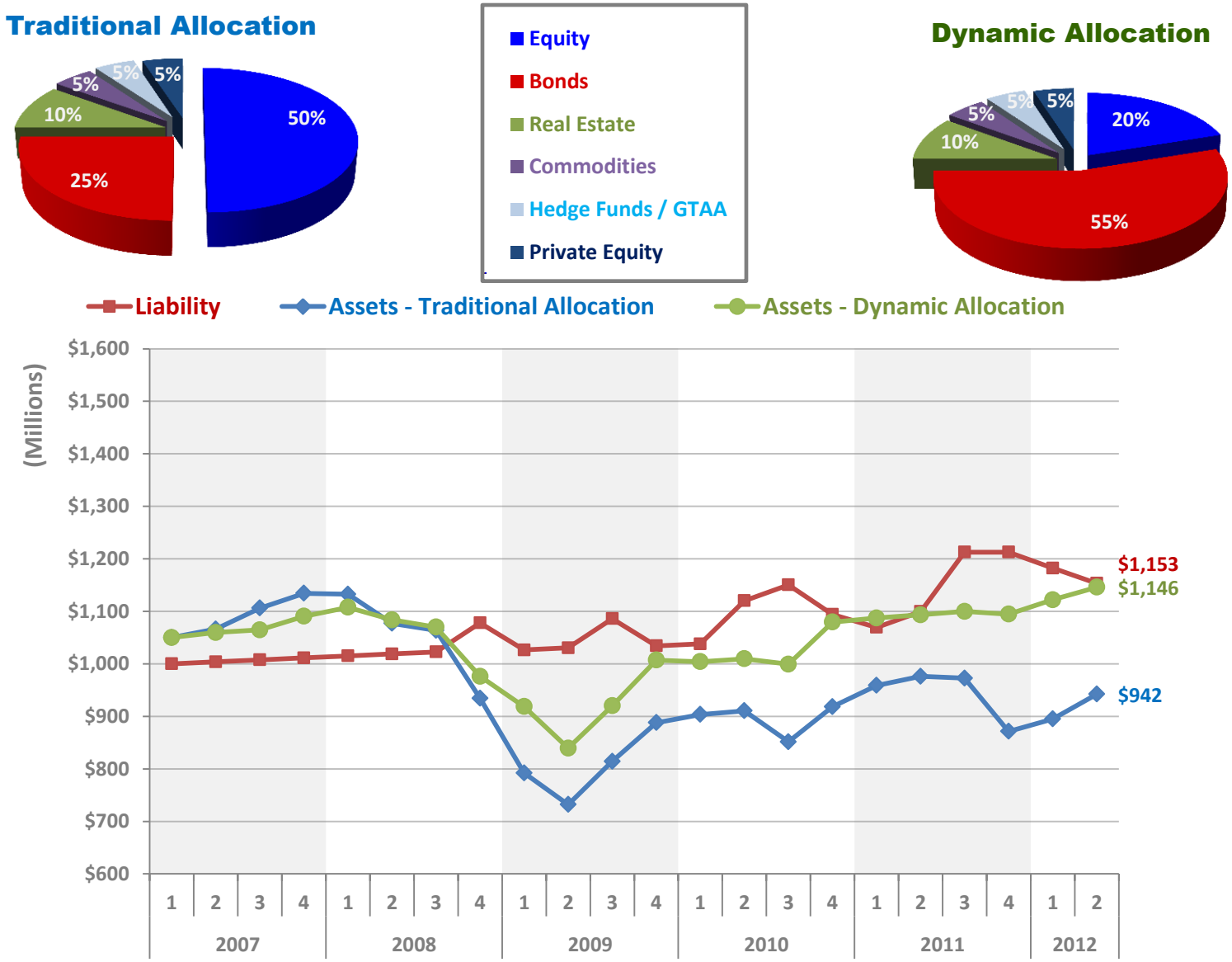


Risk Management Strategies – *Dynamic Asset Allocation*

- By developing a glide path, the Fund can proactively take advantage of positive investment returns and reduce the risk profile of the Plan
- Note the economic funded ratio is more conservative than the traditional actuarial funded ratio



Dynamic Asset Allocation



Liquidity Strategies

- Liquidity is the ability to transact at tight bid-ask spreads
- An asset class's lack of liquidity is often a compensated risk factor
  - Investor is paid for the inability to buy/sell with low frictional cost
  - Asset classes generally become illiquid in states of the world where many asset classes are losing money – results in attractive reward / risk ratios
- Pension funds have long-term horizons, liquidity risk (and its risk premium) may be a valuable source of return
  - Analysis shows that the Fund has some capacity for illiquid investments in the intermediate term
  - Fund does not have any commitment to private equity of other closed end hedge fund type structures
- We have enhanced our ALM model to incorporate specific illiquid investment structures
  - Nature of the capital call and cashflow structure
  - Concentration risk – risk that the inability to rebalance the illiquid investments result in the Fund with a highly concentrated position

Asset Class Descriptions

Asset Class	Definition		Pros (+) and Cons (-)
Core U.S Bonds	All fixed rate debt securities issued in the U.S., including government, corporate, agency, mortgage pass-through and asset-backed securities, that are rated investment grade (BBB) or higher. Duration comparable to Barclays Capital Aggregate	+ + -	With its income component, bonds provide stability in a diversified portfolio Large very liquid market with many derivative instruments to supplement exposures Bond value is sensitive to changes in interest rates, credit quality, and inflation
High Yield	All corporate debt issued in the U.S. that is rated below investment grade, or is not rated. These securities have a higher yield than investment grade corporates, and are riskier, both in terms of price risk and default risk	+ + - - -	Offer higher expected long-term returns than investment grade bonds. 90% + of the return is derived from the bonds' interest income Increased diversification. High Yield has a low correlation with every major asset class Higher volatility than investment grade corporates Higher default rate relative to traditional investments Specialized management skills are needed to effectively invest in the asset class
Emerging Market Debt	Emerging market debt includes debt securities in countries with less developed economies	+ + - -	High current income component Potential for enhanced returns relative to core fixed income Higher default risk associated with lower quality issuers Interim volatility associated with political or economic instability of emerging market countries

Asset Class Descriptions

Asset Class	Definition		Pros (+) and Cons (-)
Developed Non-U.S. Fixed Income	Bonds that are issued by companies or governments in developed countries other than U.S.	+ + - -	Pays fixed coupon rate Diversification across multiple yield curves Exposure to currency exchange risk Exposure to political or economic instability
Inflation Linked Bonds (TIPS)	A special type of Treasury note or bond that offers protection from inflation. As with other Treasuries, when you buy an inflation-linked bond you receive interest payments every six months, which is continuously adjusted for inflation	+ + + - -	High credit quality Principal and interest are protected against inflation Accrued principal value is higher than its face value Principal could decline during deflation Due to the protection against inflation, which guarantees a real rate of return, TIPS offer a low return
Long-Term Fixed Income	Bond issues with maturities typically greater than 15 years	+ + - -	Higher interest rates than core fixed income Extends duration of assets in an LDI framework for defined benefit plans Higher credit and inflation risk Higher overall volatility than core fixed income

Asset Class Descriptions

Asset Class	Definition		Pros (+) and Cons (-)
U.S. Equities	Stocks issued by companies domiciled or registered in the United States, which trade on domestic stock exchanges	+ + - -	Provides greatest potential for growth for the larger institutional asset classes over the long term Large very liquid market with many derivative instruments to supplement exposure Cyclical in nature More volatile than cash or bonds
Non-U.S. Developed Equity	Stocks issued by companies in developed economies, excluding the U.S.	+ +/-	Provides access to a large segment of the global economy with market cycles that could differ from the U.S. Currency risk can be hedged
Emerging Market Equity	Stocks issued by companies domiciled in countries with less developed economies in terms of GDP per capita as defined by the World Bank	+ + - -	Provides access to a large segment of the global economy with market cycles that could differ from the U.S. as well as the developed Non-US markets Enhanced return potential over U.S. Equity Currency risk not easily hedged More exposed to operational, liquidity and political risks than developed countries

Asset Class Descriptions

Asset Class	Definition		Pros (+) and Cons (-)
Private Real Estate	Real estate includes investment in income producing properties. Real estate investments can vary by property type, geographic location, position in the property cycle, structure of the deal, and investment vehicle	+	Low correlation to public equity
		+	Offers a partial inflation hedge
		+	Stable returns associated with high income component
		-	Illiquidity requires long-term horizon to achieve investment expectations
		-	No public market or price system
		-	Fees are higher than most other public market classes
Global REITs	A publicly traded pool of investments as described for real estate above.	+	Offers a partial inflation hedge
		+	Stable returns associated with high income component
		+	More liquid than private real estate, given the public trading mechanism
		+/-	Real estate component provides some diversification relative to public equity; however, the trading mechanism increases the correlation with public equity markets
		+/-	Fees comparable to other public market asset classes

Asset Class Descriptions

Asset Class	Definition		Pros (+) and Cons (-)
Private Equity	Private equity represents a basket of private illiquid investments such as venture capital, leveraged buyouts, mezzanine financing, distressed securities, oil & gas and timber	+	High real return opportunities relative to public market investments
		+	Illiquidity premium
		+	Low correlation with other asset classes, which can reduce overall portfolio volatility
		+	Investments can be structured for investor goals
		-	Liquidity risk of owning private investments
		-	Fees are higher than most other public market classes
		-	Operational risk – more cumbersome to manage.
		-	Subject to cyclical risk
Hedge Fund-of-Funds	Invests with multiple managers across a single or multiple sub-strategies such as equity long / short, relative value, event-driven, and macro so as to achieve diversification	+	Investments diversified across funds using different strategies to reduce risk
		-	Can be relatively illiquid – usually quarterly or annual in/out privileges
		-	Fees are high and usually performance based

Asset Class Descriptions

Asset Class	Definition		Pros (+) and Cons (-)
Equity Long / Short	Takes both long and short positions in equity and equity derivative securities. Employs a wide variety of investment processes such as quantitative and fundamental techniques	+ + - 	Equity-like returns with significantly lower risk Can be used as a partial replacement for long-only equity managers to generate higher risk-adjusted returns Typically less transparent than traditional long-only equity managers
Credit & Event-Driven	Credit is based off of relative value strategies where the investment thesis is based on a realization of a valuation discrepancy in the relationship between multiple securities Event-Driven strategies take positions in companies currently or prospectively involved in a wide variety of corporate transactions	+ + - -	Fixed-income like risk with significantly higher returns Can be used as a partial replacement for long-only fixed-income managers to generate higher risk-adjusted returns Typically less liquid and transparent than traditional long-only fixed-income managers Potential for significant negative / left-tail events
Global Macro	Broad range of strategies in which the investment process is typically based on movements in underlying economic variables and the impact these have on equity, fixed income, currency, and commodity markets	+ -	Low to negative correlations with most asset classes Investment strategy may be opaque

Asset Class Descriptions

Asset Class	Definition		Pros (+) and Cons (-)
Timberland	A timber investment consists of productive land plus growing trees and can be in the form of natural forests or plantations	+	Strong returns including a significant cash component
		+	Low risk and negative correlations with most asset classes
		+	Positive correlation with inflation, especially unanticipated inflation
		-	Investments contemplate a longer time frame
		-	High illiquidity
Commodities	A commodities investment involves trading forward and future contracts in raw materials such as grains, precious metals, livestock, industrials, and energy	+	Offers high liquidity
		+	Negatively correlated with traditional assets
		+	Positive hedge against inflation
		-	Low income generating potential
		-	Highly volatile in nature
		-	Storage costs are extremely high
Oil & Gas Partnerships	Oil & gas represent a basket of private illiquid investments such as oilfield services, private equity funds, oil & gas acquisition, clean energy, and oil & gas exploration	+	Negative correlations with some asset classes
		+	Enhanced return potential over U.S. Equity
		-	Fees are higher than most public market asset classes
		-	Operational risks high
		-	Illiquidity high

Asset Class Descriptions

Asset Class	Definition		Pros (+) and Cons (-)
Farmland	An investment in agriculture land. Value is derived from the land itself and through either rental of the land to operators and/or the crops grown on the land.	+	Low correlation with traditional asset classes
		+	Potential hedge against all types of inflation (short term, long term)
		+	High potential income component with moderate volatility
		-	Depending on strategy, there could be limited exposure to the actual crops or physical commodities; may be illiquid
		-	Regulatory and political risk.
		-	Risk of natural disasters.
Infrastructure	Infrastructure represents a broad investment in illiquid investments such as transportation assets, regulated assets, communication assets and social infrastructure assets	+	Real underlying assets, long life assets
		+	High stable current income component
		+	High barriers to entry
		+	Natural monopoly, inelastic demand profile
		-	Regulatory and political risk
		-	Operational risks high
		-	Illiquidity high
		-	Project risk, capital commitment risk, leverage risk

Segal Rogerscasey

NORTH DAKOTA TEACHERS' FUND FOR RETIREMENT

PROPOSAL TO PROVIDE AN ASSET LIABILITY STUDY

June 30, 2015

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Segal Rogerscasey

333 West 34th Street, 3rd Floor, New York, NY 10001-2402
T 212.251.5900 F 212.208.4564 www.segalrc.com

June 30, 2015

VIA E-MAIL: fkopp@nd.gov

Ms. Fay Kopp
Deputy Executive Director - Retirement Officer
North Dakota Retirement and Investment Office
North Dakota Teachers' Fund for Retirement
1930 Burnt Boat Drive
P. O. Box 7100
Bismarck, ND 58507-7100

Re: Proposal to Provide an Asset Liability Study for the North Dakota Teachers' Fund for Retirement

Dear Ms. Kopp:

The Segal Group (Segal) is pleased to submit this proposal to perform an asset liability study for the North Dakota Teachers' Fund for Retirement (TFFR). As the Fund's actuary, we are uniquely qualified to perform this study, as we understand the unique characteristics of the TFFR benefit structure and funding methodology. In addition, we have the TFFR programming in place to perform the liability component of the study.

Segal has served as actuary to TFFR for the past four years and we look forward to continue to build upon the relationship we have established with you. We believe that we have demonstrated our ability to provide quality, timely and accurate consulting advice. Our proposal describes our qualifications and experience and demonstrates our continued commitment to deliver strategic and technical insight in a responsive manner. We look forward to presenting our qualifications.

Sincerely,

Daniel F. Westerheide
Senior Vice President
Asset Liability Modeling Practice Leader

Kim Nicholl, FSA, FCA, MAAA, EA
Senior Vice President, Consulting Actuary,
National Public Sector Retirement Practice Leader

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Table of Contents

Proposal to Provide an Asset Liability Study

June 30, 2015

Qualifications 1

Team Biographies 3

Our Approach 7

ALM Process and Methodology 7

Timeline 10

Pricing 11

Appendix 12

Technical detail regarding our ALM tools 12

Illustrative presentation slides regarding our capital market assumptions 16

Illustrative presentation slides excerpted from prior ALM studies for public retirement systems 22

The Segal Group Inc, Consulting Structure 33

Sample Client List 34

Public DB Plan Clients & Assets Under Advisement 34

Qualifications

Segal is an independent, privately held consulting firm. It has been employee-owned by its officers since 1978. There are currently 245 employee owners, with no shareholder owning more than 5% of the common stock. An 11-member Board of Directors sets policy and governs the organization. Implementation of policies, development of strategies and day-to-day operations are the responsibilities of the Chief Executive Officer, Mr. Joe LoCicero.

The company's headquarters is in New York City. Segal has 23 offices throughout the United States and Canada. Our offices are located in Atlanta, Boston, Chicago, Cleveland, Dallas, Denver, Detroit, Edmonton, Glendale, Hartford, Houston, Los Angeles, Minneapolis, Montreal, New Orleans, New York, Philadelphia, Phoenix, Princeton, Raleigh, San Francisco, Toronto, and Washington, DC. Segal currently has more than 900 full-time employees.

In February 2012, Segal Advisors, Inc. acquired the business of Rogerscasey, a global investment solutions firm that has served institutional asset owners and others for more than 40 years. The acquisition of Rogerscasey ensures that our clients receive the highest quality of research into the future. We are committed to the investment consulting business and to providing our clients with the best service in the industry. Our investment consulting services are branded Segal Rogerscasey with offices in many of the same locations as Segal Consulting, as well as in Darien, CT and Dublin, Ireland.

Our Asset Liability Modeling (ALM) expertise is housed within our Segal Rogerscasey division. The lead consultant on this ALM assignment will be Dan Westerheide, the head of our Asset Liability Modeling practice. Supporting Mr. Westerheide on the project will be David Palmerino and John Ross of Segal Rogerscasey, and Kim Nicholl of Segal Consulting

Why Segal?	What it Means for TFFR
We have extensive experience consulting to public retirement systems	The Segal and Segal Rogerscasey consultants are known for their depth of knowledge. Many of our consultants are recognized as national experts, testifying before Congress, leading professional associations and committees and speaking at national and regional conferences and forums. Our consultants are also regular contributors to professional magazines and journals. Segal and Segal Rogerscasey consult to more than 120 public retirement systems in the United States. We understand the unique characteristics of public retirement systems and our ALM studies are tailored to provide the information that the client needs to make informed decisions. As asset liability specialist, our knowledge base must span both capital market theory and actuarial processes. Our team members work closely with our actuarial colleagues to stay abreast of industry trends as well as regulatory changes. The following is a partial list of public retirement systems for whom we have performed ALM studies in the past five years: *The Public School Retirement System of The School District of Kansas City, Missouri, The Town of Palm Beach Retirement System, The General Retirement System for Employees of Jefferson County, The University of California Retirement Plan, Atlanta Public Schools, Bristol County Retirement, Louisiana Municipal Police Retirement System, and Parochial Employees Retirement System of Louisiana*

We have intimate knowledge of the benefit structure and funding methodology of TFFR	We understand the dynamics of TFFR through our current role as actuary and trusted advisor. We understand TFFR's benefit structure and funding methodology and our ALM study will include the nuances unique to TFFR. ALM consulting has as much to do with liability expertise as it does with asset consulting expertise and there is no better expert regarding the plan's liability than Segal.
Our depth and experience	We have over 25 years of experience performing ALM studies for pension plan systems and investors. In 2006, Segal acquired Irwin Tepper Associates. Dr. Irwin Tepper was one of the first professionals to design robust ALM software and built a career exclusively devoted to assisting institutional liability driven investors with making asset allocation decisions. Segal Rogerscasey has embraced and improved the Tepper model and is an expert in performing ALM studies. The proposed TFFR team members are all senior practitioners in their respective practices. This allows us to provide TFFR a vastly experienced team for this important study.
In-house tools	All of our analytics (optimization and forecasting models) are proprietary and built in house by our team members. As asset liability modeling is complex in nature, we feel it is critical to the efficacy of the analysis to fully understand the drivers of the various relationships and minimize the 'black box' nature that is often associated with forecasting. Investment markets continue to evolve and change and we continue to enhance our models to capture the dynamics and risks embedded in the capital markets. On the liability side, to maintain accuracy and quality, the firm's software is internally developed and tested by credentialed actuaries and technicians working in our national Actuarial Technology and Systems unit. We do not depend on third parties or wait in queues to be serviced. Furthermore, we maintain and update our systems when our clients have a need.
We are privately owned	Being owned by our employees allows Segal to focus on long-term decision making that reflects a partnership approach with our clients, including fees. We recognize that the benefit of having happy, successful clients outweighs the need for us to hit specific month-to-month targets. As such, we aim to be part of your success, knowing that in the long-term this will help us succeed.

On the following pages, we detail the qualifications of the professional staff that will work on the TFFR engagement.

Team Biographies

Mr. Daniel F. Westerheide
Senior Vice President, ALM Practice Leader

Mr. Westerheide is a Senior Vice President and ALM Practice Leader in Segal Rogerscasey's Boston office with nearly 20 years of experience in pension consulting. He is the lead consultant for many clients, and is responsible for initiating projects to enhance our firm's asset liability strategies and capabilities.

Mr. Westerheide specializes in asset liability strategies for defined benefit pension plans and is expert in capital markets theory and the application of capital markets modeling. As a leading practitioner in asset liability modeling (ALM), he has aided clients in implementing many cutting-edge risk management techniques such as synthetic duration and dynamic asset allocation. Mr. Westerheide's clients include the Olin Corporation, Philips Electronics, American Cancer Society and the General Retirement System for the Employees of Jefferson County. Mr. Westerheide is a member of several teams and units within the firm, including the capital markets research group, Segal's Live Modeling Task Force, and the ALM Strategies and Techniques Training team. He also works closely with the company's National Retirement Practice Leader.

Mr. Westerheide joined The Segal Company in 2006 when Irwin Tepper Associates, Inc. was acquired by The Segal Group. He was named a Vice President in 2007. In 2010, Mr. Westerheide was named ALM Practice Leader for Segal Rogerscasey.

Dan was previously employed by Towers Perrin.

Mr. Westerheide graduated from the University of Michigan with a BS in Actuarial Science.

Examples of Mr. Westerheide's published work include:

- "Why LDI? A Strategy for Balancing Asset and Liability Risk for Frozen, Closed or Open DB Plans," Daniel Westerheide and Stewart D. Lawrence, *Perspectives*, Volume 16, Issue 2, March 2008

- "Liability-Driven Investing: Adding Investment Return, Lowering Risk." John DeMairo and Daniel F. Westerheide, *Financial Executive*, January/February 2008

David Palmerino, FSA, CFA,
Vice President, Beta/ALM Group

Mr. Palmerino is a Vice President in Segal Rogerscasey's New York office. He has nearly 20 years of experience in retirement consulting. He is a member of the Beta Research Group, which is responsible for formulating capital market assumptions and establishing model portfolios. He also a member of the ALM Practice, which is responsible for constructing and reviewing asset liability models in order to investigate the impact on pension finances of alternative asset allocations.

Prior to joining Segal Rogerscasey, Mr. Palmerino worked for more than a decade as a consulting actuary for the Segal Group. His responsibilities included producing actuarial valuations, including annual minimum funding calculations and annual expense and disclosure calculations. Additionally, he helped clients to investigate merits of changes to pension plan design and pension funding strategy.

Mr. Palmerino also serves as The Segal Company's representative to the Multinational Group of Actuaries and Consultants.

Mr. Palmerino received a BA in Mathematics from Holy Cross College (Worcester, MA). He is a Fellow of the Society of Actuaries, a Member of the American Academy of Actuaries and an Enrolled Actuary. Mr. Palmerino also attained CFA designation in 2014.

John A. Ross, Jr
Senior Vice President, Head of Beta Research

Mr. Ross is a Senior Vice President and the Head of Beta Research in Segal Rogerscasey's Darien, CT office. He has over 20 years of experience in the investment industry within a professional career that spans 25 years. Mr. Ross leads the Beta Research Group, which is responsible for defining and formulating long-, intermediate- and short-term views on strategic asset classes, anticipating macro investment themes, and formulating capital markets assumptions and objective-driven investing. The Beta Research Group leads the firm-wide effort of establishing model portfolios and incorporating best ideas related to asset allocation implementation. Additionally, Mr. Ross manages the team of professionals responsible for the completion of client asset allocation and asset liability studies. He is also an ex-officio member of the firm's Manager Review Committee with oversight and compliance responsibility for all managers recommended by Segal Rogerscasey.

Prior to joining Segal Rogerscasey, Mr. Ross worked for over 10 years at International Paper, formerly Champion International Corporation. In his most recent position, he was a Senior Associate in the Trust Funds Management Group responsible for manager evaluations, quantitative and qualitative analysis on private equity offerings and managing the administration of a $2 billion corporate trust fund. Before that, he worked at Xerox Corporation as a Credit Analyst.

Mr. Ross graduated with a BS degree in Economics from the State University of New York, College at Cortland.

Kim Nicholl, FSA
Senior Vice President, National Public Sector Retirement Practice Leader

Ms. Nicholl is a Senior Vice President and Consulting Actuary in Segal's Chicago office and is also the firm's National Public Sector Retirement Practice Leader. She has over 25 years of experience supporting the design and financing of retirement and other employee benefit programs for the public sector.

Ms. Nicholl has consulted on the design and interpretation of plan provisions for defined benefit and defined contribution retirement plans, and on their relationship to ERISA, IRS regulations and new legislation. Her experience includes all aspects of employee benefit programs.

Ms. Nicholl's specialized expertise includes:

- Supervising, reviewing, and certifying actuarial valuations and studies for defined benefit retirement plans and postretirement health care plans.
- Performing plan design analyses for public pension and postretirement health care plans.
- Performing experience analysis studies resulting in changes to actuarial assumptions used in the actuarial valuations of defined benefit retirement plans.
- Performing asset/liability modeling studies for large retirement plans.

Prior to joining Segal, Ms. Nicholl served as National Leader of Public Sector Retirement Consulting at another consulting firm.

Ms. Nicholl graduated magna cum laude from Loyola University with a BS degree in Mathematics. She is a Fellow of the Society of Actuaries, a Fellow of the Conference of Consulting Actuaries, a Member of the American Academy of Actuaries and an Enrolled Actuary under ERISA.

Ms. Nicholl's publications and speeches:

Ms. Nicholl speaks and presents frequently at professional organizations, including the National Council on Teacher Retirement, the National Association of State Retirement Administrators the National Conference on Public Employee Retirement Systems, the International Foundation of Employee Benefits and the Conference of Consulting Actuaries. Additionally, she has provided educational sessions for the Boards and Staff of public pension retirement systems. Ms. Nicholl has testified before state legislative bodies in Illinois, Wisconsin, Maryland, Ohio and Texas. She currently serves on the American Academy of Actuaries Public Pensions Subcommittee.

Recent presentations and publications include:

- "Analytics of Managing Risk in Your Defined Benefit Plan," Kim Nicholl and Matt Strom, Segal Webinar, June 2015
- "Public-Sector Pension Plans: Major Challenges & Common-Sense Solutions," Kim Nicholl, *Government Finance Review*, April 2013

- "GASB Approves New Accounting Standards for Public Sector Pension Plans and Sponsoring Employers," Kim Nicholl and Paul Angelo, *Pension Section News*, November 2012

- "Hybrids in the Public Sector," *IFEBP 58th Annual Employee Benefits Conference*, November 2012

- "GASB's Proposed Changes to Pension Accounting Standards for Public Sector Employers," Paul Angelo, Rocky Joyner and Kim Nicholl, *Benefit Magazine* (IFEPB), June 2012

- "Planning a Successful Pension Funding Policy," Kim M. Nicholl, Paul Angelo, and Cathie G. Eitelberg, *Segal Public Sector Letter*, November 2011

- "Public Pension Plans," *SOA 2011 Annual Meeting & Exhibit*, October 2011

- "Actual Cost vs. Market Price: Does Market Valuation of Pension Liabilities Fit the Public Sector?," Paul Angelo, Kim M. Nicholl and Cathie G. Eitelberg, *Segal Public Sector Letter*, June 2011

Our Approach

ALM Process and Methodology

Our ALM study will include the following distinct phases:

Kick-off Discussion

- Our starting point will be to have a discussion concerning the plan's current asset allocation and key decision metrics, as well as any other background on the plan investment structure and risk appetite.

Build the Actuarial Liability Model

- As the current actuary we are uniquely qualified to model the TFFR benefit provisions and member data.
- Nevertheless, there are nuances that we will discuss with TFFR regarding the liability that are not typically associated with annual valuations. Some examples (not a comprehensive list) are:
  - To what extent should future inflation be modeled as affecting the liability? For instance, should future inflation experience change the projection of salaries?
  - What kind of open-group projection should be modeled? Typically, we assume a constant active population, where terminations, retirements, and active deaths are replaced one-for-one.
  - Should any future plan changes be modeled?
- We note that the statutory contribution rates change when the plan's funded status reaches 100%. We will model this policy and provide statistics regarding the probabilities of reaching the lower contribution rates.

Development of Asset Class Universe

- We will discuss which asset classes, beyond those currently utilized, are appropriate to include in the analysis.
- This discussion will include our current views regarding certain strategic asset classes and what we are seeing in the marketplace in terms of movement towards (or away from) particular asset classes or strategies.

Optimization and Selection of Alternative Portfolios

Segal Rogerscasey develops forward-looking capital market assumptions at all horizons that span 10-year, 20- year and 30-year projection periods. It is worth noting that our capital market assumptions are characterized by an increasing term structure, where (for instance) expected returns over a 30-year horizon would be higher than over a 10-year horizon.

- We will calibrate our capital market assumptions to the date of the study. As optimization relies heavily on the capital market assumptions utilized, we will want to have a thorough discussion regarding the specific capital market assumptions for use in the study.

- We develop our own capital market assumptions at the beginning of each calendar year using financial market conditions at that time (e.g., bond yields at the beginning of the year heavily influence our forward-looking expectations for fixed income returns). We will discuss whether it is useful to update these assumptions to reflect changes since the beginning of the year.

- Although we would prefer to use our capital market assumptions for all aspects of the study – as it provides continuity with our firm views on certain asset classes – we could (and have in the past) substituted the capital market assumptions of your investment advisor (or any other assumptions for that matter). If you feel doing so will add some amount of continuity with past ALM studies and/or the views of your investment advisor, please let us know and we would be happy to have a discussion regarding the cost/benefits of such an approach.

- Once capital market assumptions are loaded into the model, efficient frontiers (portfolio sets that optimize risk and reward) are then drawn, and among those portfolios we select a finite number of candidate portfolios for analysis.
    - Candidate portfolios. The candidate portfolios should focus on strategic asset class selection where asset classes are defined as a grouping that is not-highly correlated with, and has distinct risk factors from, all other asset classes. Candidate portfolios should cover a broad range of the risk/return spectrum and should be distinct enough to provide meaningful differences in the decision-making variables.
    - Analysis of portfolio robustness. As with all models, mean variance analysis for portfolio construction has various limitations. For example, some asset classes have a liquidity risk premium embedded in the expected return . Liquidity risk is different from return standard deviation which drives mean variance frontiers and may affect the ultimate portfolio allocation. We have various tools which help address model limitations and we may ultimately impose constraints around portfolio allocations with input from your investment staff.

Deterministic and Stochastic Projections

- We will work with TFFR to decide on the appropriate time horizon for the projection study. We find that 10-20 years is typical as most trustees consider this a long-term and strategic period for making decisions. However, we could also focus on shorter or longer time horizons without difficulty.

- Deterministic projections, in which forecasts are made without any uncertainty in the economic variables, are simple by nature and thus enable trustees to become comfortable with the projection process and the directionality of the key decision-making variables. However, deterministic projections are not helpful in assessing risk and comparing the trade-offs of various asset allocation alternatives.

- Monte Carlo simulations will be performed that produce many different random future patterns of asset returns, interest rate changes and inflation rates based on probabilistic distributions defined by means, standard deviations and correlations. This process is more complicated but provides a better assessment of the risk/return trade-offs.

- Stochastic projections take the randomly generated asset class and inflation scenarios and, for each scenario, calculate a full array of actuarial valuation metrics. Stochastic projections are run and the key decision-making variables are summarized:
  - Actuarial liability and asset values (both actuarial and market values);
  - Funded ratios (and probabilities of achieving certain funded statuses);
  - Actuarially determined contribution rates (as distinct from the statutory contribution rates);
  - Cash flow risk measures: Monthly liquidation as a % of assets, concentration risk of alternative allocations; and
  - Illustrative Dynamic Asset Allocation Glide Path for review and consideration.

Presentation of Results

- Segal will present the results for discussion at a face-to-face meeting after the stochastic projections have been completed.

- We will produce a comprehensive report to facilitate this discussion that will include details regarding the assumptions used in our study and succinct summaries of the plan provisions, census data, and actuarial methods, in addition to all of the summaries of key decision-making variables.

In terms of risk management and mitigation, our asset/liability modeling services provides answers for the following:

- To what extent can future investment returns be expected to improve or jeopardize the plan's funded position?

- What are the plan's future annual liquidity requirements?

- What do the likely portfolio allocations look like under dynamic strategies, with illiquid alternative allocations?

- How might plan design changes under consideration affect the plan's long-term financial position?

Follow-up and Decision Making

- Typically, after the presentation of results, there are questions asked and variations offered that required follow-up analysis. We expect a reasonable amount of follow-up and this is included in our proposed fee.
- If the amount of any follow-up work is deemed not within the scope of our original proposal we would let you know, and would discuss this with you in advance of proceeding with the work.

Timeline

We recommend producing this ALM study on a track parallel to the production of the July 1, 2015 valuation. This will allow us to use the most current census data available (namely, the July 1, 2015 actuarial valuation data) and the assumptions that the Board adopted to be effective with this valuation. We will begin work on the stochastic liability model as soon as the valuation liabilities are calculated and reviewed. We will start on the economic simulator and capital market components of the study in advance so that we can produce final stochastic projections relatively quickly after the valuation report is finalized.

A sample proposed work plan is included below (assumes we are awarded the work on or about August 31, 2015, which we believe is consistent with your intent):

Service Element	Time Frame	Notes
Work That Can be Done in Advance of Completion of July 1, 2015 Valuation		
Discussion with TFFR regarding asset class universe and constraints	Early September 2015	Account for liquidity needs and risk tolerances and preferences
Discussion with TFFR regarding capital market assumptions	Early September 2015	Determine which set of capital market assumptions should be utilized, and over what horizon
Calibrate our economic simulator to the chosen capital market assumptions	Mid-September 2015	May include an update to mid-year assumptions if TFFR feels this is warranted
Run optimization and present an initial set of candidate portfolios for consideration	Late September 2015	Typically an iterative process, resulting in 4 to 6 candidate portfolios
Presentation of report	October Board Meeting	Prepare PowerPoint presentations and handouts to present to the Board
Work that Will Commence after July 1, 2015 Valuation Completed (on October 1)		
Build the Liability Model	Early October	Segal Rogerscasey will work with actuarial team
Review initial set of candidate portfolios vs. final liability model for appropriateness	Mid-October	Edit candidate portfolios if necessary

Service Element	Time Frame	Notes
Discuss/Decide key projections parameters with TFFR (time horizon, number of stochastic trials, key decision-making variables to summarize, etc.)	Mid-October	Consider default and custom variables
Run stochastic projections	Late October	Segal Rogerscasey
Create and present report of preliminary results and recommendations	Early November	Teleconference/video conference
Follow-up analysis and create/present final report	Mid-November	In person meeting with the key decision making audience in North Dakota

Several of these steps may involve a smaller "sub-committee" of individual(s) from TFFR working with Segal Rogerscasey investment professionals, if appropriate.

Pricing

We would charge a flat-fee of $57,000 for the study inclusive of the specific steps outlined above.

Appendix

Technical Detail Regarding our ALM Tools

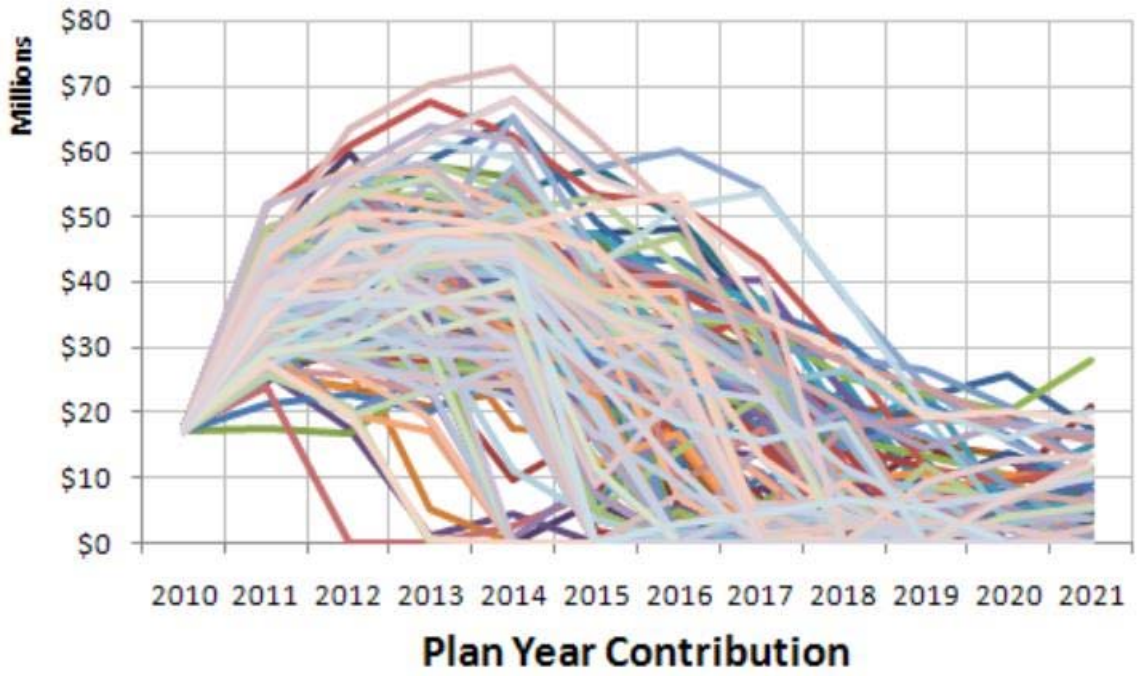
Model Construction

Segal's ALM process is quantitative in nature and is used to facilitate the asset allocation decision-making process. All our analysis encompasses both liabilities and assets, forward-looking and predominantly probabilistic (Monte Carlo simulation-based stochastic analysis) in order to help our clients make informed decisions about their pension funds. We combine three general approaches to facilitate decision-making:

- Parametric risk and optimization models, such as mean-variance optimizers in surplus space. Since we create our own models, we have run extensive tests to create these models. Parametric risk is used to review a worse-case scenario, known as tail risk (i.e. what would happen if asset returns mirror those experienced from 2000-2002)

- Scenario analysis, which evaluates a specific combination of investment market returns and liability returns often defined by a particular growth/inflation environment or a historical period. This process is more straightforward but does not adequately address the impact of portfolio risk. We can create a very specific scenario and run our modeling based on this scenario. For example, modeling the contingency reserve to ensure that every year a CPI increase is provided to retirees.

Sample Stochastic modeling using Monte Carlo simulations



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Key Model Components

Within our ALM model is the economic simulator platform. It is here that the economic variables influencing asset class and liability performance is determined. The key components of our economic model include:

- **Multi-factor yield curve models** – With the impact of interest rates being critical to pension funding, we have developed robust yield curve models. In these models, shocks to the various term structures affect government bonds, real return bonds, swap and credit fixed income returns, as well as changes in the price of the pension liability (through the real, nominal and credit spread durations). Key elements of these models include:
  - Government/swap term structures – calibrated to today's starting levels;
  - Real return bonds/real yield term structure – calibrated to today's starting levels;
  - Credit spread term structures – calibrated to today's starting levels;
  - Mean reversion to long-term equilibrium levels consistent with forward curves and risk premium views;
  - Modeling of both coupon and strip securities capturing unique durations and convexities;
  - Yield volatility term structure is consistent with empirical measures;
  - Excluded arbitrage portfolio structures;
  - Included synthetic structures such as interest rate swaps.
- **Key macro factors driving risk assets**.
  - Global business cycle – Primary risk factor for risk assets: equities, credit fixed income, etc. Empirically, the core macro equity risk factor is not stationary but fluctuates significantly over time and is highly negatively correlated to price action. We use a stochastic volatility model to capture this risk factor more accurately andtwo primary outcomes. First, this results in the fat-tailed nature of equity returns where capital drawdowns are more likely than those predicted by a Gaussian distribution. Second, correlations move toward 1.0 in highly volatile (down-trending) markets. In the world of mark-to-market accounting, recognizing the likelihood of these short-term drawdowns and rising correlations is important in evaluating risk trade-offs implicit in dynamic asset allocation. Similar to our interest rate term structures models, we calibrate our volatility model to current implied volatility surfaces.
  - Liquidity – This risk factor is central to the alternative space (real estate, private equity, hedge funds, etc.) and can have a key impact on dynamic and rebalancing strategies.
- **Inflation model** – Used to simulate trends in cost-of-living adjustments and wage increases.
- **High frequency data** – Critical for dynamic portfolio solutions to simulate asset and liability returns, as well as establishing a rebalancing process on an implementable time horizon.
  - Returns are simulated weekly (also important for simulating fat-tailed returns)
  - Liabilities are typically valued monthly (can model weekly)
  - Rebalancing can occur on a weekly basis.

- We can recognize various liquidity issues among different asset classes and thus we can capture different rebalancing structures. For example, private equity commitments may not be rebalanced within traditional monthly or quarterly cycles, but can reflect their unique capital call and distribution structures.

Model Updates

During the past five years, various updates and enhancements have been made to our model. These changes can be categorized as follows:

- More sophisticated modeling of asset class returns and structures
- Asset/liability regulations
- Increased flexibility in dynamic portfolio rebalancing

Asset class products have continued to become more sophisticated. Examples include the proliferation of hedge funds, private equity, real assets, equity volatility products, LDI interest rate swap strategies, and dynamic asset allocation. We feel that there is value in many of these strategies but the risk entailed in these investments must be fully appreciated. We increased the frequency of our simulation model, using weekly instead of annual returns, which allows us to model more accurately the fat-tailed nature of investment returns. This has also allowed us to capture the liquidity issues surrounding many of our funds.

We have also introduced more complex modeling of rebalancing rules. This is particularly important for private equity structures and hedge funds, which may impose restrictions or significant haircuts to early redemptions.

All of our models are developed and maintained in-house. That means we are never at the mercy of a supplier and set our own priorities.

Capital Market Assumptions

Segal employs a forward-looking building blocks methodology that takes into account current market and economic conditions when building expected return assumptions and risk premia. In addition, we analyze historical data when developing standard deviation assumptions for each asset class, as well as the underlying correlation matrix.

For modeling expected returns, we primarily utilize a forward looking approach reflecting current market data such as real yields, inflation expectations, dividend yields, P/E ratios, credit spread, etc. For risk premiums, in addition to using the applicable market factors, we use a Black-Litterman equilibrium model to determine market clearing risk premium relationships. These risk premiums can then be adjusted to reflect any particular views we may have.

We try to use price discovery as much as possible in determining the “market’s” views of risk. Price discovery involves techniques such as “bootstrapping” for future price points. Out of the market puts and calls are also valuable in finding various price points for the market’s view of risk. For example, are the out of market calls and puts significantly above current levels,

indicating that the market feels risk will increase, or are they at normal levels? These factors help in creating market views used for our models.

In developing risk assumptions, we start by using implied volatility estimates found in option instruments with high liquidity and transaction volume. These estimates may be supplemented with historical and forward-looking adjustments where necessary.

Our starting point for correlations is a 10-year historical data set. We may adjust correlations, reflecting our forward-looking views based on outliers of historical data as inflationary or deflationary. Over the recent past, deflationary shocks have occurred (dot.com and real estate bubbles), while inflationary shocks have been almost non-existent. Looking forward, we feel that inflationary shocks are just as likely as future deflationary shocks, so our correlation structure has moved from negative toward zero, overriding the recent historical data.

While we consider the more granular aspects of asset allocation, such as small/large cap and growth/ value divisions, we increasingly focus on the larger systematic factors as well as those that transcend both sides of the valuation balance sheet (the plans' assets and liabilities).

Illustrative Presentation Slides Regarding our Capital Market Assumptions

2015 Equilibrium Asset Class Assumptions (20 Year)

		Average Return	Standard Deviation	Compound Return
Fixed - Income	Cash	3.3%	2.0%	3.3%
	Inflation Linked Bonds	3.3%	5.5%	3.2%
	Core Fixed Income	3.9%	5.0%	3.8%
	Dev. Mkts. Fixed Income (U)	2.5%	10.0%	2.0%
	High Yield	6.8%	12.5%	6.0%
	Emerging Markets Debt (50% LC)	7.2%	10.5%	6.7%
	Municipal Bonds	5.1%	6.0%	4.9%
	Global Fixed Income (U)	3.2%	8.2%	2.9%
	Long -Term Fixed Income	3.6%	11.5%	3.0%
Equity	US Equity	9.0%	18.5%	7.4%
	Developed Equity (U)	9.7%	21.0%	7.7%
	Emerging Markets Equity	12.0%	24.0%	9.4%
	Global Equity (U)	9.3%	18.9%	7.7%
	Global REITs	8.3%	20.5%	6.3%
Alternatives	Private Equity	14.1%	24.5%	11.4%
	Hedge Fund of Funds	5.9%	6.3%	5.7%
	Equity Long/Short	8.1%	10.8%	7.6%
	Credit-Event -Driven	7.9%	6.1%	7.7%
	Global Macro	6.3%	7.2%	6.1%
	Commodities	6.3%	21.0%	4.2%
	Real Estate (UL)	6.8%	12.0%	6.1%
Real Assets	Timber	8.0%	10.0%	7.5%
	Farmland	9.0%	13.0%	8.2%
	Oil & Gas	13.1%	35.0%	7.5%
	Infrastructure	8.6%	15.0%	7.6%

Disclaimer

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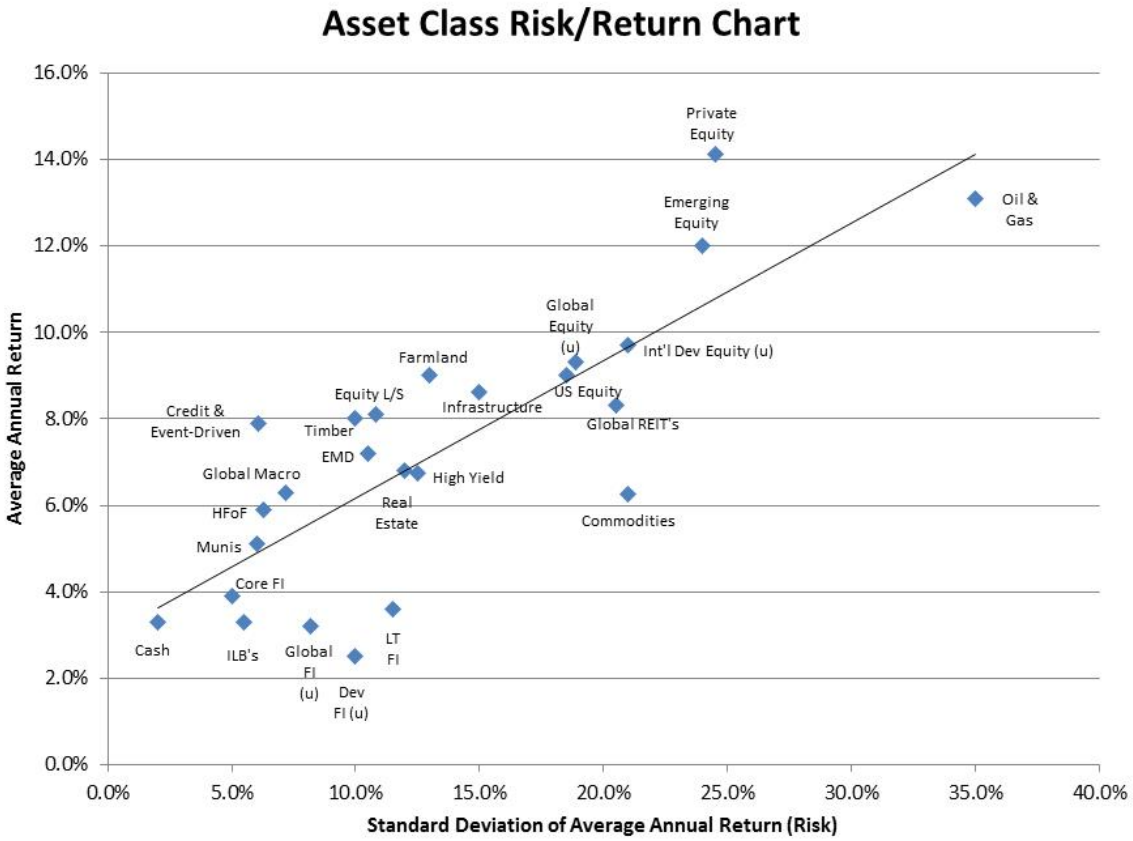
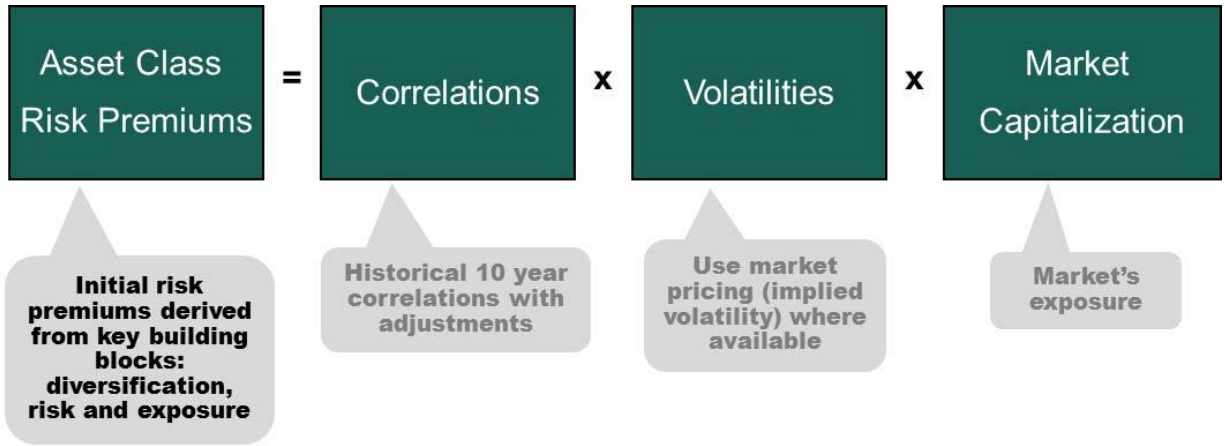


2015 Equilibrium Asset Class Proxies

	Asset Class	Index
Fixed - Income	Cash	90 Day Tbills
	U.S. Inflation Linked Bonds	Barclays Capital U.S. Treasury: U.S. Tips
	Core Fixed Income	Barclays Capital Aggregate
	Dev. Markets Fixed Income (U)	Citigroup Non-U.S. World Government Bond (U)
	High Yield Debt	Citigroup High Yield
	Emerging Market Debt (50% Local Currency)	50% JP Morgan Emerging Markets Bond Index+ / 50% JP Morgan Global Bond Index
	Municipal Bonds	Barclays Capital Municipal Bond
	Global Fixed Income (U)	Barclays Capital Global Aggregate
	Long-term Fixed Income	Barclays Capital U.S. Long Gov/Credit
Equity	U.S. Equity	Russell 3000
	Non-U.S. Developed Equity (U)	Morgan Stanley Capital International (MSCI) EAFE (U)
	Emerging Markets Equity	S&P/International Finance Corporation Investable (IFCI) Composite
	Global Equity (U)	Morgan Stanley Capital International (MSCI) World (U)
	Global REITs	FTSE EPRA / National Association of Real Estate Trusts (Nareit) Global Real Estate
Alternatives	Private Equity	Venture Economics - All Private Equity U.S.
	Hedge Fund of Funds	Hedge Fund Research, Inc. (HFRI) Fund of Funds Composite Index
	Equity Long/Short	Hedge Fund Research, Inc. (HFRI) Equity Hedge (Total) Index
	Credit-Event -Driven	50% Hedge Fund Research, Inc. (HFRI) Relative Value (Total) Index + / 50% Hedge Fund Research, Inc. (HFRI) Event-Driven (Total) Index
	Global Macro	Hedge Fund Research, Inc. (HFRI) Macro (Total) Index
	Commodities	Bloomberg Commodity Index
	Real Estate	National Council of Real Estate Investment Fiduciaries (NCREIF) Property
Real Assets	Timberland	National Council of Real Estate Investment Fiduciaries (NCREIF) Timber
	Farmland	National Council of Real Estate Investment Fiduciaries (NCREIF) Farmland
	Oil & Gas	S&P Oil & Gas Exploration & Production Select Industry
	Infrastructure	UBS Developed Infrastructure

CAPM Reverse Optimization

- Building Block Approach
  - Equity xxample: risk-free rate plus risk premium
- Starting Point: CAPM / Reverse Optimization
  - Correlations and volatilities are easier to quantify than risk premiums and have less sensitivity to portfolio composition
  - May adjust with subjective opinions regarding absolute and relative value



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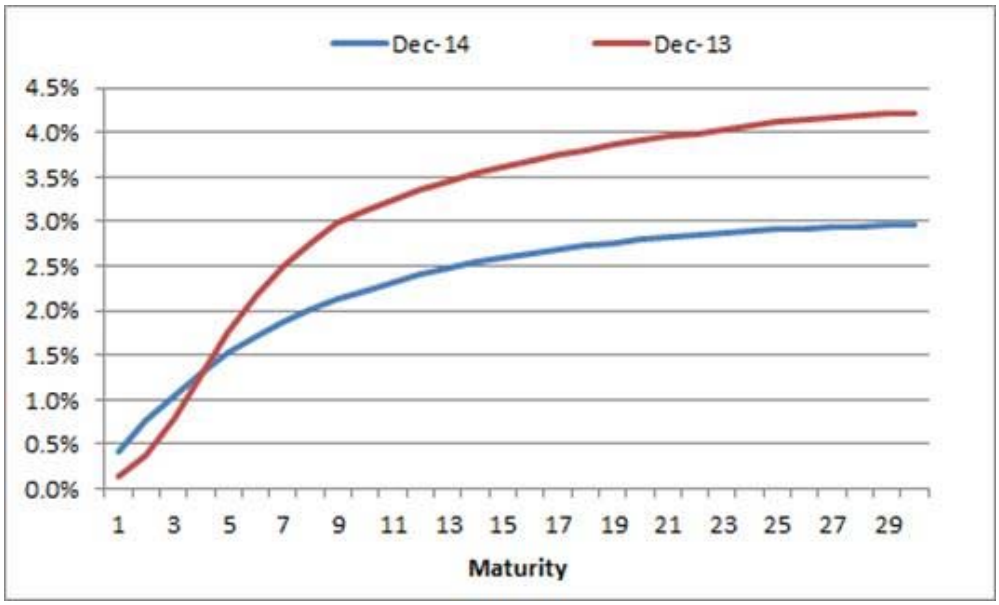
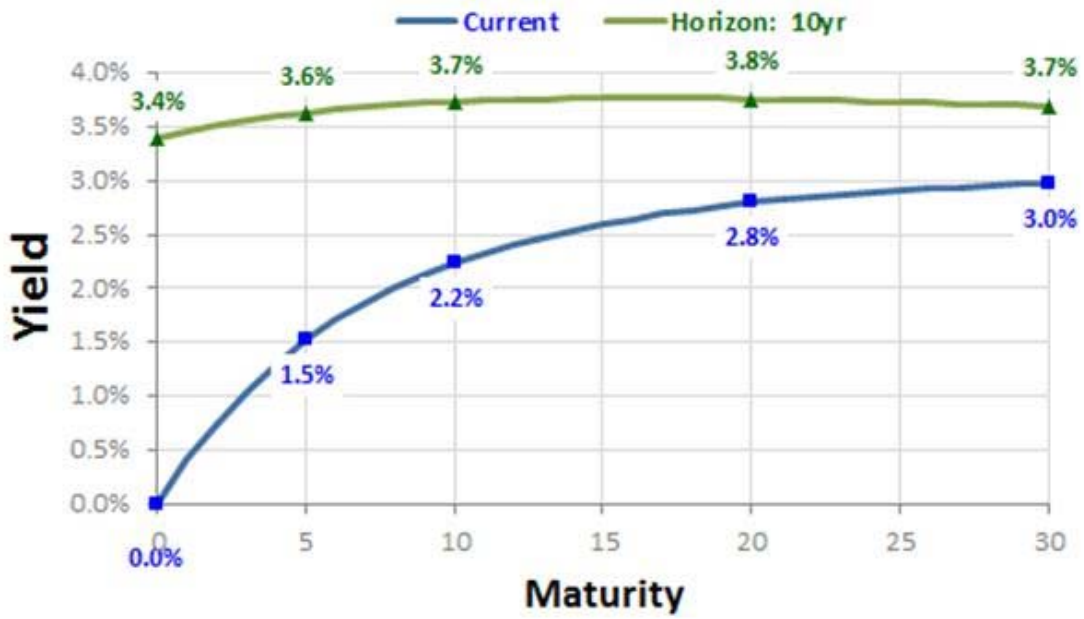
December 2014 Nominal Rates

Year/Year yields are down substantially:



Our median forecast has nominal rates rising and flattening (lower equilibrium level than last year):



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2015 Time Varying Returns

Asset Class	5 YR	10 YR	15 YR	20 YR
Cash	1.7%	2.5%	3.0%	3.3%
Inflation Linked Bonds	1.7%	2.5%	3.0%	3.3%
Core Fixed Income	2.3%	3.1%	3.6%	3.9%
Dev. Mkts. Fixed Income (u)	0.9%	1.7%	2.2%	2.5%
High Yield	5.2%	5.9%	6.4%	6.8%
Emerging Markets Debt (50% LC)	5.6%	6.4%	6.9%	7.2%
Municipal Bonds	3.5%	4.3%	4.8%	5.1%
Global Fixed Income (u)	1.6%	2.4%	2.9%	3.2%
Long-Term Fixed Income	2.0%	2.8%	3.3%	3.6%
US Equity	7.4%	8.2%	8.7%	9.0%
Developed Equity (u)	8.1%	8.9%	9.4%	9.7%
Emerging Markets Equity	10.4%	11.2%	11.7%	12.0%
Global Equity (u)	7.7%	8.5%	9.0%	9.3%
Global REITs	6.7%	7.5%	8.0%	8.3%
Private Equity	12.5%	13.3%	13.8%	14.1%
Hedge Fund of Funds	4.3%	5.1%	5.6%	5.9%
Equity Long/Short	6.5%	7.3%	7.8%	8.1%
Credit-Event -Driven	6.3%	7.1%	7.6%	7.9%
Global Macro	4.7%	5.5%	6.0%	6.3%
Commodities	4.7%	5.4%	5.9%	6.3%
Real Estate	5.2%	6.0%	6.5%	6.8%
Timber	6.4%	7.2%	7.7%	8.0%
Farmland	7.4%	8.2%	8.7%	9.0%
Oil & Gas	11.5%	12.3%	12.8%	13.1%
Infrastructure	7.0%	7.8%	8.3%	8.6%

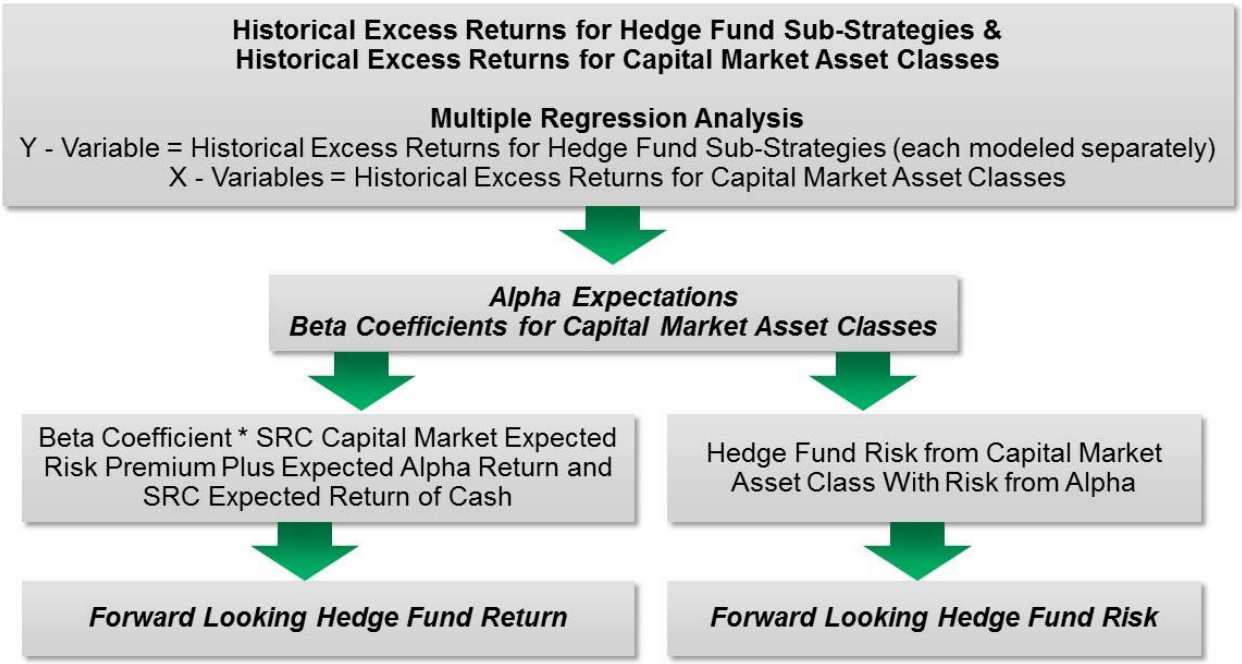
- Integrating the CAPM framework with the treasury yield curve approach, while considering current market conditions, generates the simulated "path" of time varying returns in this table.
- This return pattern will be replicated across output metrics for asset allocation modeling exercises.
- Asset class optimization, or efficient frontier analysis, is time horizon independent and would reflect results based on the 20 year (long term) assumptions

Broad U.S. Equity – Nominal Returns

- The return decomposition approach suggests a 7.5% compound nominal return assumption for U.S. Equity consistent with the following:
  - 2.7% real earnings growth
  - 2.2% dividend yield
  - No assumed P/E expansion or contraction
  - 2.3% inflation (our long-term assumption)
- (1.027)(1.022)(1.000)(1.023) = 1.074
- A 7.4% compound nominal return with a 18.5 % standard deviation of nominal returns assumption suggests an average annual return of 9.0%.

Hedge Fund Strategy Forward-Looking Assumptions

Developing Forward-Looking Assumptions for Hedge Fund Sub-Strategies Using Multiple Regression Analysis



Plan Metrics

Liability

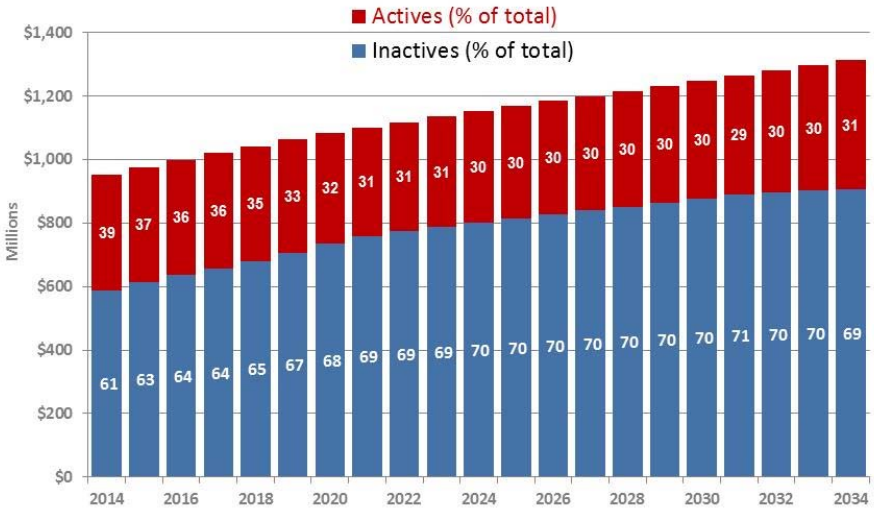
	$ Millions	%
Inactives	584	61%
Actives	368	39%
Total	952	100%

Key Assumptions	
Actuarial Discount Rate	7.00%
Wage Inflation Component	3.25%
Automatic Cost of Living Adjustments	No
Normal Cost % of Payroll	14.8%

- The Plan is relatively mature: 61% of the liability associated with inactive participants (primarily retirees and beneficiaries)
- Inflation assumption of 3.25% embedded in salary scale ~ our twenty year horizon inflation assumption is lower at 2.3%, adding an element of conservatism
- The Plan has limited inflation risk exposure given that COLAs are not automatically granted as a plan provision

Deterministic Forecast

Liability

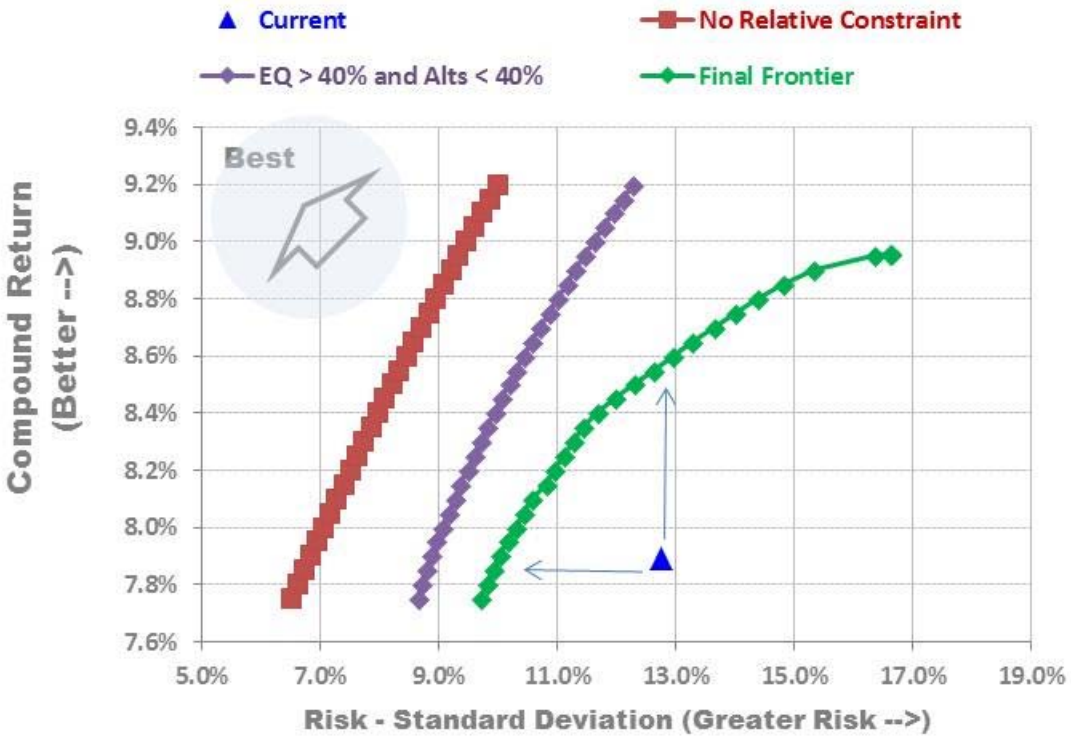


10/1/Year	Liability ($ Millions)
2014	952
2015	975
2016	998
2017	1,020
2018	1,042
2019	1,063
2020	1,082
2021	1,100
2022	1,118
2023	1,135
2024	1,151
2025	1,168
2026	1,184
2027	1,200
2028	1,216
2029	1,232
2030	1,248
2031	1,263
2032	1,279
2033	1,296
2034	1,313

- The liability is anticipated to continue to grow over the next twenty years
- It should break $1 billion mark in the next few years
- The Plan continues to mature with inactives becoming a larger portion of the total liability
  - Note contributions are based on payroll so a maturing plan poses greater risk to contribution stability

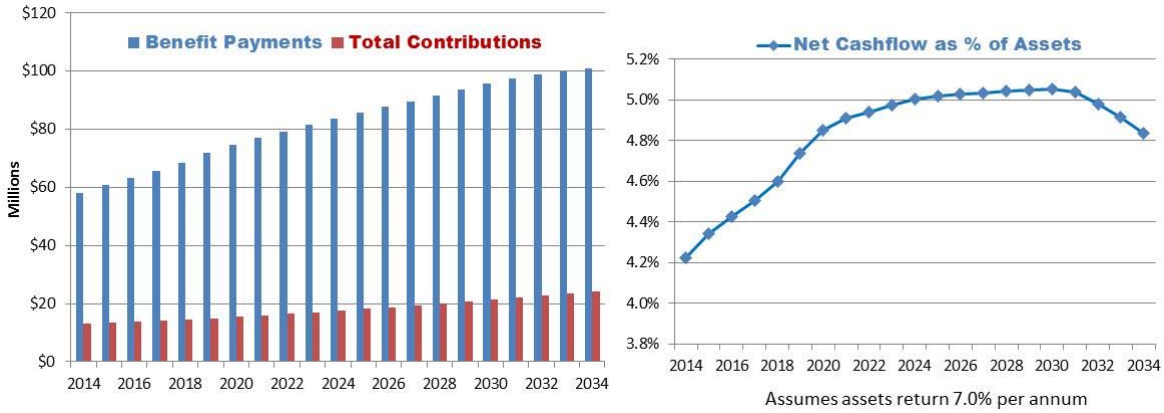
Frontiers

- Significant improvement in risk / return can be found in new portfolios even on more constrained frontiers
  - Unconstrained frontiers do not capture modeling limitations and implementation issues such as: liquidity risk, regulatory environment, capacity, etc.
- Looser constraints, allowing for greater exposure to alternative investments, diversifies the portfolio risk while providing similar or better expected return
  - For example, an 8.0% compound return portfolio on the efficient frontier would slightly improve return over the current portfolio and significantly reduce volatility from approximately 13% to 10.5%.



Deterministic Forecast

Liquidity Profile



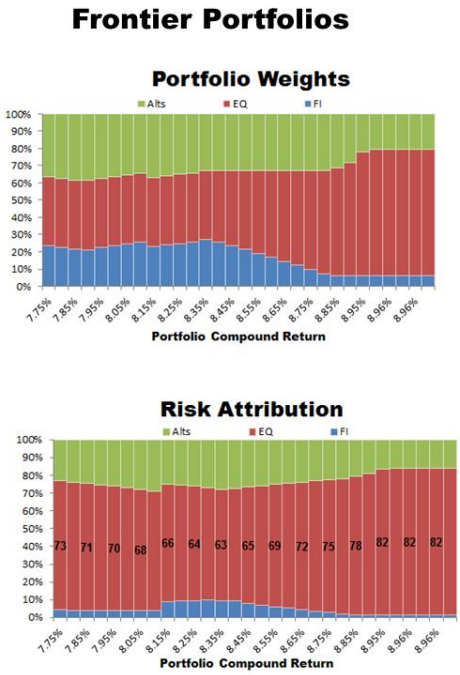
- In the near term, benefit payments grow faster than contributions pushing the net cashflow as a percentage of assets toward 5%
- Note benefit payments and contributions are relatively stable, but the asset base can decline sharply in bear markets spiking the net cashflow ratio
- When considering illiquid investments, the Plan's net cashflow ratio is a key factor in determining capacity

Final Frontier

- Current equity target weight is 59% but accounts for 84% of the plan's volatility
- Frontier portfolios have less of the plan's risk concentrated in public equity

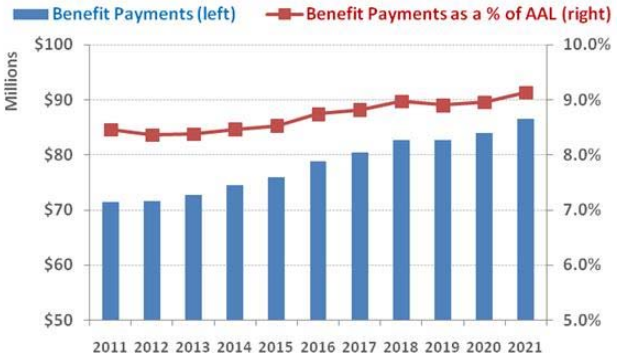
		Target Allocation
Fixed - Income	Inflation Linked Bonds	2.4%
	Core Fixed Income	11.1%
	High Yield	2.1%
	Emerging Markets Debt (50% LC)	3.9%
	Global Fixed Income (u)	2.6%
Equity	US Equity	29.7%
	Developed Equity (u)	20.1%
	Emerging Markets Equity	5.5%
	Global REITs	3.9%
Alternatives	Private Equity	6.5%
	Non-Directional HFoF	5.0%
	Real Estate	5.7%
	Timber	1.5%
	Total Fund	100.0%
	Compound Return	7.9%
	Risk	12.8%

	Risk Attribution
Total Fixed	4%
Total Equity	84%
Total Alternatives	12%
Total	100%



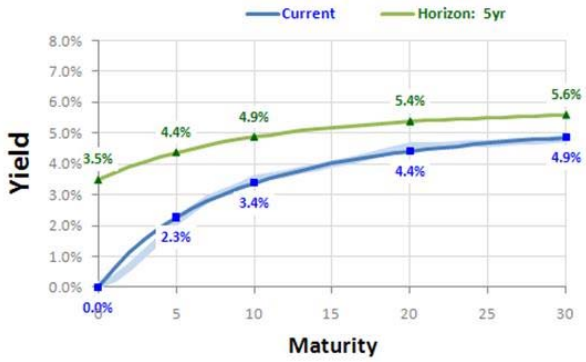
Background: Actuarial Liability Projection

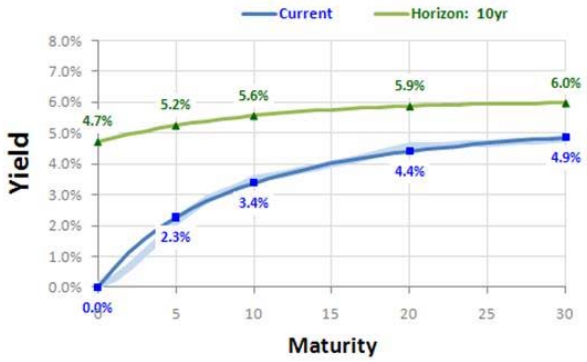
- Actuarial Liability and benefit payments are still expected to grow over the next 10 years albeit with moderate growth
  - Reduction in active workforce
  - Highly mature state of the Plan results in large benefit payments (as a % of liability / assets)



Future Expected Treasury Yield Curves

- Market's expectation (as forecast by our model) of future yield curves
- Five year and ten year horizons





Asset Valuation Models

- Building Block Approach
  - Equity Example: dividend yield + real earnings growth + inflation + valuation shift
- CAPM / Reverse Optimization
  - Correlations and volatilities are easier to quantify than risk premiums
  - Assume mean variance optimizers and homogeneous capital market assumptions and risk appetite → output risk premiums

	Horizon Total Return (Annualized)						
(Percent)	5 Year	10 Year	15 Year	20 Years	Risk Premium	Standard Deviation	Sharpe Ratio
Domestic Equities	6.5%	7.8%	8.6%	9.3%	4.4%	20.0%	22.0%
International Developed Equities	7.1%	8.4%	9.2%	9.9%	5.0%	22.5%	22.2%
Emerging Equities	7.6%	8.9%	9.7%	10.4%	5.5%	27.0%	20.4%
Core Fixed Income	2.5%	3.8%	4.6%	5.3%	0.4%	5.5%	7.3%
High Yield Fixed Income	4.1%	5.4%	6.2%	6.9%	2.0%	11.5%	17.4%
International Fixed Income	2.6%	3.9%	4.7%	5.4%	0.5%	9.5%	5.3%
Core Real Estate	6.3%	7.6%	8.4%	9.1%	4.2%	14.0%	30.0%
Inflation Hedge	5.2%	6.5%	7.3%	8.0%	3.1%	25.0%	12.4%
Alternatives (Low Volatility)	5.7%	7.0%	7.8%	8.5%	3.6%	12.0%	30.0%
Alternatives (Alpha Generating)	9.7%	11.0%	11.8%	12.5%	7.6%	27.0%	28.1%
Risk Free	2.1%	3.4%	4.2%	4.9%			

Asset Class Liquidity

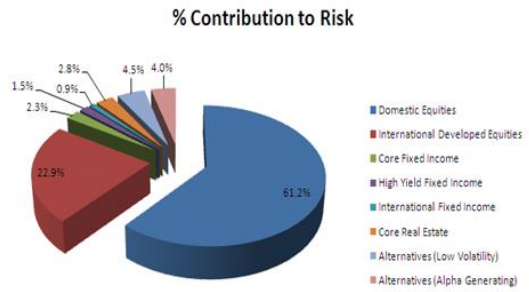
- Due to the negative cash flow characteristic of the Fund, liquidity profile of asset classes is very important
  - Equity and Fixed Income, both domestic and international, have monthly or better liquidity
  - Real Estate and Low Volatility strategies typically have quarterly or worse liquidity; however, Global Tactical Asset Allocation (GTAA), a type of low volatility strategy, can have monthly liquidity
  - Inflation Hedge strategies (Commodities) have a monthly liquidity profile
  - Alpha Generating strategies are comprised of Closed End Funds, which have a lockup and are deemed to be illiquid
- Constraints were applied to illiquid asset classes to maintain a prudent liquidity profile for the Fund

	Highly Liquid	Medium Liquidity	Illiquid
Domestic Equities	x		
International Developed Equities	x		
Emerging Equities	x		
Core Fixed Income	x		
High Yield Fixed Income	x		
International Fixed Income	x		
Core Real Estate		x	
Inflation Hedge	x		
Alternatives (Low Volitility)		x	
Alternatives (Alpha Generating)			x

Current Portfolio: Risk Attribution

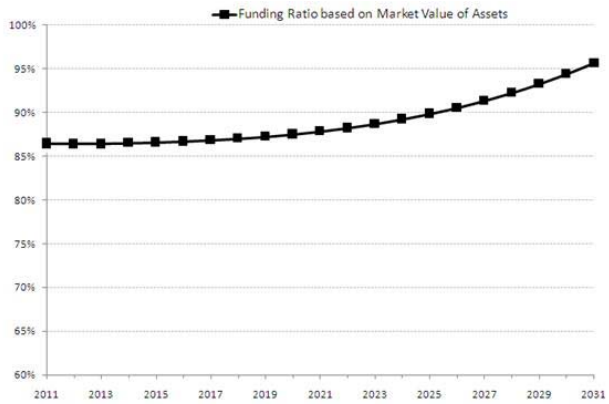
- Public equities, which have a total portfolio weight of 57%, account for approximately 84% of the risk
- The remaining risk is well diversified among other asset classes

	Risk Attribution	% Contribution to Risk
Domestic Equities	8.2%	61.2%
International Developed Equities	3.1%	22.9%
Core Fixed Income	0.3%	2.3%
High Yield Fixed Income	0.2%	1.5%
International Fixed Income	0.1%	0.9%
Core Real Estate	0.4%	2.8%
Alternatives (Low Volatility)	0.6%	4.5%
Alternatives (Alpha Generating)	0.5%	4.0%
Total	13.4%	100.0%



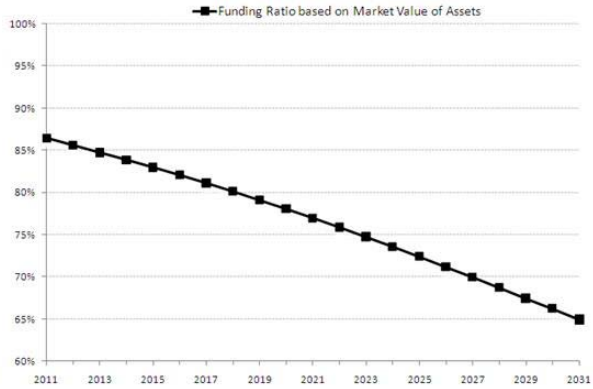
Deterministic Projections – Actuarial Discount Rate

- Assume an annual rate of return of 8.0%
  - Employees and Employers contribute 7.5% of pay
  - Deficit of the Fund is reduced over the next twenty years
  - But 7.5% contributions are not enough to cover the current deficit



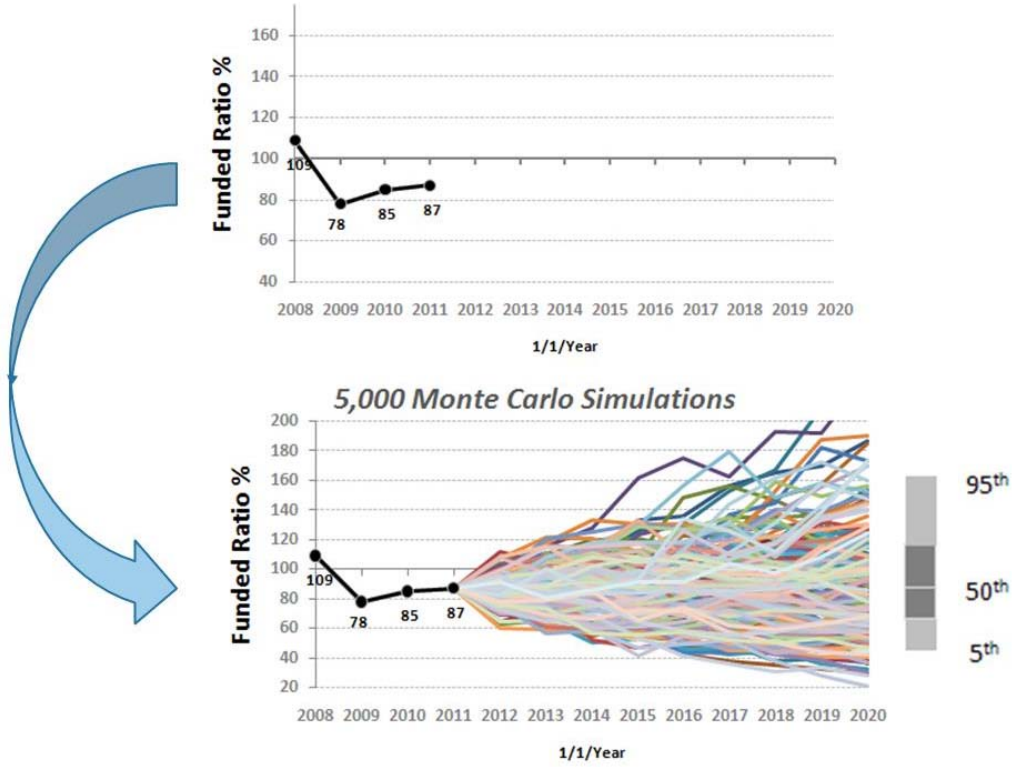
Deterministic Projections – 7.0% long-term assumption

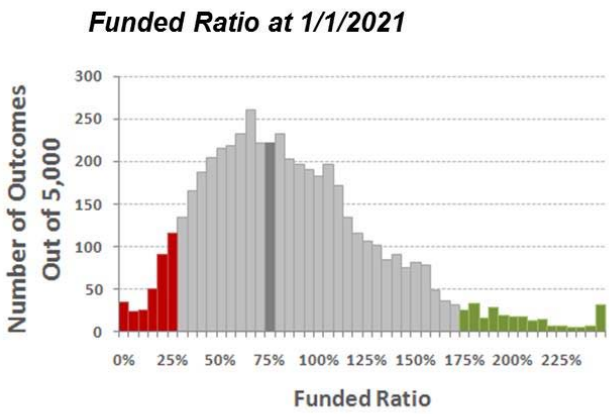
- Assume an annual rate of return of 7.0%
  - Employees and Employers contribute 7.5% of pay
  - Deficit of the Fund triples over the next twenty years to $366 Million

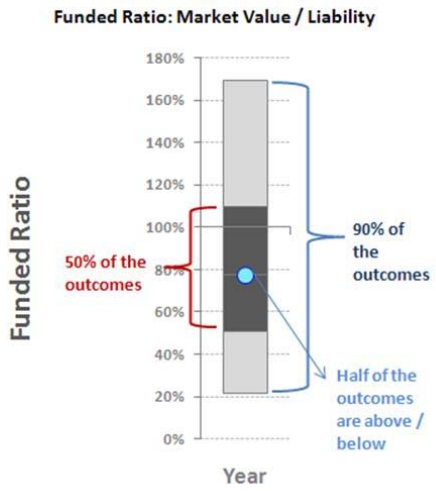


Stochastic Asset Liability Modeling (ALM) – What Is it?

- Asset Liability Modeling enables the Fund to better understand future trends in key plan metrics
- Investment returns rarely follow straight paths but rather exhibit much volatility
- While future events are uncontrollable, Funds can control their exposure to risk and shape their future outcomes



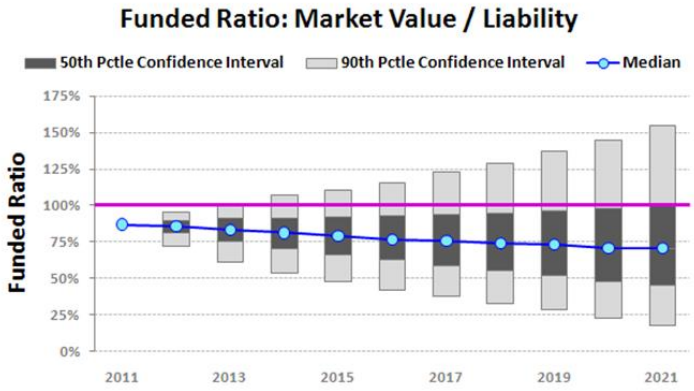




Red and **Green** represent the low probability outcomes ~ Black / White Swans

Current Mix:

- Most likely outcome has the funded ratio declining over the next decade to 71%
- Overall funded ratio trend is down over the next ten years – median is 10pts lower
- Significant volatility continues to exist
  - **5th percentile funded ratio at 1/1/2021 <u>is 18%</u>**



MV / Liab	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
95th	87%	95%	101%	107%	110%	116%	123%	129%	137%	144%	155%
75th	87%	90%	91%	91%	92%	93%	94%	94%	96%	98%	100%
50th	**87%**	**86%**	**83%**	**81%**	**79%**	**77%**	**76%**	**74%**	**73%**	**71%**	**71%**
25th	87%	81%	75%	71%	66%	63%	59%	55%	52%	48%	45%
5th	87%	72%	61%	54%	48%	42%	38%	33%	29%	23%	18%

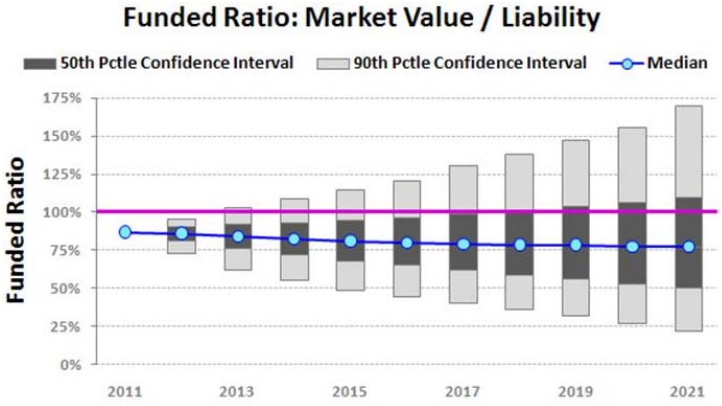
Scenarios on average have a compounded annual (1.5)% return

5,000 Monte Carlo Simulations

Alternative 2:

Higher Expected Return with Greater Exposure to Alternatives

- Improved median funded ratio over the current allocation
- Overall funded ratio trend is down over the next ten years – median is 10pts lower
- Significant volatility continues to exist
  - **5th percentile funded ratio is 22%**

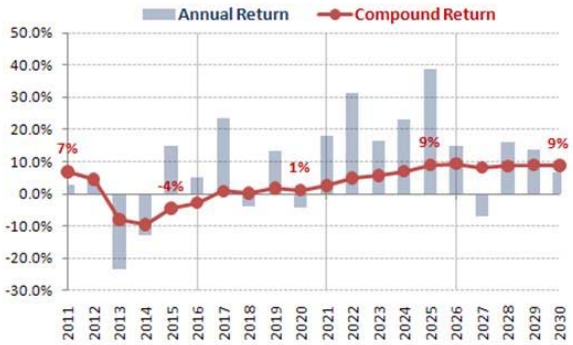


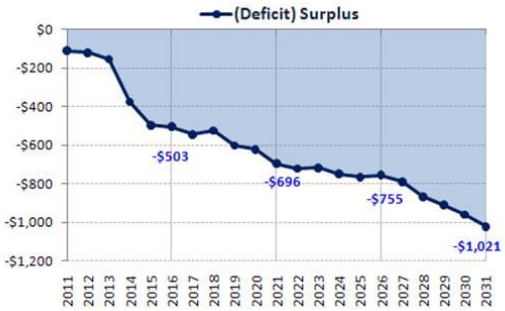
MV / Liab	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
95th	87%	96%	103%	109%	114%	121%	130%	138%	147%	156%	170%
75th	87%	90%	92%	93%	95%	97%	98%	100%	103%	106%	110%
50th	87%	86%	84%	83%	81%	80%	79%	79%	79%	77%	77%
25th	87%	81%	76%	72%	68%	65%	62%	59%	56%	53%	51%
5th	87%	73%	62%	55%	49%	44%	40%	36%	32%	27%	22%

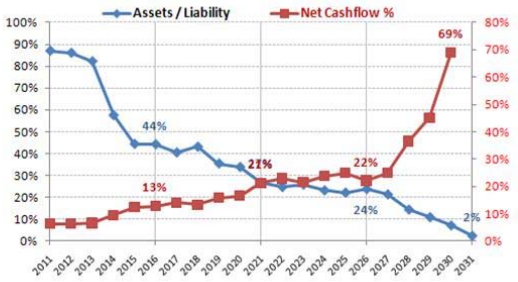
5,000 Monte Carlo Simulations

Pension Fund Investing is for the Long-term?

- Sample trial
- Simulation results in a 9.0% annual compound rate of return
- But, the Fund is insolvent long-term
- Poor returns in the short-term combined with the large negative cash flows results in a death-spiral where the Fund can't earn its way out of the deficit







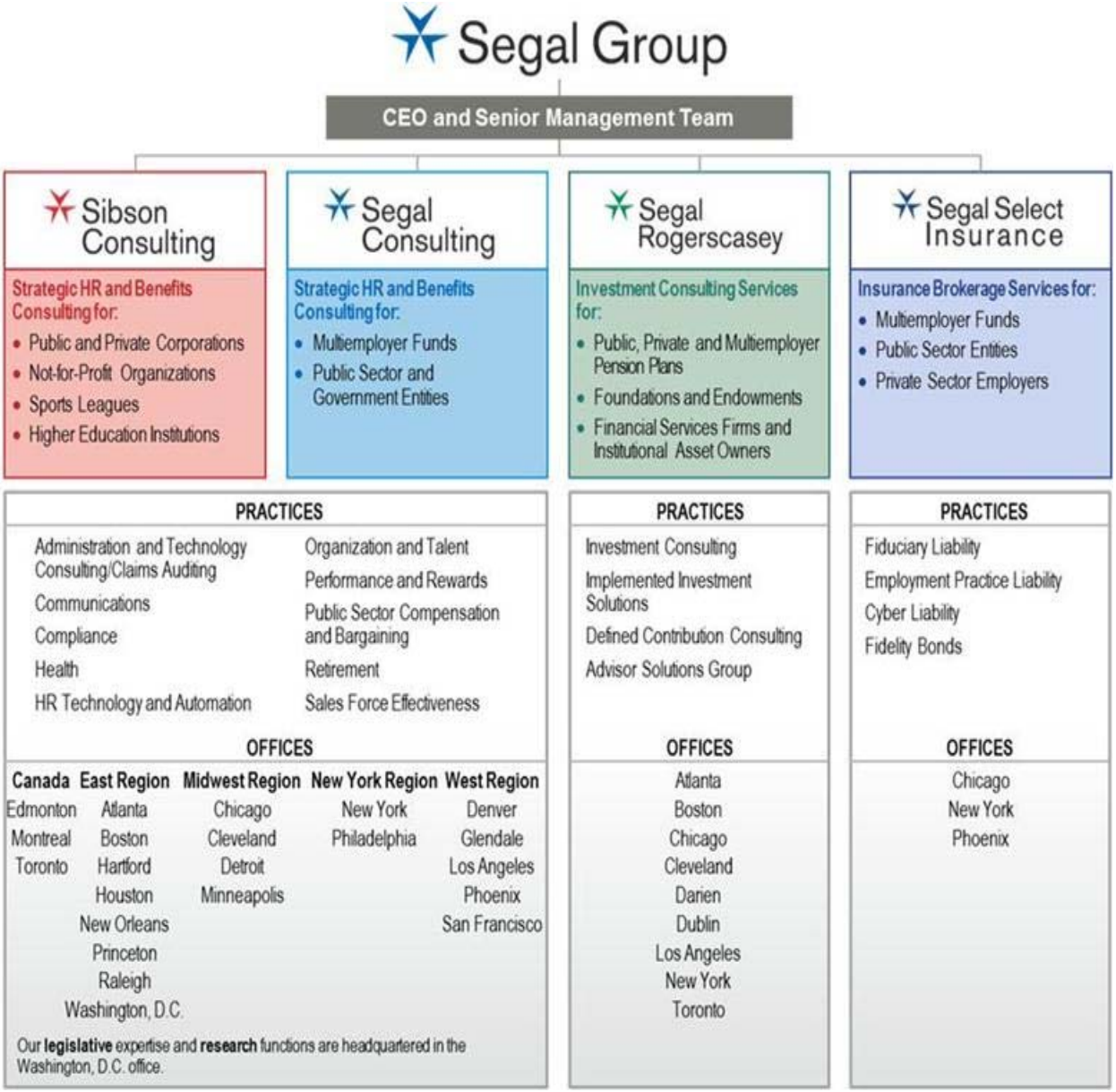
Dynamic Asset Allocation – Glide Path Illustration

	Economic Funded Ratio (Market Value & 6.5% Interest Rate)							
Asset Allocation	Less than 70%	70% - 74%	75% - 79%	80% - 84%	85% - 89%	90% - 94%	95% - 99%	100%+
Equity	53%	48%	43%	38%	34%	29%	25%	20%
Fixed Income Core	13%	18%	23%	30%	38%	45%	53%	60%
Real Estate	10%	10%	10%	10%	10%	10%	10%	10%
Alternatives	25%	25%	25%	22%	19%	16%	13%	10%
Total	100%	100%	100%	100%	100%	100%	100%	100%
Actuarial Interest Rate	8.0%	7.8%	7.6%	7.4%	7.1%	6.9%	6.7%	6.5%

- Current Economic Funded Ratio is in the 70-74% range
- Glide path maps out the de-risking strategy
- This will be viewed quarterly, when the funded status hits a new band, Segal Advisors will work with the Fund to rebalance the portfolio

- As the Fund's funded ratio improves, a greater portion of the assets are invested in bonds
  - *Duration matched bonds track pension obligations more closely providing enhanced benefit security

The Segal Group Inc, Consulting Structure



Sample Client List

Public DB Plan Clients and Assets under Advisement

Plan Name	AUA*
Board of Education Employees' Pension Fund of Essex County (NJ)	$145.1m
Bristol County (MA) Retirement Board	$578.6m
Cambridge (MA) Retirement Board	$1.0b
Cecil County (MD) Pension Plan for Public Safety Employees	$44.5m
City of Cape Coral (FL) Municipal General Employees' Retirement Plan	$205.4m
City of Hollywood (FL) Employees' Retirement Fund	$306.1m
City of Holyoke (MA) Retirement Board	$253.0m
City of Memphis (TN) Retirement System	$2.2b
City of Ocala (FL) General Employees Retirement System	$99.1m
City of Rockville (MD) Pension Fund	$87.8m
City of Springfield (MO) Police & Firefighters Retirement System	$299.5m
City of Tallahassee (FL) Defined Benefit Plan	$1.3b
Hampden County (MA) Regional Retirement Board	$303.7m
Kansas City (MO) Public School Retirement System	$691.7m

Plan Name	AUA*
Kent County (DE) Levy Court Employees Retirement Program	$34.5m
Louisiana School Employees' Retirement System	$1.6b
Metropolitan Water Reclamation District of Greater Chicago OPEB Trust Fund	$185.5m
New Bedford (MA) Retirement Board	$241.0m
North Broward (FL) Hospital District	$862.5m
Northern Virginia Regional Park Authority Retirement Plan	$50.5m
Omaha (NE) Public Power District	$929.7m
Parochial Employees' Retirement System (PERSLA)	$3.4b
Police Retirement System Of St Louis (MO)	$681.0m
Sacramento (CA) City Employees Retirement System	$310.8m
Town of Palm Beach (FL) Retirement System	$211.4m
Transit Management of Southeast Louisiana Retirement Income Plan	$188.4m
Washington (DC) Metropolitan Area Transportation Authority Transit Police	$189.6m

AUA Grand Total: $16.5b*

* Rounded figures

Callan

July 23, 2015

2015 Asset Allocation and Liability Study

North Dakota Teachers' Fund for Retirement

Jay Kloepfer
Executive Vice President

Julia Moriarty, CFA
Senior Vice President

Agenda

- Overview of Callan Associates Inc.
- What is an asset-liability study?
  - Definition. What are the components? Why is it important?
- Overview of Callan's asset-liability process:
  - How we will conduct the review.
  - What TFFR should expect to see as output from our review.
  - How long will it take?
- What are the key considerations in setting an asset allocation strategy.
- Selection and customization of asset classes for inclusion / special considerations.

Callan's Organizational and Consultant History

Exceptional Client Service backed by Deep Resources and Unmatched Collective Experience

1973
Ed Callan and associates founded company

1990
Successfully transitioned ownership from Ed Callan to employees, while remaining an independent consulting firm

2007
Successfully transitioned a third generation of employee owners to senior management positions

2013
Callan celebrates 40th anniversary

Independent & Focused

- Established in 1973
- Investment consulting remains our primary focus
- 100% employee owned
- Third generation of private ownership
- 77 current owner-employees

Experienced

- Over 370 Fund Sponsor clients representing $2.0 trillion in assets
- Client-focused consultants with 8-12 clients each
- Consultant tenure - Average 11 years Callan/19 years Industry
- Client tenure – Average of 9 years

Fully Resourced

- Over 175 employees
- 40 CFA/CAIA Charter holders and 17 CFA/CAIA candidates
- 50 advanced degrees
- 68 specialists in <u>every</u> area of need
- Proprietary systems and databases

Callan's Key Differentiators

Client Focused Consulting Model	Callan utilizes a custom approach to consulting. By under-standing the evolution of each clients investment program and using a disciplined process, we enable clients to make optimal long term decisions based on their unique circumstances.
Proprietary Data and Research	Since the inception of our firm, Callan has continually reinvested in our proprietary data, performance and risk management services rather than out-sourcing them to banks and other third party providers.
Integrated Approach to Consulting	There are distinct advantages for clients who work with consultants that have knowledge produced by the synergy of multiple business lines.
Independent and Focused	Callan is independent, well into its third generation of employee ownership, and is solely focused on serving the needs of institutional investors.

Public Fund Experience

Callan is the Industry Leader for Public Pension Plans

- The investment interests of Public Pension Funds have always been important to Callan
- Total Public Plan Clients: 125
- Total AUM for Public Defined Benefit Clients: $1.6 Trillion

Representative Public Pension Plan Clients

- Alaska Permanent Fund Corporation
- ***Alaska Retirement Management Board***
- Arkansas Public Employees' Retirement System
- Charlotte Firefighters' Retirement System
- City of Atlanta General Employees' Pension Fund
- City of Aurora General Employees' Retirement Plan
- City of Tulsa Municipal Employees' Retirement Plan
- ***El Paso City Employees' Pension Fund***
- Firemen's Annuity & Benefit Fund of Chicago
- Georgia Municipal Employees' Benefit System
- Illinois Municipal Retirement Fund
- Marin County Employees' Retirement Association
- Mendocino County Employees' Retirement Association
- Milwaukee Employees' Retirement System
- Mississippi Public Employees' Retirement System
- Nevada Public Employees' Retirement System
- New York City Employees' Retirement System
- ***North Dakota State Investment Board***
- Public Employee Retirement System of Idaho
- Santa Clara Valley Transportation Authority Pension Plan
- State Teachers Retirement System of Ohio
- Town of Fairfield Retirement Plans
- ***Tucson Supplemental Retirement System***
- Utah Retirement Systems

Paul Erlendson works with the funds in ***bold***

Callan's Business Model

A diversified revenue stream has been critical to our ability to continue to reinvest in our people and our proprietary systems. It is what allows us to deliver greater capability to our clients at more competitive fees.

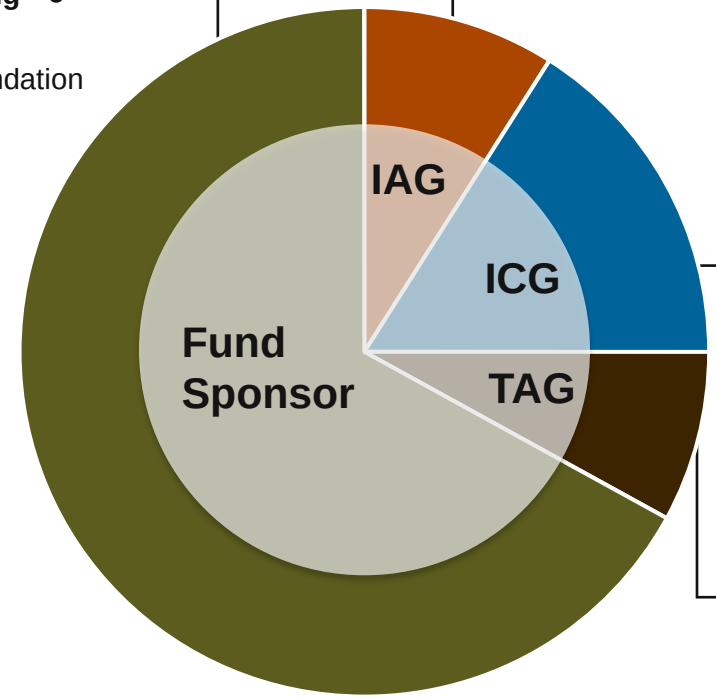
Fund Sponsor Consulting

Clients include defined contribution, pension, foundation and operating assets

374 funds

$2.0 trillion in assets

67% of Callan's revenues



Independent Advisor Group (IAG)

Clients include "middle market" consulting firms and financial intermediaries

34 clients

9% of Callan's revenues

Institutional Consulting Group (ICG)

Clients are investment management organizations

183 clients

$7 trillion in assets

16% of Callan's revenues

Trust Advisory Group (TAG)

Clients include very large defined benefit plans

New business line in 2006

$9 billion in assets

8% of Callan's revenues

As of June 30, 2015

Callan's Ethics Policy

Protecting Our Clients and Our Firm

- **Separate P&L:** Each business unit has their own personnel and their own P&L. A fund sponsor consultant's compensation is entirely dependent on the health of the Fund Sponsor consulting business and the satisfaction of Fund Sponsor clients. They have a massive personal financial disincentive against their clients ever receiving conflicted advice from the firm.
- **Peer Review:** Every manager search is a collective effort involving the client, the general consultant, a team of specialists, and ultimately a peer review committee. This environment of complete transparency absolutely requires a well-documented process. Unsupported personal opinions and biases are eradicated.
- **Disclosure:** Callan sets the standard for disclosure in our industry. Every manager search report and performance report has a complete listing of every manager that does business with Callan's ICG division. Clients can request fee information on manager clients from our compliance department at any time.
- **Code of Ethical Responsibility**: We hire ethical people at Callan. On an annual basis we require every employee to review and acknowledge their required adherence to our Code of Ethical Responsibility. Any breach of the Code of Ethical Responsibility can result in immediate termination and potential legal action against the individual.

Client Focused Consulting Model

Proactively Provide Our Collective Expertise and Experience to Clients

North Dakota Teachers' Fund for Retirement

Callan Consulting Team
Paul Erlendson Julia Moriarty, CFA Jay Kloepfer

Client Policy Review Committee 11 Senior Professionals	Manager Search Committee 16 Senior Professionals	Alternatives Review Committee 10 Senior Professionals

Strategic Planning

Capital Markets Group

Jay Kloepfer
Jason Ellement, FSA, CFA, MAAA
Karen Harris, ASA, CFA
Julia Moriarty, CFA
Gene Podkaminer, CFA
Jim Van Heuit

Plan Implementation

Global Manager Research

Public Markets
Mark Stahl, CFA
Inga Sweet
Kristin Bradbury
Brett Cornwell, CFA
Ho Hwang
Andy Iseri, CFA
Amy Jones
Lyman Jung
Kevin Machiz
Lauren Mathias, CFA
Maria Sandberg
Nathan Wong, CFA
Mark Wood, CFA

Custody
Virgilio "Bo" Abesamis
Mark Kinoshita

Private Markets
Jamie Shen
Mark Andersen
Sarah Angus, CAIA
Michael Bise
Butch Cliff, CFA
Jonathan Gould
Sally Haskins
Brian Kmetz, CFA, CIPM
Jim McKee
Jay Nayak
Gary Robertson
Avery Robinson, CAIA
Lauren Sertich

Plus 4 Additional Analysts

Monitoring & Evaluation

Client Report Services Proprietary Database

Denise Steele
Allie Banuelos
Brendan Egan
Alpay Soyoguz, CFA

Maria Bautista
Haichi Chen, CFA
Molly Huddleston
Susan Kern
Paul McGurk
Bill Smith

Amit Bansal
Anne Leung
Adam Mills
Maggie Solis

Plus 20 Additional Analysts & Support

Education & Research

Callan Investments Institute and "Callan College"

Gina Falsetto
Ray Combs

"Callan College"
Kathleen Cunnie

Published Research
Anna West
Scott Brown
Jacki Hoagland
Nicole Silva

Most Callan Professionals Participate as Instructors and Research Writers

TFFR Asset/Liability Evaluation

Primary Consulting Team

Paul Erlendson

- 29th year with Callan
- Senior Vice President, Fund Sponsor Consulting
- Member of Manager Search, Defined Contribution, and Client Policy Review Committees
- Callan Shareholder
- M.A. and B.A., North Dakota State University

Jay Kloepfer

- 17th year with Callan
- Director, Capital Market & Alternatives Research
- Member of Callan Management Committee
- Callan Shareholder
- MA in Economics from Stanford
- BS with honors in Economics from the University of Oregon

Julia Moriarty, CFA

- 25th year with Callan
- Consultant in Callan's Capital Markets Research Group
- Callan Shareholder
- MBA from the University of California at Berkeley's Haas School of Business
- BS in Finance from California Polytechnic State University at San Luis Obispo

Strategic Planning

Capital Markets Research Group

Jay Kloepfer
BS, MA

Jason Ellement
BS, FSA, MAAA, CFA

Karen Harris
BM, ASA, CFA

Julia Moriarty
BS, MBA, CFA

Eugene Podkaminer
BA, MBA, CFA

James Van Heuit
BA, BS, MA

- Provide basic capital market research – all asset classes, all strategies.
- Develop proprietary capital market expectations.
- Conduct a wide array of modeling assignments, including asset allocation and scenario analysis.
- Asset class implementation – strategies and investment manager structure.
- Provide custom client research and education.
- Quarterly Capital Market Review and periodic research papers.
- Teamed with Callan's private markets, hedge fund and real estate research groups.
- In-depth knowledge of all asset classes and strategies.

30	Full asset/spending and asset/ liability studies conducted each year
20	Asset allocation-only studies conducted each year
20	Investment structure studies conducted each year
50	Custom research projects conducted each year

Client Policy Review Committee

TFFR's asset/liability study will be reviewed by Callan's Client Policy Review Committee (CPRC). The CPRC applies firm-wide standards of practice in the review of all Callan's consulting projects, specifically asset allocation studies, manager structure studies, guidelines and policies, and any consulting projects on which clients may base investment decisions. The CPRC ensures consistency, quality, objectivity and due diligence are followed in strategic consulting engagements.

Gregory C. Allen (27/27)
James A. Callahan, CFA (22/25)*
Ivan S. "Butch" Cliff III, CFA (26/28)
Paul M. Erlendson (29/32)
John Jackson, CFA (3/26)
Weston Lewis, CFA (7/11)
Anthony "Bud" Pellecchia (16/28)
Ronald D. Peyton (41/44)
Gary W. Robertson (24/32)
Greg T. Ungerman, CFA (17/17)
Mildred Viqueira (24/30)

Notes: Numbers in parenthesis represent years experience with Callan/Industry; *Chair

What is an Asset-Liability Study?

And does it help to conduct one?

- It is a technique to evaluate assets and liabilities so that an adequate return may be targeted.
- It helps fiduciaries understand the nature of the Pension Plan they oversee:
  - Actuarial assumptions and actuarial valuation process
  - Current and projected financial condition of the Plan
  - *Including, among others, Plan's funding requirements, funded status, and contributions*
  - Major risk factors:
  - *market risk, inflation risk, interest rate risk, currency risk, demographic risk*
  - Investment goal or objective to fully fund the obligations over the long-term
  - Risk tolerance, including the need to take risk in order to achieve the objective.

- Determine the optimal investment (asset allocation) strategy relative to the liabilities:
  - The expected return on assets should be sufficient to support the desired level of funding of the liabilities (i.e. TFFR's discount rate = 7.75% effective July 1, 2015).
  - Actuarial assumptions are set over long time horizon (working life of a participant, typically 20 years +), whereas capital market expectations are formed with a 10-year time horizon.

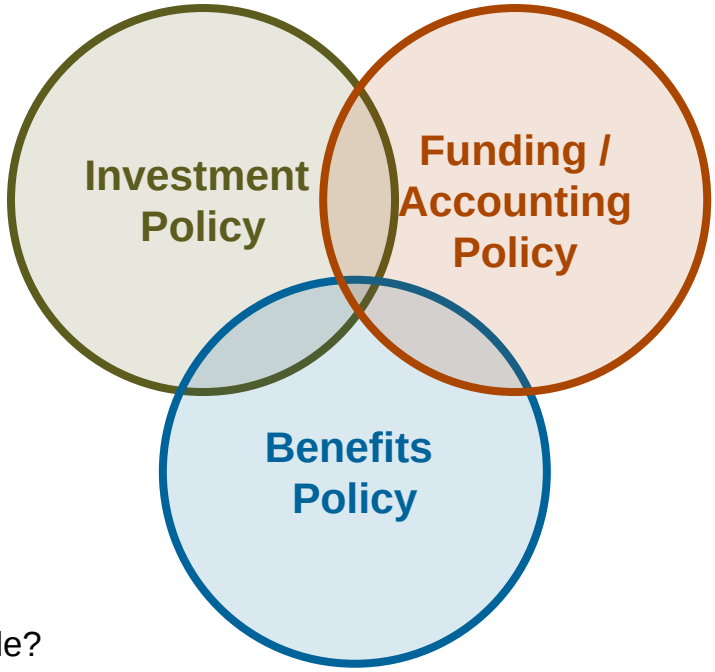
Three Key Strategic Policies

It's about more than just the assets

We evaluate the interaction of the three key policies that govern a pension plan with the goal of establishing the best investment policy

Investment Policy

- How will the assets supporting the benefits be invested?
- What risk and return objectives?
- How to manage cash flows?



Funding / Accounting Policy

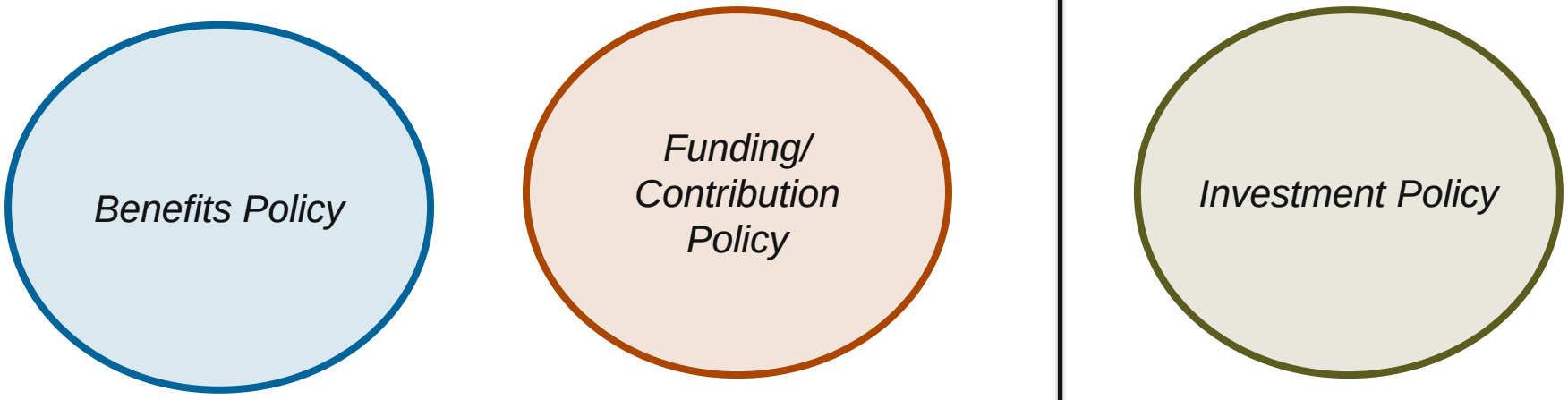
- How will the benefits be paid for (funded)?
- What actuarial discount rate?
- How will deficits be paid for?
- How will costs be recognized?

Benefits Policy

- What type/kind of benefits?
- What level of benefit?
- When and to whom are they payable?

Nature of the Pension Plan

Equations Must Balance



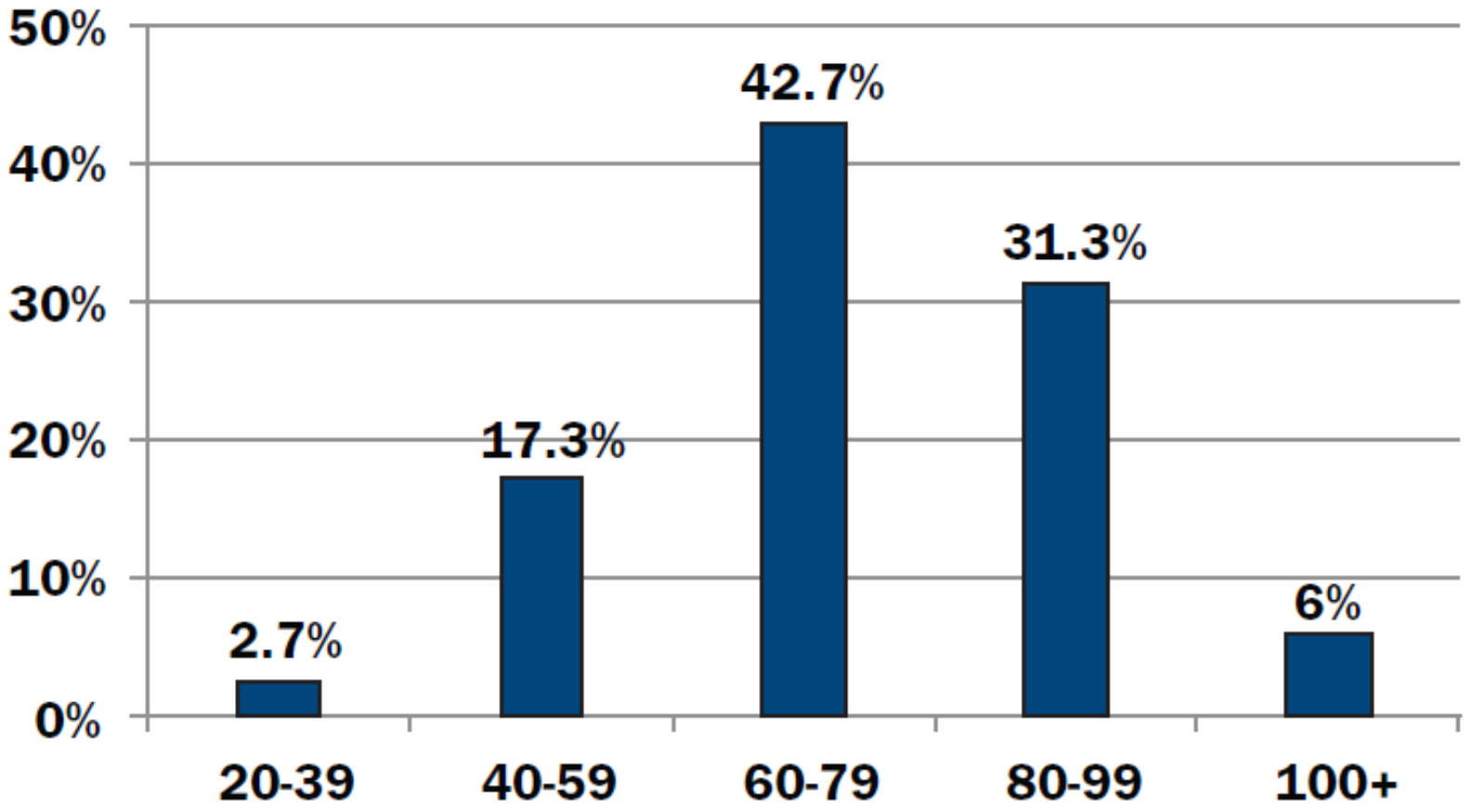
Benefit Payments	=	Contributions	+	Investment Returns
Actuarial Liability	=	Unfunded/Surplus	+	Assets

- **Asset allocation is the primary determinant of investment return and asset volatility.**
- **Through the equations of balance, plan liabilities play a role in setting the investment strategy.**

Review Optimal Asset Allocation Strategy

TFFR's funded status is not unlike that of other public plans

Distribution of Funded Ratios for Public Pension Plans, FY 2014

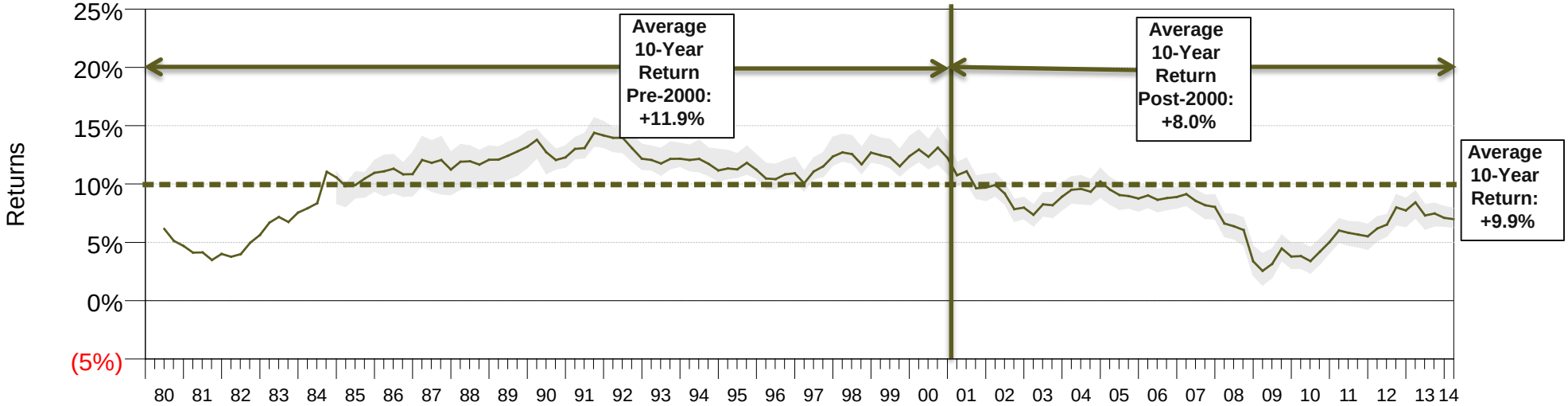


Source: The Center for State & Local Government Excellence, "The Funding of State and Local Pensions: 2014 – 2018." The survey covered 150 public pension plans with $3.2 trillion in assets which represent 90% of all public pension funds' assets.

- According to Segal Consulting's "Actuarial Valuation and Review as of July 1, 2014," TFFR's funded status improved during fiscal 2014, from 58.1% at June 2013 to 61.8% at June 2014.

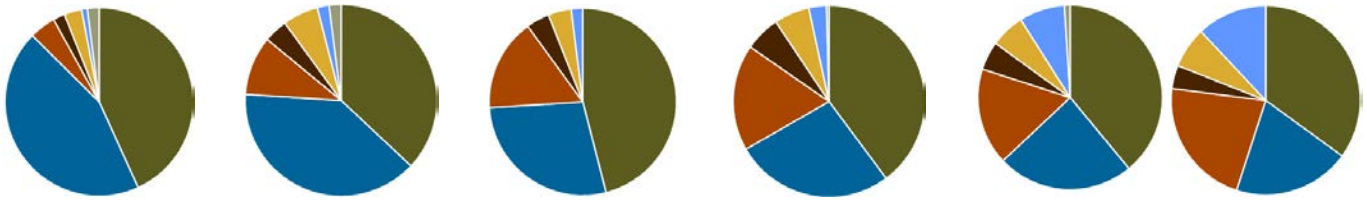
Historical Large Public Fund Asset Allocation and Returns

CAI Large Public Fund Database: Rolling 10 Year Returns



10 Year Return	9.8%	13.3%	11.3%	12.5%	10.3%	3.8%	7.1%

The typical large public pension fund's strategic asset allocation:



ASSET CLASS	1985	1990	1995	2000	2005	2010	2014
Domestic Equity	N/A	43%	37%	46%	40%	39%	35%
Domestic Fixed Income		44%	39%	28%	27%	24%	20%
Non-U.S. Equity		5%	10%	16%	18%	17%	22%
Non-U.S. Fixed Income		2%	4%	4%	6%	5%	4%
Real Estate		3%	6%	4%	6%	6%	7%
Other Alternatives		1%	2%	2%	3%	8%	12%
Cash Equivalents		2%	2%			1%	

Key components of an optimal investment strategy

- In order to set the optimal investment strategy, the asset-liability study should consider these key components:
  1. Investment Goals (Objectives)
  2. Time Horizon
  3. Liability Characteristics
  4. Cash flow and liquidity considerations
  5. Risk Tolerance
     - The type(s) of risk to which an investor is sensitive – financial and other – should be defined.
  6. Capital Market Expectations and portfolio optimization
  7. Peer Comparisons

- Asset allocation is a **long-term, strategic process**
  A. Analysis is not meant to be a reaction to short-term market fluctuations
  B. Disciplined rebalancing allows investors to take advantage of short-term market volatility

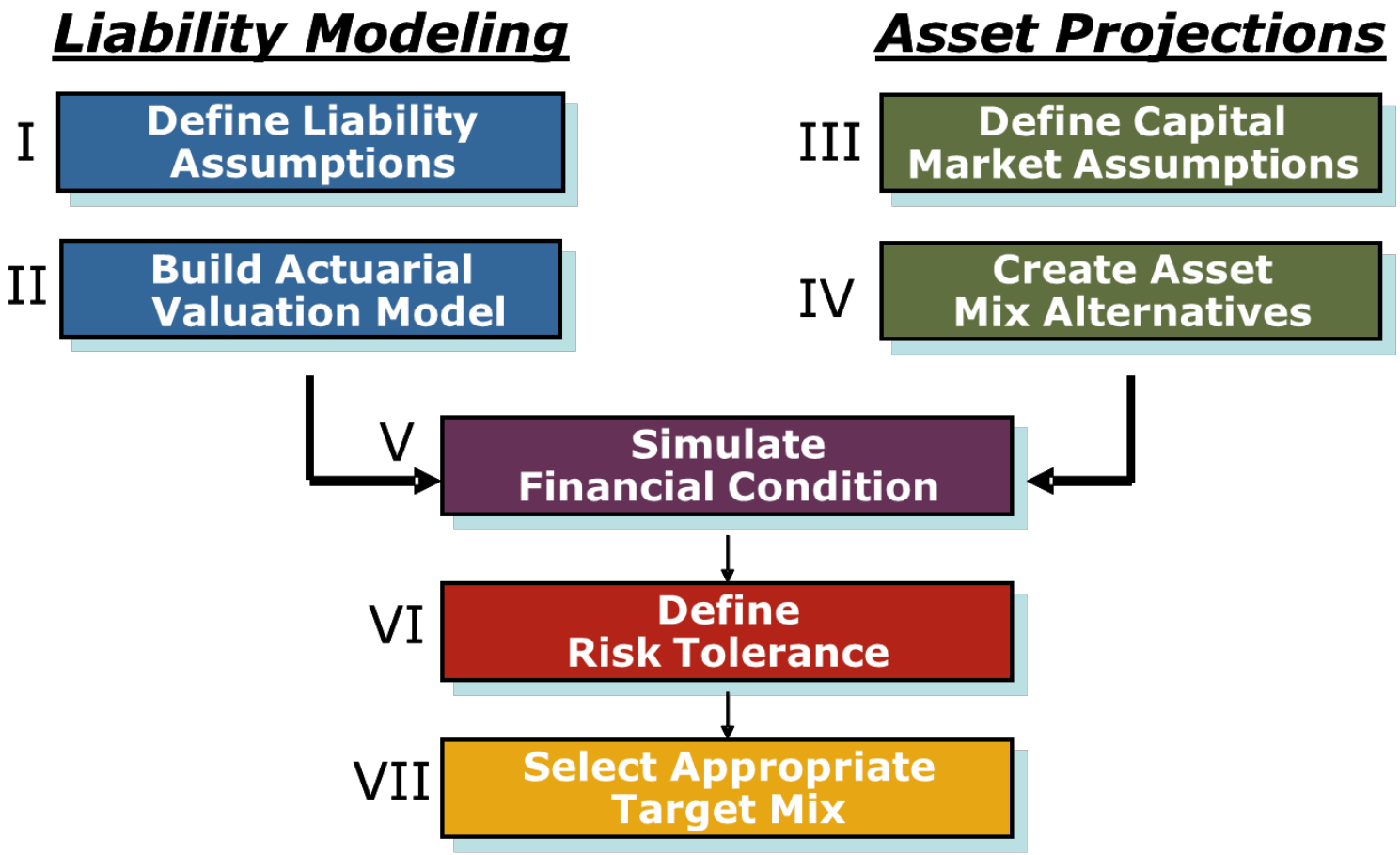
Why conduct an Asset-Liability Study?

- The cornerstone of a prudent process: thoughtful re-examination of the long-term strategic plan.
- Explicitly acknowledge change and uncertainty in the capital markets.
- Incorporate the annual actuarial valuation process, including experience study results.
- Establish reasonable rate-of-return and risk expectations.
- Incorporate changes to the pension plan (e.g. changes in the benefit policy).
- Reflect expected contribution policy in coming years.
- Project and evaluate impact on assets, liabilities and funded status.
- Confirm an asset allocation policy to meet return and risk objectives.

Overview of Callan's proposed process for TFFR

- Review TFFR's current liability structure and incorporate experience study recommendations
- Review TFFR's current investment program
  - Strategic allocation to broad asset classes
  - Important to distinguish between "strategy" (i.e.—the target asset class/benchmark) and "implementation" (i.e.—the way the manager constructs the portfolio).
- Evaluate potential new asset classes/strategies
  - Consideration of new asset classes/strategies.
- Construct a preliminary asset-liability evaluation
  - Review preliminary asset-liability results
  - Confirm model assumptions and decision variables
  - Ascertain risk tolerance and effective investment time horizon
- Develop the final asset-liability study
  - Callan conducts an internal peer review of the study's results
  - Present finalized asset-liability results to TFFR Board of Trustees
  - TFFR Board selects an appropriate asset allocation
- At TFFR's direction, work with the State Investment Board and RIO staff to implement TFFR's asset allocation decision

Callan's Asset-Liability Process



- Meet fiduciary requirements to demonstrate a prudent process when selecting or changing an investment strategy.

How are Capital Market Projections Constructed?

- Annual Process to update 10-Year Projections
  - Evaluate current environment and economic outlook
  - Examine relations between economy and historical asset class performance
  - Create 10-year risk, return, and correlation projections
  - Test projections for reasonable results
- Cover Most Broad Asset Classes and Inflation
  - Broad Domestic Equity
    - *Large Cap*
    - *Small Cap*
  - International Equity
    - *Developed Markets*
    - *Emerging Markets*
  - Domestic Fixed Income
  - International Fixed Income
  - Real Estate
  - Alternative Investments
  - Cash
  - Inflation
- Incorporates both advance quantitative modeling as well as qualitative feedback and expertise of Callan consulting professionals.

Themes Explored in Setting the 2015 - 2024 Expectations

- Performance of the US economy has been stronger than expected and the outlook has improved. What does such a change imply for the capital markets?
- How does the improved outlook for the economy square with the recent performance of the US equity market. Does this recent strength spell trouble for future expectations for equities?
- Interest rates rose on taper talk in the second quarter, and the bond market is bracing for further interest rate increases in the coming years. Do rising rates doom the return expectations for fixed income, or is now an opportunity to reassess the role of bonds in a portfolio and confirm that conviction?
- Non-US equity markets seriously lagged that of the US; are they poised to rebound, or did they in fact re-price to reflect weaker expectations?
- Sharp contrast between a long term, strategic vision for an investor (10+ years), the short term (1-3 years) reality, and the path from the current conditions to the long term expectations.
- **Scenarios beyond the expected case:**
  - **Policy failure—monetary, fiscal, geopolitical.**
  - **Recovery stalls - stagnation and deflation.**
  - **The recovery reignites and inflation takes hold.**

2015 Capital Market Expectations

- **Bond returns raised to 3.0%.**
  - We expect interest rates to rise, especially if the economy continues to expand and the Fed executes on its stated unemployment-rate-linked monetary policy. Bonds will suffer capital loss before higher yields kick in. We expect cash yields to move toward 3.0% and 10-year Treasury yields to reach 5% over the ten-year projection – a reversion to mean.
  - Project an upward sloping yield curve, but a very slim risk premium for bonds over cash (1.0%).
- **Domestic Equity held at 7.60%, Non-U.S. Equity at 7.80%**
  - US markets enjoyed robust returns, but the US economic outlook is now stronger and fundamentals remain reasonable.
  - Building equity returns from long-term fundamentals, we can build an expectation to just shy of 8%:
  - 2.5-3.0% real GDP growth, which means 5-6% nominal earnings growth,
  - 2.5 % dividend yield,
  - Expect something more from return on free cash flow, besides dividends (The “buyback yield” has been exceptional, one good use of all that cash), perhaps 50-100 bps,
  - Small premium for Non-US over Domestic, largely due to Emerging Markets.
- **Real Estate return reduced slightly to 6.15% from 6.2%,**
  - Reflects downward pressure on income returns at 4-5% with increased competition for investment.
  - Asset class increasingly eyed by those hungering for yield.
- **Hedge Fund return held at 5.1%**
  - Expectations of T-bill plus 3% suggests a return in the neighborhood of 5%.

2015 Capital Market Expectations—Return and Risk

Summary of Callan's Long-Term Capital Market Projections (2014 – 2023)

		PROJECTED RETURN		PROJECTED RISK	
Asset Class	**Index**	**1-Year Arithmetic**	**10-Year Geometric***	**Standard Deviation**	**Projected Yield**
Equities					
Broad Domestic Equity	Russell 3000	9.15%	7.60%	19.00%	2.00%
Large Cap	S&P 500	8.90%	7.50%	18.30%	2.20%
Small/Mid Cap	Russell 2500	10.15%	7.85%	22.95%	1.40%
International Equity	MSCI World ex USA	9.25%	7.50%	20.20%	3.00%
Emerging Markets Equity	MSCI Emerging Markets	11.45%	7.90%	27.95%	2.50%
Global ex-US Equity	MSCI ACWI ex USA	9.80%	7.80%	21.45%	2.90%
Fixed Income					
Defensive	Barclays Gov't 1-3	2.75%	2.75%	2.25%	2.80%
Domestic Fixed	Barclays Aggregate	3.05%	3.00%	3.75%	4.00%
Long Duration	Barclays Long G/C	4.70%	4.10%	11.40%	5.50%
TIPS	Barclays TIPS	3.10%	3.00%	5.30%	4.00%
High Yield	Barclays High Yield	5.60%	5.05%	11.45%	7.00%
Non-US Fixed	Citi Non-USD World Gov't	3.15%	2.75%	9.40%	3.80%
Emerging Market Debt	JMP EMBI Global Diversifiec	5.40%	4.90%	10.65%	6.40%
Other					
Real Estate	Callan Real Estate	7.35%	6.15%	16.50%	5.00%
Infrastructure	S&P Global Infrastructure	8.90%	7.35%	19.00%	3.00%
Private Equity	TR Post Venture Cap	13.55%	8.50%	33.05%	0.00%
Hedge Funds	Callan Hedge FoF	5.40%	5.10%	8.85%	0.00%
Commodities	DJ-UBS Commodity	4.65%	3.05%	18.25%	2.00%
Cash Equivalents	90-Day T-Bill	2.00%	2.00%	0.90%	2.00%
Inflation	CPI-U	2.25%	2.25%	1.50%	

Geometric returns are derived from arithmetic returns and associated risk (standard deviation).
Source: Callan Associates

2015 Capital Market Expectations—Correlation Coefficient Matrix

Key to Constructing Efficient Portfolios

	Broad	Lg Cap	Sm/Mid	Int'l Eq	Emerge	GlobxUS	Defensive	Dom Fix	Long D	TIPS	Hi Yield	NUS Fix	EMD	Real Est	Pvt Eqt	Hedge Fd	Comm	Cash Eq	Inflation
Broad Domestic Equity	1.000																		
Large Cap	0.997	1.000																	
Small/Mid Cap	0.965	0.940	1.000																
International Equity	0.852	0.850	0.820	1.000															
Emerging Markets Equity	0.861	0.855	0.840	0.860	1.000														
Global ex-US Equity	0.882	0.879	0.853	0.986	0.933	1.000													
Defensive	-0.391	-0.385	-0.390	-0.370	-0.380	-0.385	1.000												
Domestic Fixed	-0.107	-0.100	-0.125	-0.100	-0.145	-0.118	0.690	1.000											
Long Duration	0.096	0.099	0.082	0.108	0.069	0.099	0.530	0.909	1.000										
TIPS	-0.050	-0.045	-0.065	-0.045	-0.060	-0.051	0.440	0.580	0.490	1.000									
High Yield	0.610	0.610	0.580	0.580	0.570	0.595	-0.100	0.025	0.218	0.030	1.000								
Non-US Fixed	-0.069	-0.065	-0.080	0.000	-0.060	-0.020	0.380	0.400	0.470	0.300	0.050	1.000							
EMD	0.589	0.590	0.560	0.560	0.600	0.591	-0.120	0.050	0.292	0.150	0.710	0.010	1.000						
Real Estate	0.735	0.730	0.715	0.650	0.645	0.669	-0.120	-0.020	0.214	0.005	0.550	0.020	0.510	1.000					
Private Equity	0.943	0.940	0.910	0.900	0.895	0.927	-0.410	-0.180	0.081	-0.090	0.620	-0.050	0.570	0.715	1.000				
Hedge Funds	0.752	0.750	0.725	0.690	0.710	0.718	-0.130	0.120	0.245	0.080	0.530	0.020	0.530	0.575	0.720	1.000			
Commodities	0.163	0.160	0.165	0.160	0.165	0.167	-0.280	-0.100	0.044	0.100	0.100	-0.080	0.190	0.180	0.160	0.170	1.000		
Cash Equivalents	-0.042	-0.030	-0.080	-0.010	-0.100	-0.040	0.350	0.100	0.037	0.070	-0.110	0.000	-0.070	-0.060	0.000	-0.070	0.070	1.000	
Inflation	-0.048	-0.060	-0.010	-0.110	0.030	-0.068	-0.360	-0.320	-0.350	0.160	0.070	-0.220	0.000	0.170	-0.060	0.210	0.470	0.150	1.000

- "Correlations" tell the optimization model whether different asset classes move in the same direction (positive correlation), opposite directions (negative correlation), or randomly relative to one another (a number close to 0.000).
- Relationships between asset classes is as important as standard deviation.
- To determine portfolio mixes, Callan employs mean-variance optimization.
- Return, standard deviation and correlation determine the composition of efficient asset mixes.

Role of Asset Classes/Strategies

- Capital Accumulation
  - U.S. equity
  - Non-U.S. equity
  - Emerging markets
  - Private equity
  - High yield
  - Public/private real estate
- Diversification/Expand Opportunity Set
  - TIPS
  - High yield
  - Non-U.S. equity
  - Emerging markets
  - Global
  - Non-U.S. fixed income
  - Commodities
  - Private equity
  - Private real estate
  - Hedge funds
  - Infrastructure
  - Timber
- Lower Volatility
  - Stable value
  - Short duration fixed income
  - Hedge funds
- Flight to Quality
  - Treasury bonds
  - Cash equivalents
- Alpha Generation
  - Small/Mid Cap U.S. equity
  - Non-U.S. equity
  - Emerging markets
  - Private equity
  - Private real estate
  - Hedge funds
- Inflation hedge
  - TIPS
  - REITs
  - Private real estate
  - Infrastructure
  - Commodities
  - Timber
  - Equity
  - Other real assets

Colored strategies = illiquid investments

Asset Allocation Framework: Implementation, Targets and Ranges

Exposure to economic growth and inflation scenarios

	Target	Potential Range
Global Equity	X%	XX%-YY%
Domestic - broad		xx%-yy%
Large		xx%-yy%
Small		xx%-yy%
International - broad		xx%-yy%
Developed		xx%-yy%
Emerging		xx%-yy%
Frontier		xx%-yy%
Private equity		xx%-yy%
Global Fixed Income	X%	XX%-YY%
Domestic Fixed Income		xx%-yy%
Investment grade		xx%-yy%
Below investment grade		xx%-yy%
International Fixed Income		xx%-yy%
Developed market investment grade		xx%-yy%
Emerging markets - local currency		xx%-yy%
Global Real Assets	X%	XX%-YY%
Global Real Estate		xx%-yy%
Infrastructure		xx%-yy%
Timber		xx%-yy%
Commodities		xx%-yy%
Inflation-linked bonds		xx%-yy%
Global Alternatives	X%	XX%-YY%
Cash Equivalents	X%	XX%-YY%
Total	100%	

- This framework was developed by Callan and RIO for TFFR during the 2010-11 asset/liability study.
- Targets are set at the broad asset class level, with ranges around each target for rebalancing and risk control.
- The details of asset class implementation are guided by defined ranges, which both establish implied targets ***and*** control risk exposures.

Asset Allocation: The View through Another Window

Evaluate Economic Growth and Inflation Scenarios

Economic Growth

Inflation

Low (Falling) Growth, High (Rising) Inflation Inflation Linked Bonds (TIPS) Commodities Infrastructure	**High Growth, High Inflation** Real Assets (e.g., Real Estate, Timberland, Farmland, Energy)
Low Growth, Low Inflation (Deflation) Cash Government Bonds	**High Growth, Low Inflation** Corporate Debt Equity

- Investors seek economic diversification to a range of scenarios like inflation, deflation, stagflation and growth given the uncertainty.
- Allocations are based on key return drivers like inflation and growth:
  - There are other factors influencing returns, like leverage and liquidity.

Long-Term Vision and Short-Term Reality

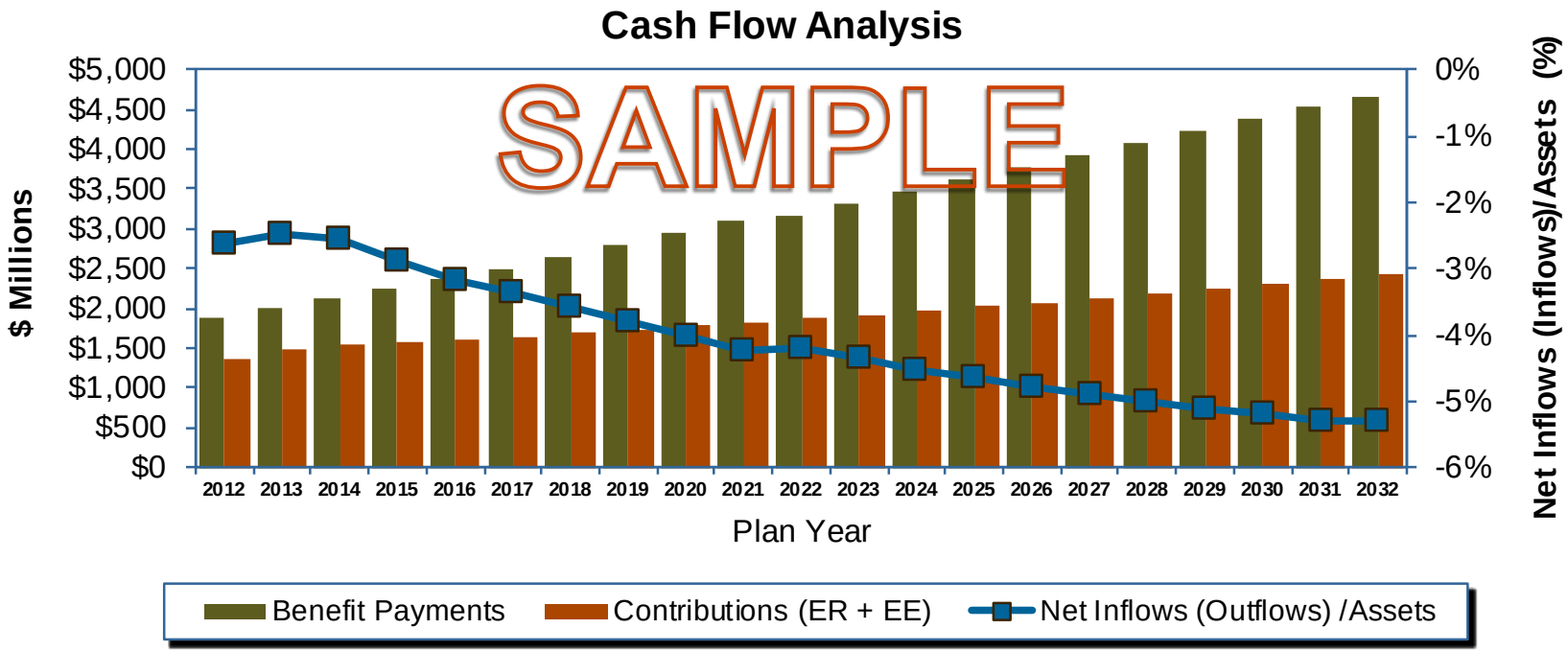
- Greatest danger—Investors will take on additional risk to compensate for capital market returns that are likely to be below historical averages. We do not believe investors are likely to be compensated for such risk taking in the shorter term.
- Fixed income is a conundrum for investors. No other investment offers the same anchor to windward and protection in a flight to quality. Yet current yields and the prospect for rising rates spell dismal total returns.
- Stocks appear to be the best spot in the capital markets given the current environment, but are not without substantial risk.
- Other strategies to manage risk:
  - Active management in equity and fixed income to take advantage of opportunities and protect in a volatile environment.
  - Global opportunities in equity and debt; yields, currency.
  - Absolute return strategies to hedge market risk, both long-only and hedged.

Build Integrated Asset/Liability Model

- Incorporate most recent actuarial valuation and experience study to build an integrated model of the Teachers' Fund for Retirement:
  - Match current valuation
  - Project liabilities 10 and 20 years out
  - Integrate with assets and project financial condition of the plan
  - *Expected case assumptions built into current actuarial valuation*
  - *Alternative scenarios for payroll growth, discount rate*
  - Simulate range of potential outcomes to evaluate tolerance for risk

Key Components

Cash Flow and Liquidity Considerations



- Net Cash Flow = Funding Contributions (Employer + Employee) – Benefit Payments
- Liquidity needs help define the appropriate time horizon for plan investments
- Liquidity needs shape the ability of TFFR to commit to illiquid asset classes.
- Example above shows manageable liquidity needs that don't restrict the investment portfolio.

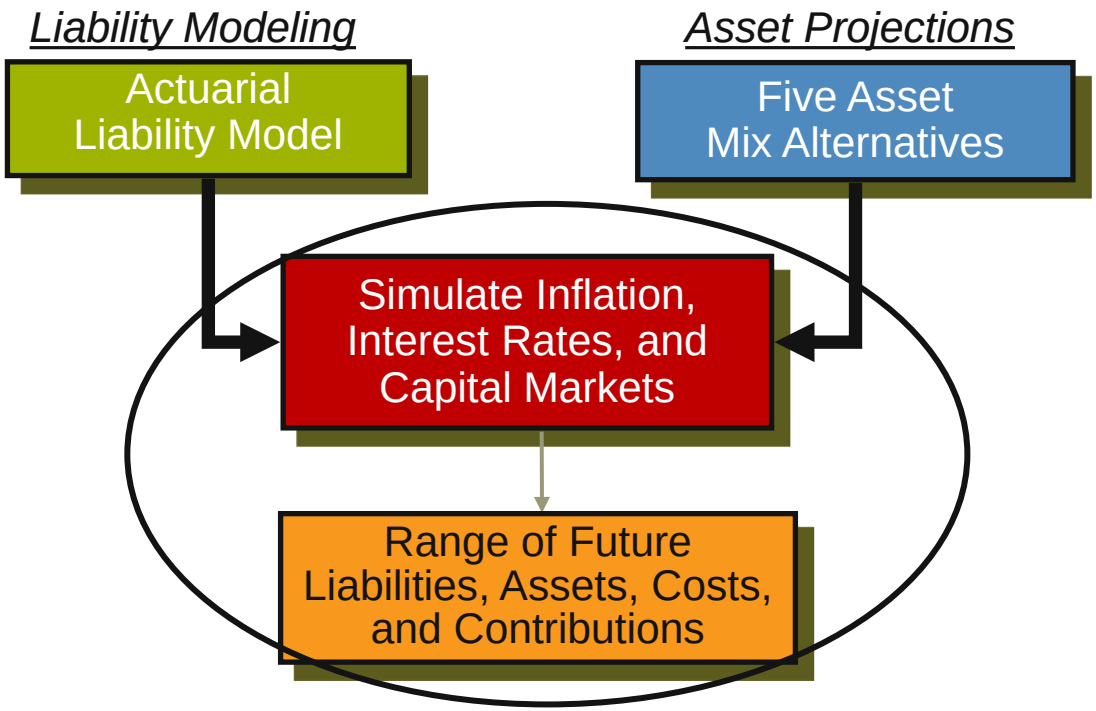
Key Components

Liability Characteristics

- Plan document defines the type and level of benefits:
  - Final average pay benefits are sensitive to future growth in salaries
  - Benefits may increase in retirement to protect against inflation
- Actuarial valuation determines the liabilities and indicates sensitivities:
- Demographic assumptions:
  - Mortality / Longevity
  - Termination
  - Death
  - Disability
  - Largest risk is that plan participants live longer than you expected.
- Economic assumptions:
  - Discount rate: serves as your targeted return, inflation + real return
  - Salary inflation: inflation + Productivity + Individual merit
  - Cost of Living adjustment: adjusts with inflation, or is fixed

Key Components

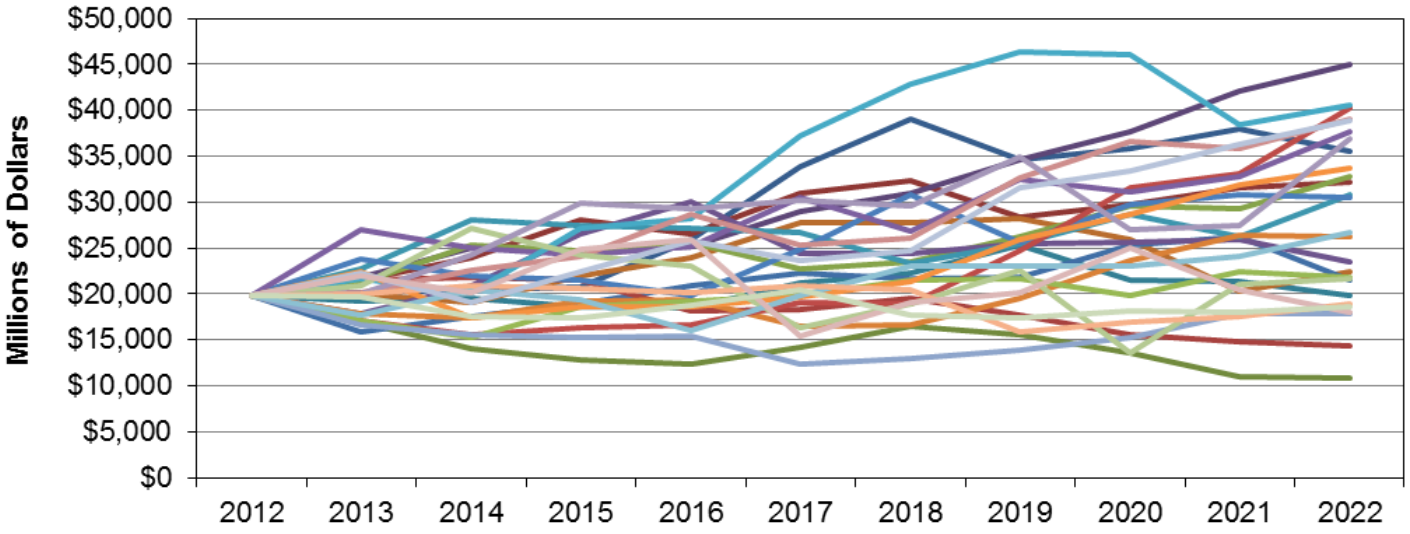
Risk Tolerance



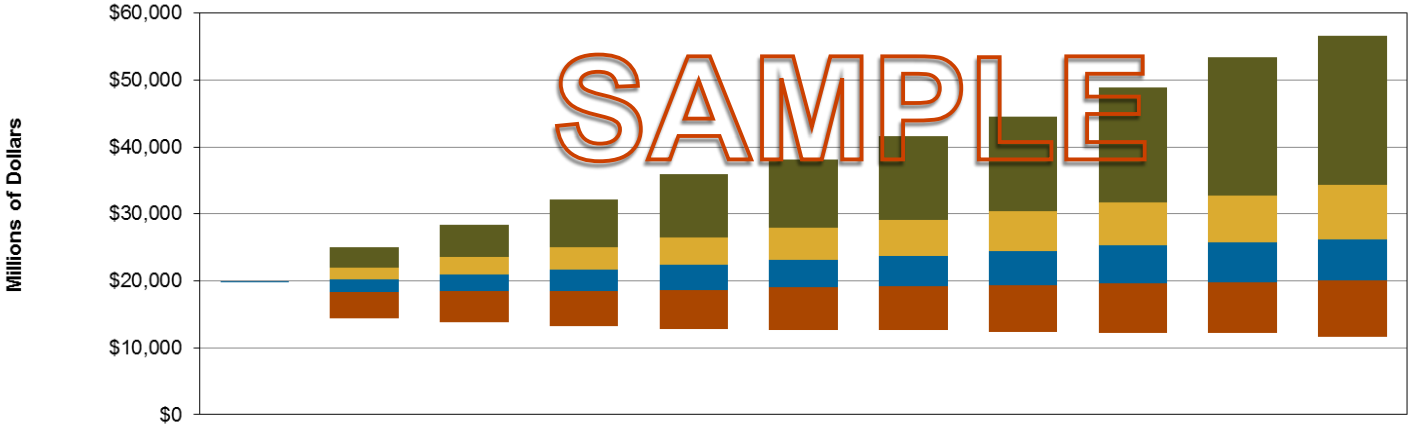
- Simulation analysis will be used to assess risk tolerance.
- ***What is simulation analysis (also called stochastic forecasting)?*** The modeling of uncertainty associated with the capital markets.
- Simulate three (3) key variables: inflation rate, interest rate, asset class returns.
- Develop a range of outcomes and the likelihood of their occurrence (probability distribution)

Risk Tolerance

What is Simulation Analysis? Market Value of Assets – Current Target Mix



- Simulate 2,000 different capital market environments (trials)
- Conduct a valuation at the end of every year for each trail.
- Rank the simulated results from highest to lowest, or 2.5th percentile to 97..5th percentile (two standard deviations).



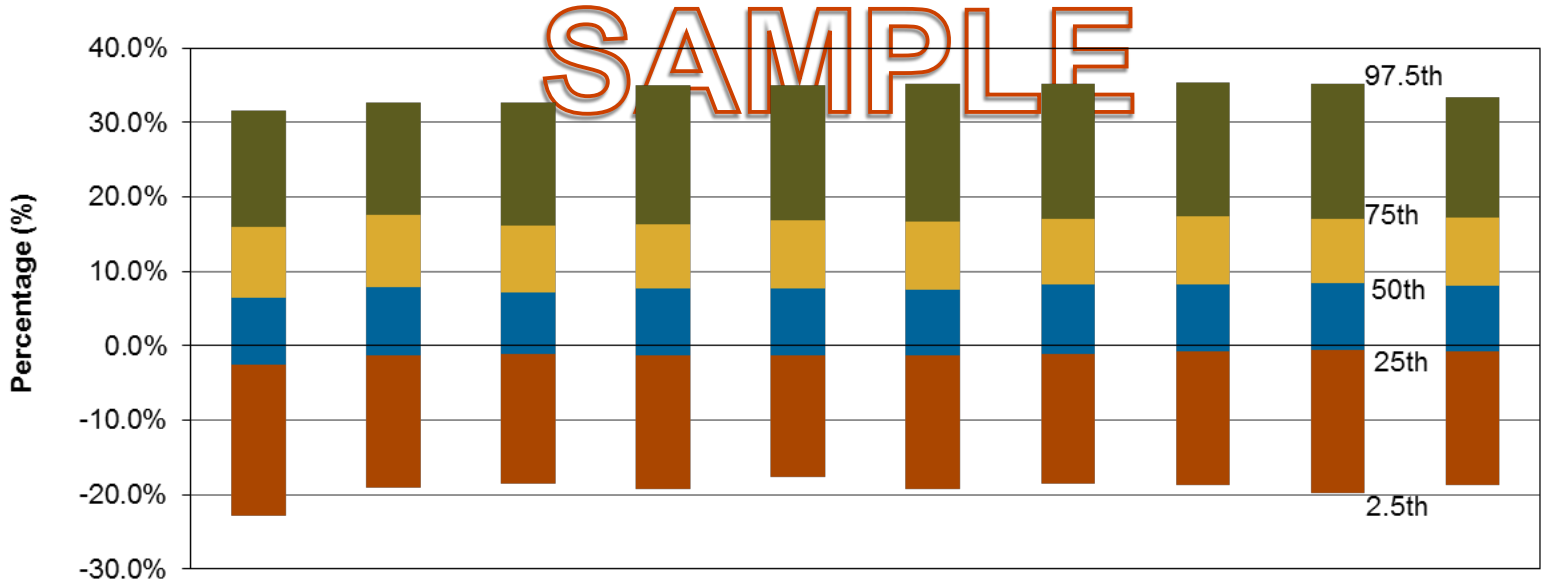
2.5th percentile (Best-case)

50th percentile (Expected)

97.5th percentile (Worse-case)

Risk Tolerance

Range of Simulated Total Returns Over Ten One-Year Periods – Current Target Mix



50th percentile (Expected)

97.5th percentile (Worse-case)

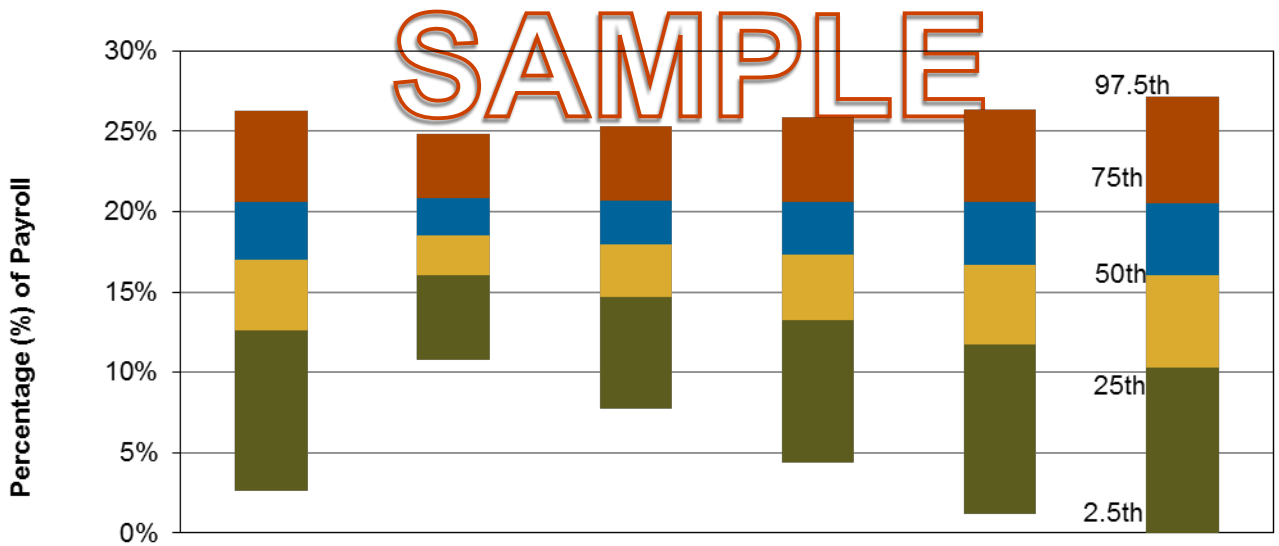
Percentile	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
2.5th	31.5%	32.6%	32.7%	35.0%	35.0%	35.1%	35.2%	35.3%	35.2%	33.4%
25th	15.9	17.5	16.1	16.3	16.9	16.6	17.0	17.3	17.0	17.2
50th	**6.5**	**7.9**	**7.2**	**7.6**	**7.7**	**7.6**	**8.1**	**8.2**	**8.4**	**8.1**
75th	-2.5	-1.3	-1.1	-1.3	-1.2	-1.3	-1.1	-0.7	-0.6	-0.8
97.5th	**-22.9**	**-19.1**	**-18.6**	**-19.2**	**-17.6**	**-19.3**	**-18.5**	**-18.7**	**-19.8**	**-18.7**
Downside	**29.4**	**27.0**	**25.8**	**26.8**	**25.3**	**26.9**	**26.7**	**26.8**	**28.3**	**26.8**

- Capital market expectations allow us to examine a potential range of outcomes for each mix and the likelihood of its occurrence.
- For the current Target Mix in 2013, the **50th percentile** is the expected result (+6.5%), while the **97.5th percentile** represents a "worse-case" scenario (-22.9%).
- Median case for returns reflects an expectation for rising interest rates over the next 5 years.

Risk Tolerance

Range of Employer Contribution Rate in Year 10

- Simulation analysis allows us to compare outcomes across the range of alternative asset allocation strategies.
- Asset mixes with more return-generating strategies, like Mix 5:
  - Have higher median or expected outcomes
  - Have higher contribution rates in a worse case scenario
  - Have a wider range of outcomes



Percentile	Target Mix	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
97.5th	26.25%	24.82%	25.33%	25.85%	26.38%	27.11%
75th	20.60	20.86	20.68	20.61	20.57	20.56
50th	**16.98**	**18.55**	**17.94**	**17.35**	**16.71**	**16.07**
25th	12.61	16.06	14.71	13.25	11.76	10.29
2.5th	**2.63**	**10.78**	**7.74**	**4.42**	**1.17**	**0.00**
Downside	**9.26**	**6.27**	**7.40**	**8.50**	**9.66**	**11.04**

Risk Metrics for the TFFR Plan

The decision variable(s) should lead to selection of the optimal asset mix

- Simulation generates a range of potential outcomes for the financial condition of TFFR:
  - Plan assets
  - Liabilities
  - Benefit payments
  - Annual and cumulative dollar contributions
  - Employer contribution rates
  - Funded status
- Possible key metric(s) for TFFR:
  - Maintaining contribution rate stability;
  - Reduce funded status volatility;
  - Minimize magnitude of ‘worse case’ investment and/or funded status scenarios
  - Increase funded status through investment returns;
  - Maintaining required liquidity levels to meet benefit payments;
  - Others?
- The TFFR Board’s primary investment objectives will lead to an appropriate strategic asset allocation policy for the future

Estimated Project Time Line

- TFFR retains Callan and authorizes the Plan actuary to interact with us.
- Review capital market expectations with TFFR Board and discuss asset class strategies for inclusion in the study. Two choices:
  - TFFR can choose to proceed with Callan's 2015 – 2024 capital market projections, or
  - The Board may consider using the 2016 – 2025 projections when they're released late January, 2016.
- Begin liability modeling after receipt of the 7/1/15 Actuarial Valuation and Experience Study from Segal (estimated to be October, 2015).
- Liability Modeling will take 6-10 weeks once new Valuation and assumptions are approved.
- Callan will coordinate with TFFR and RIO staff throughout the modeling process.
- Callan will work with TFFR and RIO staff with a new policy target implementation date of:
  - December 31, 2015 if Callan's 2015 - 2024 capital market projections are used;
  - March 31, 2016 if the 2016 – 2025 capital market projections are used in the study.

Callan

Callan Associates Inc.
1900 16th Street
Suite 1175

Main 303.861.1900
Fax 303.832.8230

June 30, 2015

Ms. Fay Kopp
NDRIO Deputy Executive Director / NDTFFR Chief Retirement Officer
ND Teachers' Fund for Retirement
P.O. Box 7100
Bismarck, ND 58507-7100

VIA EMAIL: fkopp@nd.gov

Dear Fay:

This letter outlines a proposal by Callan Associates Inc. (Callan) to conduct an asset/liability study of the North Dakota Teachers' Fund for Retirement (TFFR) pension plan. The evaluation is expected to:

- work closely with the TFFR Board, TFFR staff and RIO investment staff;
- determine appropriate strategic allocations to return seeking and risk mitigating assets;
- evaluate optimal structure alternatives of the return-seeking and risk-mitigating allocations;
- incorporate any revised liability assumptions based on the recently completed and updated experience study conducted by Segal Consulting;
- conduct educational sessions as required for the TFFR Board during the conduct of the study; and
- establish reasonable and appropriate decision variables for TFFR's evaluation of choices for each strategic decision in order to facilitate prudent policy formation by TFFR.

Callan will draw on our 2010-11 asset allocation project experience with TFFR and RIO as well as on our firm's considerable professional and technological resources to inform TFFR's decision-making process. As authorized by TFFR, we will interact with the plan's actuary as required.

The following paragraphs of this letter describe the process by which Callan will assist TFFR in establishing appropriate objectives, evaluating alternative investment policies, and selecting a strategic asset allocation policy to achieve your objectives. As a long-term strategic partner with TFFR and other North Dakota pension fiduciaries, we are excited by this opportunity to work with TFFR to establish reasonable criteria to evaluate a range of possible solutions to each of the challenges listed above.

Overview of the project

Following a preliminary planning meeting with the TFFR Board and your staff, we propose that members of the Callan project team meet with RIO's investment staff to create a detailed work plan for the asset/liability study. We anticipate that Callan will meet with the Board and your staff as often as needed for educational and planning purposes prior to presentation of our written findings and recommendations.

Callan will work with TFFR personnel to customize the work product and final presentation to meet your informational needs and requirements.

Callan will address the liabilities and underlying funding assumptions for the Pension Plan. We will conduct this evaluation of Plan liabilities with an eye to maximizing the risk-adjusted effectiveness of the asset allocation policy to prudently guide the investment of the relevant assets. Two of the primary considerations in this approach are to: 1) minimize investment costs; and 2) reduce administrative complexity.

A brief history of Callan Associates Inc.

Callan was founded as an employee-owned investment consulting firm in 1973. Over the succeeding 42 years, we have empowered institutional clients with creative, customized investment solutions that are backed by proprietary research, extensive experience, exclusive data, ongoing education, and decision support. Focusing exclusively on consulting, we have the depth of resources and expertise associated with the largest consultancies. At the same time, we are independently owned and operated, with interests that are precisely aligned with those of our clients.

Today, 76 Callan employees—representing almost half of our workforce—own 100% of our company. We advise on nearly $2 trillion in total assets, making us among the largest independently owned investment consulting firms in the United States. All Callan employees consider themselves stewards of a culture that revolves around collaboration in service of our clients' needs. We strongly believe the stabilizing influence of independent ownership and our total dedication to consulting provide the best foundation for the preservation of this culture, which translates into a valuable sense of continuity for our clients. In all our consulting work, we believe our ultimate client is the beneficial owner of the plan assets.

An overview of our consulting philosophy

Callan believes that it is our mission as investment consultants to deliver superior consulting solutions that help our clients achieve their investment and business objectives. We believe that fund sponsors should adopt well-defined procedures and methods to provide the best-managed assets for their needs and to protect the corpus from deterioration. Callan has developed our processes to help our clients dispense their duties with the highest fiduciary standards.

Callan believes in the development of customized solutions to fit each client's unique needs. To that end, we subscribe to a set of general beliefs that underpin our firm's investment advice to our clients:

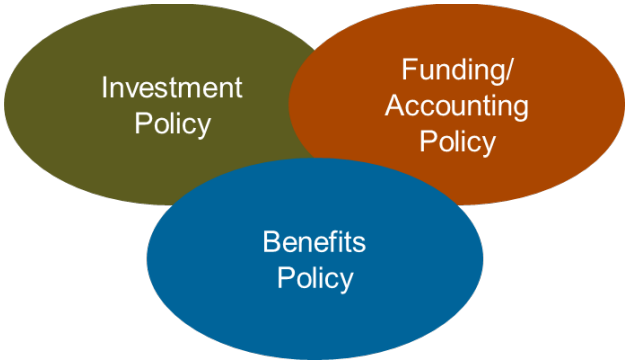
- We are ardent believers in diversification at the total portfolio level and within each asset class.
- We believe very strongly that investors should develop a written, long-term strategic investment plan that addresses the investor's specific goals, objectives and the risk tolerance, taking into account the unique profile of the Plan.

- Once the strategic investment plan is adopted, we believe that each asset class should be structured with the goal of achieving returns in excess of the benchmark (assuming active management) while avoiding unintended and undesired risks by style, capitalization, duration, or other factors.
- We believe that passive investments can play an important role. We advocate use of passive or enhanced investment strategies in the areas of greatest market efficiency. We also believe that passive or enhanced investment strategies can be used to provide both low cost exposure and operational benefits in all public security markets, especially for large portfolios like TFFR's.
- We believe in active management particularly in the less efficient markets such as US small capitalization equities and non-US equities. We believe that a prudent manager selection process and a long-term view are both necessary to maximize the opportunities for success in manager selection.
- We attempt to achieve cost-effective solutions but understand that higher alpha opportunities and complex investment strategies generally demand higher fees.
- We generally believe in simple as opposed to complex portfolios. We strongly prefer fewer investment managers to more. We believe in leveraging relationships across multiple plans, where possible. We believe in written documentation of strategic decision such as asset allocation, manager structure, and manager selection document a prudent decision-making process.

We are mindful that there is not one perfect solution to all situations. Consequently, we will work closely with TFFR to understand your needs, preferences, risk sensitivities and culture so that we can match the best investment practices with your objectives and risk tolerance.

Asset/Liability Modeling

As noted in the following graphic, three principle policies will shape the financial health of the Pension, Plan. Callan's analysis will provide TFFR with a clear understanding of the interrelationship of these policies and how they influence the future funded status of the Pension Plan.



Using the most recent actuarial reports, Callan will project the Plan's liabilities and funding requirements. We will analyze a variety of asset mixes so TFFR can evaluate their impact on the future funded status of the Plan. The starting point will be the Plan's current asset allocation policy. We will evaluate alternative mixes of assets to determine whether or not there may be a superior risk-adjusted means of investing the Plan's assets relative to the projected growth of Plan liabilities. This analysis will evaluate the potential for~ and relevant alternatives to~ an investment policy that balances risk-adjusted return potential with liquidity requirements. Ultimately, Callan will evaluate a wide variety of asset allocation policies for the Pension Plan.

One of Callan's distinctive consulting practices is rigorous peer review of strategic policy and implementation studies conducted for our clients. Prior to delivering a written report to TFFR, the entire evaluation will be reviewed by a group of senior Callan consulting professionals — the Client Policy Review Committee ("CPRC"). The role of the CPRC is to apply firm-wide standards of practice in the review process of all consulting projects undertaken, specifically asset allocation studies, manager structure studies, guidelines and policies, and any consulting projects on which clients may base investment decisions. The CPRC helps ensure consistency, quality, objectivity and due diligence to all consulting services provided by the firm.

Process

Callan has assigned a senior team of asset allocation specialists to work with TFFR to complete this strategic planning project. Paul Erlendson will oversee the project; he will ultimately be responsible for the timely execution of the study and production of project deliverables. From the technical side, Callan's Capital Markets Research group will conduct the analyses. The Capital Markets Research Group is composed of six individuals including two actuaries and an economist, of whom three are CFA charter-holders. We will seek TFFR staff's input to identify a lead specialist for the technical team. In advance of that decision, Jay Kloepfer, Manager of the Capital Markets Research Group will fulfill the role of lead investigator.

If requested, Callan will evaluate both Total Return and de-risking, or Liability-Driven Investment (LDI), solutions. It has been our experience that an open public pension fund is financially better served with a Total Return policy as they generally necessitate lower levels of contributions due to their higher expected investment returns over the long run.

While one or the other may not be the ideal investment solution for the Plan, we understand that TFFR may want to be armed with this analysis so you can responsibly determine the most cost-effective risk-adjusted approach to funding Plan obligations and responding to any inquiries from interested parties.

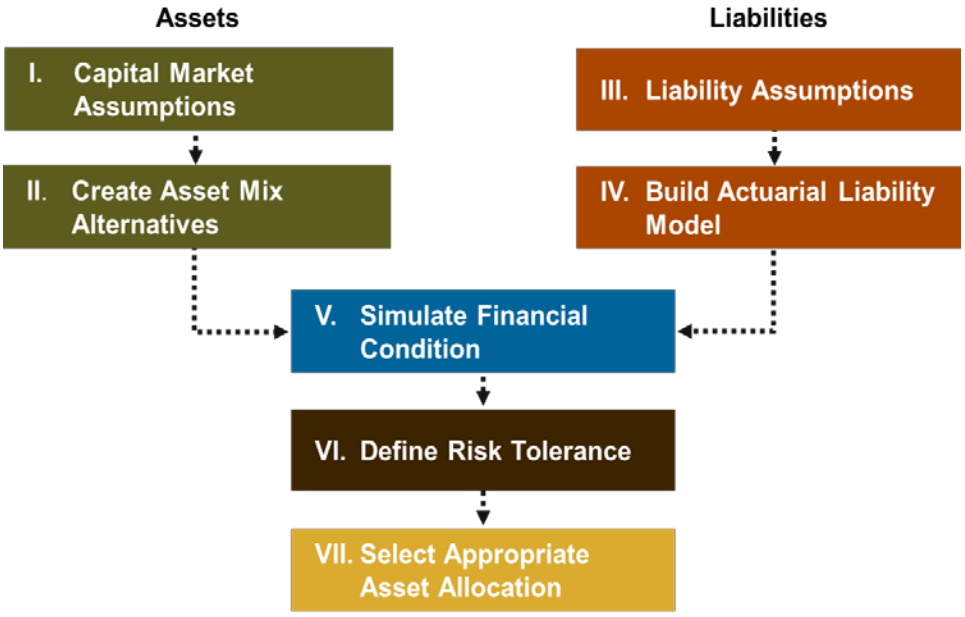
Our Capital Markets team will work with TFFR staff and the Plan Funding Committee throughout this evaluation. The details of each member of the specialist team are listed in the following table.

Capital Markets Research Group

Name	Industry Focus	Industry Experience	Years w/Firm	Degrees and Certifications
Jason Ellement, CFA, FSA	VP, Capital Markets Research	30	12	FSA, CFA, MAAA, BS
Karen Harris, CFA, ASA	VP, Capital Markets Research	26	14	ASA, CFA, BM
Jay Kloepfer	Director of Capital Markets and Alternatives Research	27	16	MA, BS
Julia Moriarty, CFA	VP, Capital Markets Research	24	24	CFA, MBA
James Van Heuit	SVP, Capital Markets Research	25	13	MA, BS, BA
Eugene Podkaminer, CFA	VP, Capital Markets Research	15	4	MBA, CFA

Asset Allocation Methodology

In determining the appropriate asset allocation for an employee benefit Plan, a thorough understanding of the short-term and long-term objectives is essential. It is important to fully discern the cash flow needs, liquidity needs, legal restrictions, time horizon and risk tolerance before a suitable asset allocation can be determined. The appropriate asset allocation for a given Plan is one where the assets are subject to no more volatility than is necessary to achieve a specific set of objectives regarding cash flow needs, liquidity and long-term asset growth. The schematic below illustrates Callan's integrated asset allocation and liability evaluation process.



Ultimately, the appropriate asset allocation policy for the Plan will need to satisfy two basic investment criteria:

1. The investment policy should generate the maximum expected rate-of-return given each Plan's expected level of risk; and

2. The Plan's investment policy should generate the appropriate level of risk given that particular Plan's liability structure and expected cash flows.

After the CPRC review, we will provide TFFR with a written report documenting our modeling and findings. Callan will help TFFR to evaluate the Fund's liabilities, your current investment policy, alternative investment policies, and their potential relative to TFFR's investment objectives and risk tolerances for the Plan.

As the named fiduciary to the Plan, TFFR is the party responsible for choosing the Plan's asset allocation policy. Callan will provide both educational training and professional input throughout the process so that the TFFR Board members will be in an informed position to make prudent, strategic asset allocation decisions. We will assist TFFR and RIO in implementing the investment policy decision should any changes to the current strategic policy be needed and/or adopted.

Project Timing

Assuming we are selected during July, Callan is prepared to begin the project no later than early August. We propose that there be potentially up to three meetings prior to presentation of results and recommendation in December, 2015.

The first meeting will be with TFFR and RIO staff and will take place as soon after we are notified of our selection as possible. This meeting's objective will be to establish a strategic work plan; specific objectives; timelines, and points of contact between TFFR, RIO, Callan, and the plan's actuary.

We propose there be an educational meeting between key members of Callan's project team and the TFFR Board as soon as is practicable. The educational meeting agenda will include a review of capital market expectations; identification of asset classes to include in the study; an overview of the asset and liability modeling process; and a list of potential policy decision variables. We will provide a comparison of total return and (if requested) liability driven investing. If the Board provides feedback, we may potentially have to follow up with supplemental information.

During the conduct of the study, Callan's consulting team will remain in contact with designated TFFR and RIO staff to keep them apprised of project status and preliminary findings. During these informal interim meetings, we will seek input from TFFR and RIO staff as necessary. Our goal is to maintain a constructive, interactive working relationship with the TFFR Board, staff and RIO staff.

We propose that project results and recommendation will be presented at the December meeting. We will review our asset-liability results for the pension plan as well as outline a potential implementation time line if significant allocation policy changes are required.

The proposed timeline will be subject to revision based on circumstances encountered during the project. Our ultimate objective is to provide the TFFR Board with the information and perspective you need to make informed, prudent decisions about the asset allocation policies for the various trust funds. After the Board makes its final decisions on investment policy, we will be available to work with TFFR and RIO staff on any necessary revisions to the current investment policy statement for the various trusts.

Fees

The project fee to conduct the asset/liability education sessions and evaluation of the plan's liability structure as outlined above is $65,000. Reasonable travel expenses incurred by Callan professionals to attend meetings with TFFR and RIO personnel will be reimbursed outside of the project fee. We are willing to discuss the scope of services and proposed project fee.

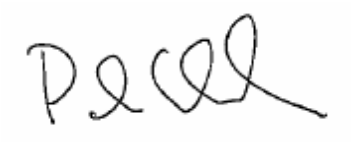
Please contact me via telephone at (303) 861-1851 or via email at erlendson@callan.com if you have any questions about this proposal.

Callan is committed to assisting TFFR to evaluate alternative asset allocation policies that will help meet the investment needs and funding obligations of the Plan and its beneficiaries.

There are a number of disclosure documents which we are required to provide you. The will be sent under separate cover. The following sentences describe these disclosure documents. The first of these are copies of Callan's current ADV Parts I and II-A. Also enclosed is form ADV Part II-B which provides background information about the consulting professionals who will be directly involved with this project. The Department of Labor requires a Rule 408b-2 disclosure which describes the services to be provided and all direct and indirect compensation to be received by Callan; this document is enclosed. Finally, to add to your reading pleasure, we included a list of investment managers with whom Callan does business as of March 31, 2015.

If there are any questions or would like to discuss your objectives and Callan's proposal to help you achieve them, please contact me so we can arrange a meeting. We look forward to discussing this proposal with the Board at its July 23, 2015 meeting in Bismarck.

Cordially,



Paul Erlendson

Enclosures

cc: David Hunter, RIO
Jay Kloepfer, Callan
Rosanna Sangalang, Callan

North Dakota Teachers' Fund for Retirement
Callan Presentation Team
July 23, 2015

Jay V. Kloepfer is an Executive Vice President and the Director of Capital Market and Alternatives Research. Jay oversees Callan's Capital Markets, Hedge Fund and Private Markets research groups. The Capital Markets group helps Callan's fund sponsor clients with their strategic planning, conducting asset allocation and asset/liability studies, developing optimal investment manager structures, evaluating defined contribution plan investment lineups and providing custom research on a variety of investment topics. The Hedge Fund and Private Markets groups are responsible for specialized consulting including asset class and strategy research, manager searches, portfolio reviews, and performance evaluation.

Jay is the author of the "Callan Periodic Table of Investment Returns," which he created in 1999. He is a member of Callan's Management Committee and is a shareholder of the firm.

Prior to joining Callan, Jay was a Senior Economist and the Western Regional Manager for Standard & Poor's DRI. Jay earned an MA in Economics from Stanford and a BS with honors in Economics from the University of Oregon.

Julia A. Moriarty, CFA, is a Senior Vice President and a consultant in the Capital Markets Research group. She is responsible for assisting plan sponsor clients with their strategic planning, conducting asset allocation studies, developing optimal investment manager structures, and providing custom research on a variety of investment topics. Julia joined Callan in 1990 as an analyst in the Client Report Services group, working on the production of comprehensive performance measurement reports and the implementation and testing of new products. Prior to joining the Capital Markets Research group, she was a Software Solutions Consultant in the Client Software Department. Julia is a shareholder of the firm.

Julia earned an MBA from the University of California at Berkeley's Haas School of Business and a BS in Finance from California Polytechnic State University at San Luis Obispo. She earned the right to use the Chartered Financial Analyst designation and is a member of the CFA Society of San Francisco and CFA Institute.

# # #

TFFR Investment Update

Interim Report for the Periods Ended March 31, 2015

July 17, 2015

Dave Hunter, Executive Director/CIO

Darren Schulz, Deputy Chief Investment Officer

ND Retirement & Investment Office (RIO)

State Investment Board (SIB)

Executive Summary for periods ended March 31, 2015

Investment Performance –

- Asset allocation is the primary driver of investment returns. TFFR generated a net return of 6.5% for the 1-year ended March 31, 2015, which exceeded the policy benchmark by 1.2%. During the past year, TFFR reported $130 million of investment income of which $106 million (or 82%) was due to asset allocation and $24 million (or 18%) was driven by active management.
- For the current fiscal year to date ended March 31, 2015, TFFR generated a net investment return of 2.7% versus a policy benchmark of 1.9%. Strong returns in U.S. Large Cap Equity (+9.1% actual versus +7.2% index) and U.S. Fixed Income (+3.6% actual versus +2.4% index) were partially offset by negative returns in our International Equity (-4.5% actual versus -5.0% index) and International Debt mandates (-7.4% actual versus -12.5% index). Global Real Assets were the only major asset class to underperform its relative benchmark (+5.9% actual versus +6.7% index) in the current fiscal year largely due to Timber (+3.5% actual versus +9.5% index) and Real Estate (+8.6% actual versus +9.5% index).
- TFFR's investment returns have consistently ranked in the first or second quartile of the Callan Public Fund Sponsor Database over the last 1-, 3-, and 5-year periods. On an asset allocation adjusted basis, TFFR ranked in the 29th percentile for the one-year period ended March 31, 2015.

Risk Update –

- During the "Last 5 Years", TFFR risk (as measured by actual standard deviation of the TFFR portfolio divided by the policy benchmark) has steadily declined from over 120% to less than 105% on a rolling 3- and 5-years basis.

TFFR Investment Ends – March 31, 2015

Pursuant to Section D.3 of the SIB Governance Manual, SIB clients should receive investment returns consistent with their written investment policies and market variables. This "End" is evaluated based on comparison of each client's (a) actual net rate of return, (b) standard deviation and (c) risk adjusted excess return, to the client's policy benchmark over a minimum period of 5 years.

	1 Yr Ended 3/31/2015	3 Yrs Ended 3/31/2015	5 Yrs Ended 3/31/2015	Risk 5 Yrs Ended 3/31/2015	Risk Adj Excess Return 5 Yrs Ended 3/31/2015
TEACHERS' FUND FOR RETIREMENT (TFFR)					
Total Fund Return - Net	6.5%	10.1%	9.3%	9.5%	**0.44%**
Policy Benchmark Return	5.3%	9.1%	8.5%	9.2%	
EXCESS RETURN	**1.21%**	**0.98%**	**0.80%**	**104%**	

Net Return: TFFR's net investment rate of return for the 5-year period ended March 31, 2015 was 9.3% versus a policy benchmark of 8.5% resulting in an **Excess Return of 0.80% (or 80 bps)**.

Risk: TFFR's standard deviation for the 5-year period ended March 31, 2015 was 9.5% versus a policy benchmark of 9.2% resulting in a **portfolio risk ratio of 104%**. This is within TFFR's stated risk tolerance which indicates this ratio should **not exceed 115%**.

The Risk-Adjusted Excess Return of TFFR's portfolio (net of fees and expenses) was **0.44%** for the 5-year period ended December 31, 2014, thereby exceeding the stated policy benchmark.

Capital Markets Update

As of March 31, 2015

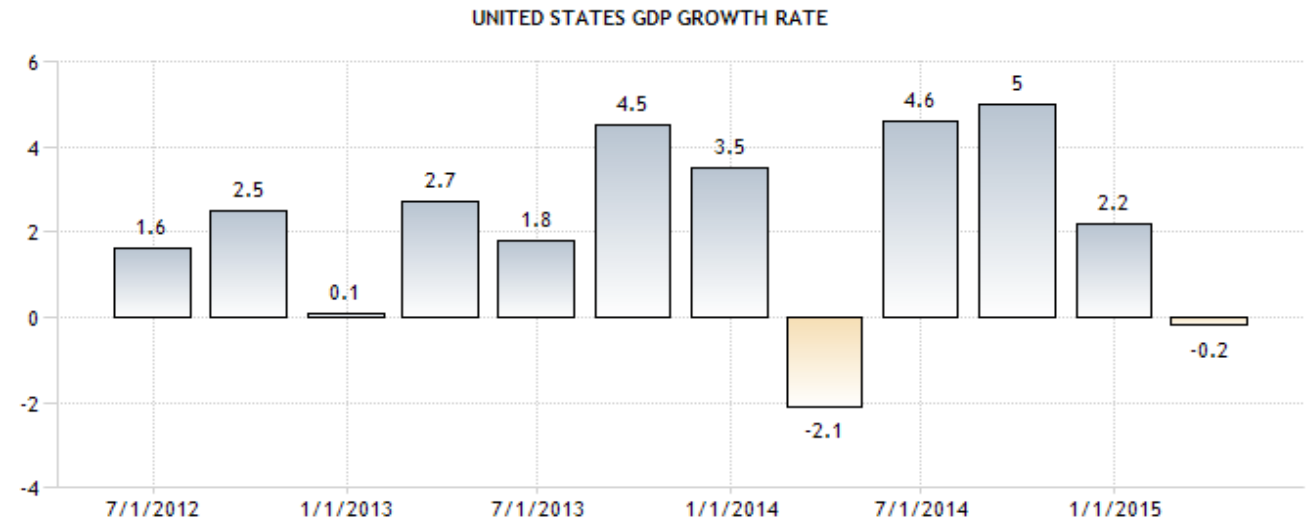
Asset Class Returns and Key Economic Indicators – March 31, 2015

		Period Ended March 31, 2015			
Asset Class	**Benchmark**	**1-Year**	**3-Years**	**5-Years**	**10-Years**
Large Cap US Stocks	Russell 1000	12.73%	16.45%	14.73%	8.34%
Small Cap US Stocks	Russell 2000	8.21%	16.27%	14.57%	8.82%
Non-US Stocks (Developed)	MSCI EAFE	-0.92%	9.02%	6.16%	4.95%
Non-US Stocks (Emerging)	MSCI Emerging Markets	0.79%	0.66%	2.08%	8.82%
US Bonds	Barclays Aggregate	5.72%	3.10%	4.41%	4.93%
High Yield Bonds	Barclays Corporate High Yield	2.00%	7.46%	8.59%	8.18%
Non-US Debt	Citi Non-US World Govt	-9.82%	-3.32%	0.38%	2.51%
Inflation Protected	Barclays Global Inflation Linked	-0.93%	1.23%	4.24%	4.32%
Real Estate	NCREIF	12.72%	11.47%	12.75%	8.39%

Recent Quarterly Indicators	1Q15	4Q14	3Q14	2Q14	1Q14	4Q13	3Q13	2Q13
GDP Growth	0.2%	2.2%	5.0%	4.6%	-2.1%	3.5%	4.5%	1.8%
Unemployment Rate	5.6%	5.7%	6.1%	6.2%	6.6%	7.0%	7.3%	7.5%
CPI	-0.1%	0.8%	1.7%	2.1%	1.5%	1.5%	1.2%	1.8%
Consumer Sentiment	93.0	93.6	84.6	82.5	80.0	82.5	77.5	84.1

Non-U.S. Stocks and Debt: International equity and debt markets have performed poorly in the last year as evidenced by a -0.9% and -9.8% return, respectively, for the year ended March 31, 2015.

U.S Economy – GDP Growth Rates



- Quarterly GDP Growth Rates (top chart) have been volatile as evidenced by negative growth rates in the 1st quarter of the last two years largely attributed to poor weather conditions.
- Annual GDP Growth Rates (bottom chart) minimize the impact of seasonal weather conditions and display a more consistent and moderate growth rate of about 2.9% over the past year.

Global GDP Growth Rates

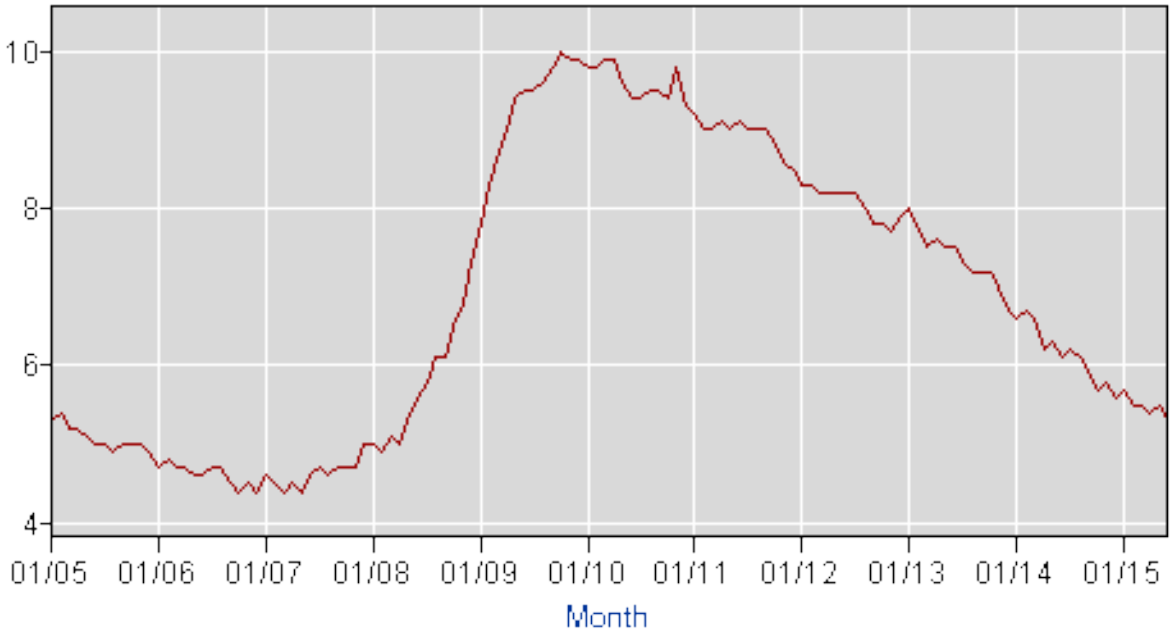
	ACTUAL 2010-2013	ACTUAL 2014	FORECAST 2015	PROJECTED 2015-2019	TREND 2020-2025
United States	2.2	2.4	2.9	2.4	1.9
Europe*	0.9	1.4	1.8	2.1	1.5
of which: Euro Area	*0.6*	*0.8*	*1.4*	*1.9*	*1.2*
Japan	1.8	0.2	0.6	1.4	1.1
Other mature**	3.5	3.1	3.0	2.9	2.5
Mature Economies	**1.8**	**1.9**	**2.3**	**2.3**	**1.8**
China	8.8	7.4	6.5	5.5	3.9
India	6.6	5.7	5.9	5.5	5.0
Other developing Asia	5.2	3.9	4.6	4.3	3.9
Latin America	3.6	1.0	1.6	2.8	2.9
of which: Brazil	*3.4*	*0.2*	*0.5*	*3.1*	*3.1*
of which: Mexico	*3.5*	*2.3*	*3.5*	*2.8*	*2.8*
Middle East & North Africa	3.4	2.9	3.4	3.4	3.2
Sub-Saharan Africa	4.6	3.7	4.4	5.0	5.3
Russia, Central Asia and Southeast Europe***	4.1	0.9	-1.5	2.1	1.7
Emerging Market and Developing Economies	**6.2**	**4.7**	**4.4**	**4.5**	**3.7**
World Total	**3.7**	**3.2**	**3.3**	**3.3**	**2.7**

- Global GDP Growth Rates have declined from:
  - 3.7% in 2010-to-2013 to
  - 3.2% in 2014 and are expected to reach
  - 3.3% in 2015 through 2019.
- Global GDP Growth in the Emerging Market and Developing Economies is expected to trend downward over the next decade largely due to China's growth rate slowing from:
  - 8.8% in 2010-to-2013 down to
  - 3.9% in 2020-to-2025.

Key Take-Away: World GDP growth rates continue to show meaningfully positive trends albeit at slower rates than in the recent past.

Source: The Conference Board is a global, independent business membership and research association based in NYC.

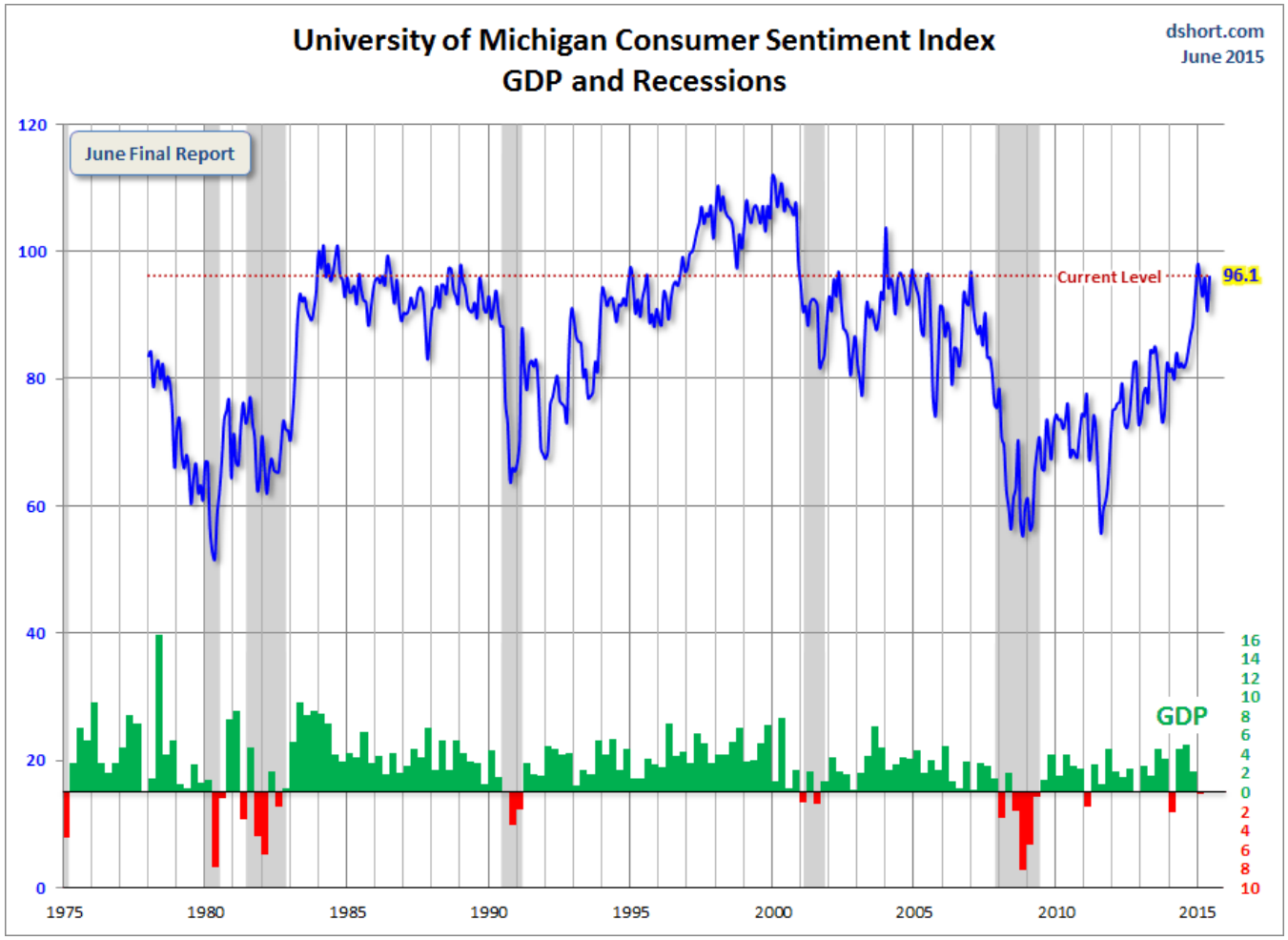
U.S Labor Market Conditions



The U.S. Unemployment Rate has declined to <u>5.3% as of June 2015</u> after peaking at 10.0% in October of 2009 and <u>falling to 5.6% as of December 2014</u>.

Source: U.S. Department of Labor: Bureau of Labor Statistics

U.S Consumer Sentiment



Summary: The University of Michigan preliminary Consumer Sentiment for June came in at 96.1, below the interim high of 98.1 in January.

Consumers voiced the largest and most sustained increase in economic optimism since 2004 with regards to the national economy, their personal finances ad buying conditions. **Overall, the data indicate growth in consumer spending of 3% in 2015.**

The **University of Michigan Consumer Sentiment Index** is a consumer confidence index published monthly by the University of Michigan and Thompson Reuters. The index is normalized to have a value of 100 in December 1964. Each month at least 500 telephone interviews involving fifty core questions are conducted within the U.S. These interviews are used to develop an index of consumer expectations, a subset of which are included in the Leading Indicator Composite Index published by the US Dept. of Commerce and Bureau of Economic Analysis.

TFFR Investment Review

As of March 31, 2015

TFFR Total Fund Attribution
One Year Ended March 31, 2015

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	23%	21%	12.81%	11.81%	0.21%	0.06%	0.27%
Domestic Fixed Income	18%	17%	6.87%	4.64%	0.40%	(0.00%)	0.40%
Real Estate	10%	10%	16.77%	12.72%	0.36%	(0.03%)	0.32%
Timber	4%	5%	5.54%	10.64%	(0.21%)	(0.04%)	(0.26%)
Infrastructure	4%	5%	4.80%	(0.65%)	0.23%	0.05%	0.28%
International Equity	15%	15%	(0.70%)	(0.61%)	(0.02%)	(0.03%)	(0.04%)
International Fixed Incom	5%	5%	(3.96%)	(10.08%)	0.34%	0.01%	0.35%
Private Equity	5%	5%	(2.77%)	(2.77%)	0.00%	0.04%	0.04%
World Equity	16%	16%	7.46%	6.03%	0.20%	0.00%	0.21%
Cash & Equivalents	1%	1%	0.06%	0.03%	0.00%	(0.01%)	(0.01%)
Total			**6.83% =**	**5.27% +**	**1.51% +**	**0.05%**	**1.56%**

Overall, TFFR's asset allocations to Real Estate and U.S. Equity and Fixed Income delivered strong results, while our International Equity and Fixed Income results were disappointing along with Private Equity and Timber.

One Year Manager Selection within Fixed Income, Real Estate, Infrastructure and Domestic and World Equity was a positive contributor to relative performance, while Timber and International Equity were detractors.

* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World Index, 12.0% Barclays Aggregate Index, 11.8% MSCI EAFE Index, 10.0% NCREIF Total Index, 5.0% CPI-W, 5.0% Barclays HY Corp 2% Issue, 5.0% NDSIB TFFR - Private Equity, 5.0% Global Agg ex USD, 5.0% NCREIF Timberland Index, 4.8% Russell 2000 Index, 2.8% MSCI Emerging Mkts - Net and 1.0% 3-month Treasury Bill.

Source: Callan, gross returns

Unaudited amounts subject to change

TFFR Total Fund Attribution
Three Years Ended March 31, 2015

Three Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	24%	23%	17.62%	16.46%	0.25%	0.12%	0.38%
Domestic Fixed Income	17%	17%	7.17%	4.38%	0.50%	(0.02%)	0.48%
Real Estate	10%	10%	12.91%	11.47%	0.13%	(0.01%)	0.12%
Timber	5%	5%	1.72%	9.80%	(0.41%)	(0.02%)	(0.43%)
Infrastructure	4%	5%	7.72%	0.69%	0.28%	0.10%	0.38%
International Equity	16%	16%	8.45%	7.36%	0.16%	(0.03%)	0.13%
International Fixed Incom	5%	5%	0.96%	(2.68%)	0.21%	(0.01%)	0.20%
Private Equity	5%	5%	4.53%	4.53%	0.00%	0.01%	0.01%
World Equity	13%	13%	12.56%	12.19%	0.14%	(0.08%)	0.06%
Cash & Equivalents	1%	1%	0.07%	0.07%	0.00%	0.00%	0.00%
Total			**10.45%**	**= 9.12%**	**+ 1.27%**	**+ 0.06%**	**1.33%**

TFFR's overall allocations to Equities and U.S. Fixed Income delivered strong results during the past three years, while our Timber, Private Equity and International Fixed Income were disappointing.

Three Year Manager Selection within most asset classes met or exceeded expectations with significant exceptions for Timber and Private Equity.

* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World Index, 12.0% Barclays Aggregate Index, 11.8% MSCI EAFE Index, 10.0% NCREIF Total Index, 5.0% CPI-W, 5.0% Barclays HY Corp 2% Issue, 5.0% NDSIB TFFR - Private Equity, 5.0% Global Agg ex USD, 5.0% NCREIF Timberland Index, 4.8% Russell 2000 Index, 2.8% MSCI Emerging Mkts - Net and 1.0% 3-month Treasury Bill.

Source: Callan, gross returns

Note: Timber, Infrastructure and World Equity did not have distinct Target Returns in prior years.

Unaudited amounts subject to change

TFFR Total Fund Attribution
Four and One-Quarter Years Ended March 31, 2015

Four and Three-Quarter Year Annualized 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%	28%	18.88%	18.43%	0.05%	0.12%	0.17%
Domestic Fixed Income	18%	18%	7.13%	5.44%	0.29%	(0.02%)	0.26%
Real Estate	10%	10%	15.62%	12.69%	0.27%	0.03%	0.31%
Timber	4%	4%	-	-	(0.31%)	0.01%	(0.30%)
Infrastructure	3%	4%	-	-	0.19%	0.14%	0.33%
International Equity	18%	18%	9.71%	7.82%	0.38%	(0.02%)	0.36%
International Fixed Incom	5%	5%	4.49%	1.32%	0.17%	(0.01%)	0.16%
Private Equity	5%	5%	5.64%	5.64%	0.00%	(0.05%)	(0.05%)
World Equity	9%	9%	-	-	0.09%	(0.05%)	0.04%
Cash & Equivalents	1%	1%	0.09%	0.08%	0.00%	(0.02%)	(0.02%)
Total			**11.73%**	**= 10.47%**	**+ 1.14%**	**+ 0.13%**	**1.26%**

During the past 4-¾ years, TFFR's asset allocations to the public equity and debt markets have met or exceeded our expectations generating returns from 4.49% to 18.88%.

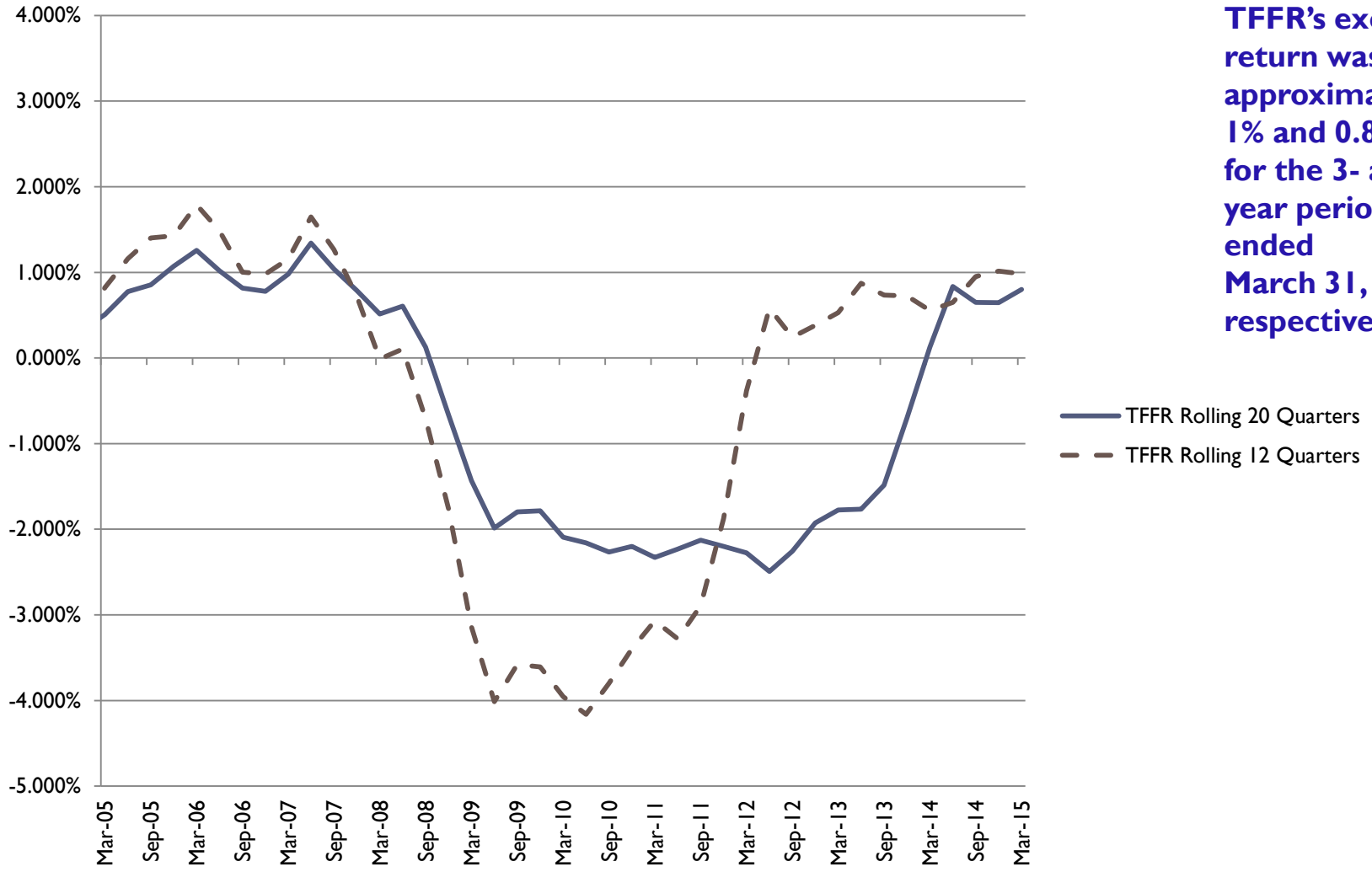
* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World Index, 12.0% Barclays Aggregate Index, 11.8% MSCI EAFE Index, 10.0% NCREIF Total Index, 5.0% CPI-W, 5.0% Barclays HY Corp 2% Issue, 5.0% NDSIB TFFR - Private Equity, 5.0% Global Agg ex USD, 5.0% NCREIF Timberland Index, 4.8% Russell 2000 Index, 2.8% MSCI Emerging Mkts - Net and 1.0% 3-month Treasury Bill.

Source: Callan, gross returns

Note: Timber, Infrastructure and World Equity did not have distinct Target Returns in prior years.

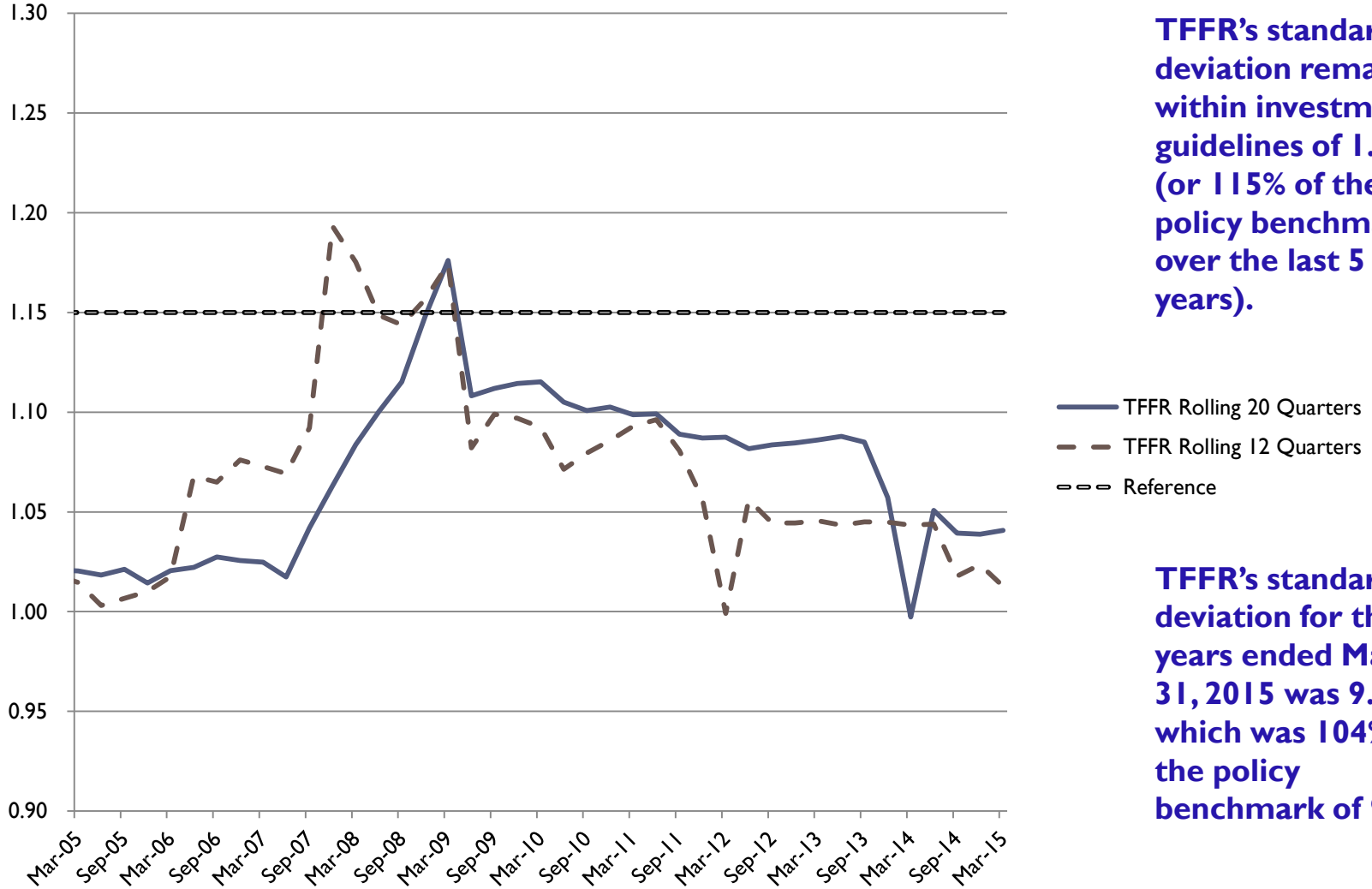
Unaudited amounts subject to change

Excess Return Relative to Policy Benchmark
10 Years Ended 3/31/2015



TFFR's excess return was approximately 1% and 0.80% for the 3- and 5-year periods ended March 31, 2015, respectively.

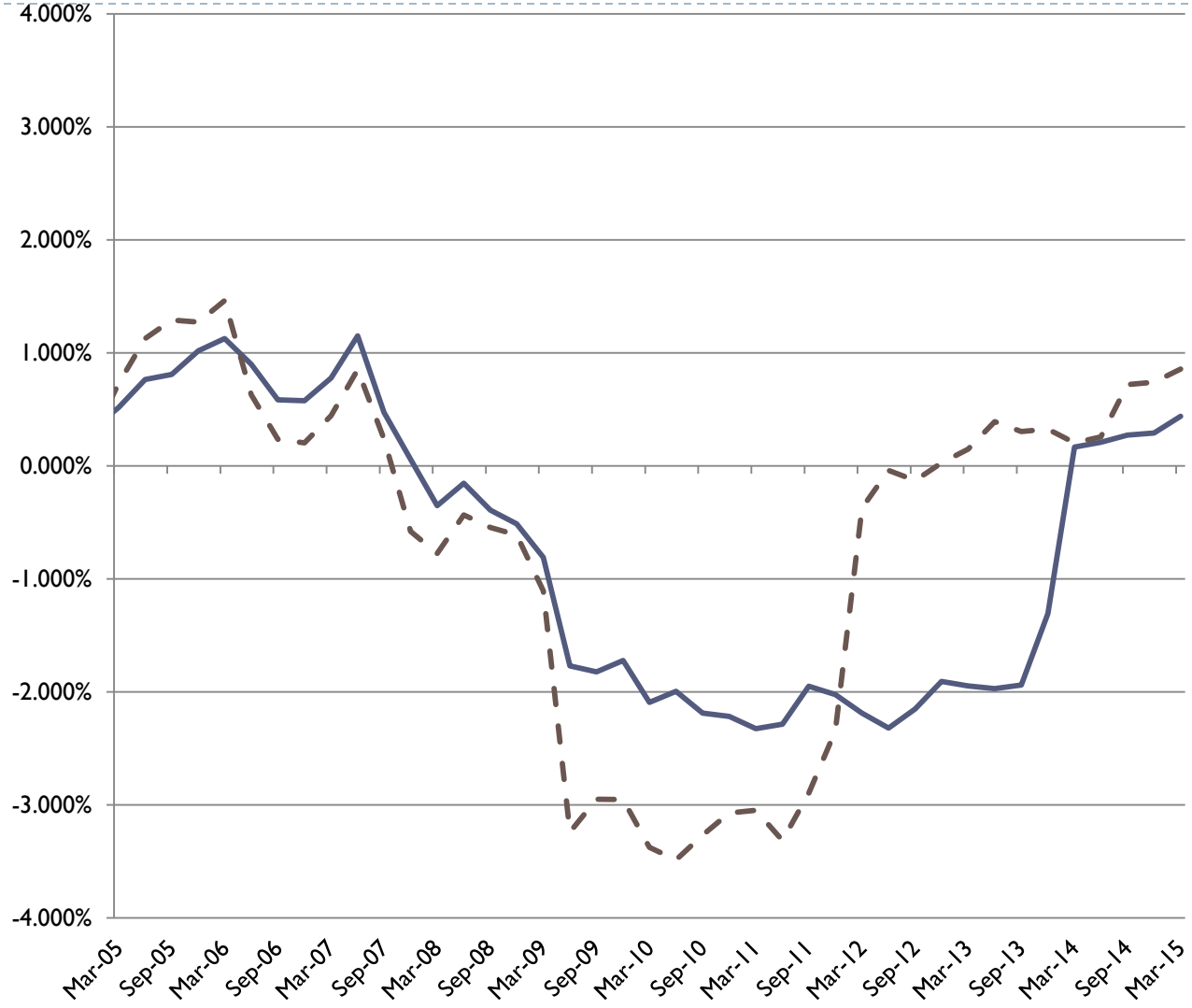
Relative Standard Deviation Relative to Policy Benchmark
10 Years Ended 3/31/2015



TFFR's standard deviation remains within investment guidelines of 1.15 (or 115% of the policy benchmark over the last 5 years).

TFFR's standard deviation for the 5-years ended March 31, 2015 was 9.5%, which was 104% of the policy benchmark of 9.2%.

Risk Adjusted Excess Return
10 Years Ended 3/31/2015

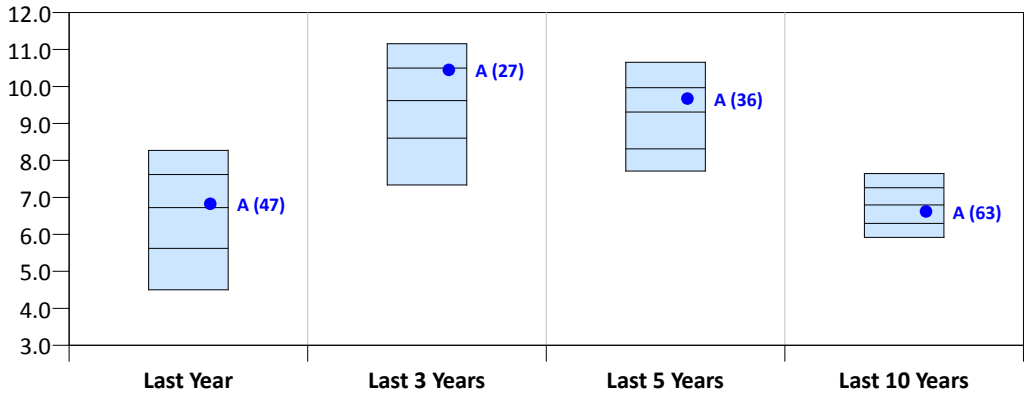


TFFR's risk adjusted excess return turned positive on a rolling 3-year basis in 2013 (dashed line) and on a rolling 5-year basis (solid line) in 2014.

Risk Adjusted Excess Return measures a portfolio's excess return adjusted by its risk relative to a benchmark portfolio. This metric is positive if returns are due to "smart" investment decisions or negative if driven by excess risk.

TFFR Public Fund Peer Comparison – Gross Returns
As of 3/31/15

Gross of Fee Returns
for Periods Ended March 31, 2015
Group: CAI Public Fund Sponsor Database



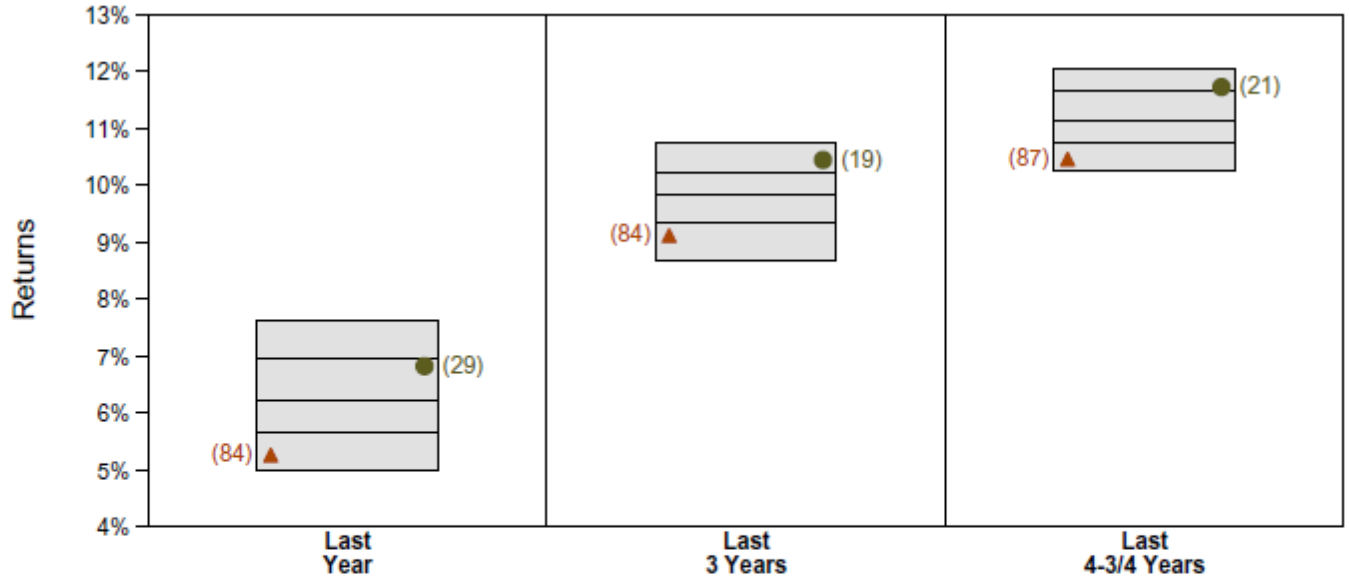
	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	8.3	11.2	10.7	7.6
25th Percentile	7.6	10.5	10.0	7.3
Median	6.7	9.6	9.3	6.8
75th Percentile	5.6	8.6	8.3	6.3
90th Percentile	4.5	7.3	7.7	5.9
Member Count	259	245	225	196
Total Fund-TFFR ● A	**6.8**	**10.4**	**9.7**	**6.6**

Callan Returns: TFFR generated 2nd quartile returns for the 1-, 3- and 5-year periods and 3rd quartile returns for the 10-year period ended March 31, 2015 on an unadjusted asset allocation basis, when compared to public fund peers.

Note: TFFR Fund and peer performance are based on Callan's calculation of gross returns. *Source: Callan*

Peer Return Comparison – Asset Allocation Adjusted Basis
As of 3/31/15

Asset Allocation Adjusted Ranking



	Last Year	Last 3 Years	Last 4-3/4 Years
10th Percentile	7.64	10.75	12.04
25th Percentile	6.95	10.24	11.65
Median	6.22	9.85	11.15
75th Percentile	5.67	9.35	10.76
90th Percentile	4.99	8.69	10.25
Total Fund ●	6.83	10.45	11.73
Policy Target ▲	5.27	9.12	10.47

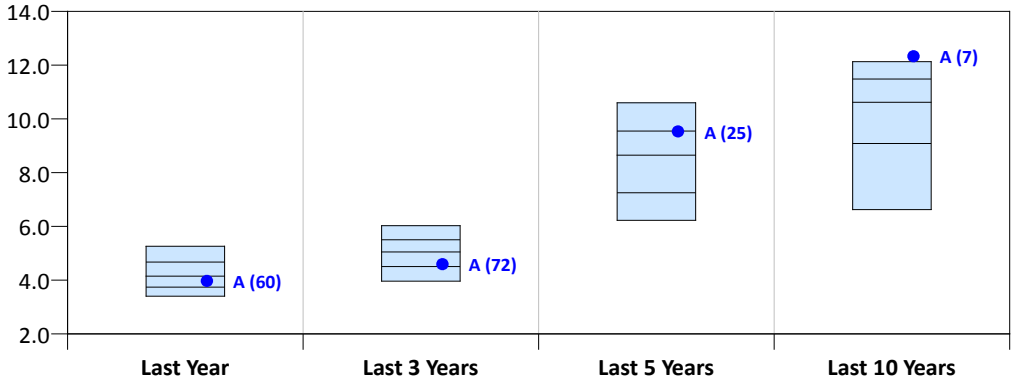
Callan Returns: TFFR generated returns ranging between 19th and 29th percentile on asset allocation adjusted basis for the 1-, 3- and 4-3/4 year period ended March 31, 2015, when compared to public fund peers.

Note: TFFR Fund and peer performance are based on Callan's calculation of gross returns. *Source: Callan*

Public Fund Peer Comparison – Standard Deviation
As of 3/31/15

NOTE: Standard deviation is used to measure investment (or portfolio) volatility whereas a lower standard deviation is generally preferred over a higher standard deviation.

Gross of Fee Standard Deviation
for Periods Ended March 31, 2015
Group: CAI Public Fund Sponsor Database



	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	5.3	6.0	10.6	12.1
25th Percentile	4.7	5.5	9.5	11.5
Median	4.1	5.0	8.7	10.6
75th Percentile	3.7	4.5	7.2	9.1
90th Percentile	3.4	4.0	6.2	6.6
Member Count	259	245	225	196
Total Fund-TFFR ● A	**4.0**	**4.6**	**9.5**	**12.3**

Standard Deviation of Callan Returns: The TFFR Fund generated 3rd quartile standard deviation for the 1- and 3-year period, 2nd quartile standard deviation for the 5-year period and 1st quartile standard deviation for the 10-year period ended March 31, 2015 when compared to public fund peers (unadjusted basis).

Note: TFFR Fund and peer performance are based on Callan's calculation of gross returns. *Source: Callan*

Comparison of TFFR's Asset Allocation vs Other Large Plans

A broad comparison of TFFR's asset allocation to other "Large Public Funds" as provided by Callan (for 2014):

	TFFR	Peers
Global Equity	57% (1)	57%
Global Fixed Income	22%	24%
Global Real Assets (or "Other Alternatives)	20% (2)	19%
Cash	1%	0%
	100%	100%

(1) Global Equity includes a 5% target allocation to private equity for TFFR.
(2) Global Real Assets includes target allocation of real estate, infrastructure and timber for TFFR, while the Large Public Fund "Peer" group includes "Other Alternatives".

Note: TFFR's broad asset allocations are generally comparable to other "Large Public Funds" (using 2014 data as provided by Callan Associates), although the classification of private equity needs to be confirmed.

MEMORANDUM

TO: **TFFR BOARD OF TRUSTEES**
FROM: **Fay Kopp and Dave Hunter**
DATE: **July 23, 2015**
SUBJ: **ASSET LIABILITY STUDY**

One of the ND TFFR Board's greatest responsibilities is to establish investment policy to ensure the trust fund is invested prudently. An asset liability study will help the Board review the asset allocation structure of the TFFR plan to see if the current investment strategy is still appropriate, or if modifications are needed as a result of changes in the capital market environment, funding policy, plan design, or other reasons.

Segal Rogerscasey (which is Segal Company's global investment consulting affiliate) and Callan Associates are current consultants of NDRIO, and are well qualified to conduct an asset liability study for TFFR. Dave and I have reviewed each proposal closely and discussed each firm's experience, qualifications, process, schedule, deliverables, and other information we deemed important. We have also contacted 2-3 public pension client references from each consultant, and found them to be very positive. Both consultants are well respected in the public pension environment and have performed similar studies.

Cost proposals for the study were quoted as a fixed fee plus travel expenses:

Segal Rogerscasey	$57,000
Callan Associates	$65,000

Since Segal Company has been the NDTFFR/NDRIO actuarial consultant since 2011, they clearly understand ND TFFR's funding and benefit structure. On the other hand, Callan has been NDSIB/NDRIO investment consultant for over 30 years, and has a deep understanding of the fund's investment program. Callan conducted TFFR's asset liability study in 2010-11.

The TFFR Board should consider the written proposals, presentations by firm representatives, and costs in selecting the consultant to conduct TFFR's asset liability study.

Agenda

ND Teachers' Fund for Retirement
Board Meeting

Friday, July 24, 2015
8:30 am
Board Room
Harold Schafer Leadership Center
University of Mary
7500 University Drive
Bismarck, ND

1. Attendance at ND State Investment Board Meeting to listen to Keith Ambachtsheer's presentation on pension fund governance.

Next Board Meeting: September 24, 2015

Any person who requires an auxiliary aid or service should contact the Deputy Executive Director of the Retirement and Investment Office at 701-328-9885 at least three (3) days before the scheduled meeting.

ND STATE INVESTMENT BOARD MEETING

Friday, July 24, 2015, 8:30 a.m.
University of Mary
Board Room at the Harold Schafer Leadership Center
7500 University Drive, Bismarck, ND

AGENDA

I. CALL TO ORDER AND ACCEPTANCE OF AGENDA

II. ACCEPTANCE OF MINUTES (June 24, 2015)

III. ELECTION OF OFFICERS 2015-16

A. Chair
B. Vice Chair
C. Parliamentarian (Appointed by Chair)

IV. AUDIT COMMITTEE MEMBERSHIP 2015-16 (Board Acceptance) - Mr. Hunter (enclosed) (5 min)

V. INVESTMENTS

A. Tobacco Prevention and Control Trust Fund - Mr. Hunter (enclosed) (10 min) **Board Action**

VI. GOVERNANCE

A. Code of Conduct Affirmation - Mr. Schmidt (enclosed) (5 min) *Informational*
B. Investment Manager Catalog - Mr. Schmidt (enclosed) (5 min) *Informational*
C. Governance Education - Mr. Ambachtsheer, KPA Advisory Services (enclosed) (3 hours)

1. How Effective is Pension Fund Governance Today and Do Pensions Invest for the Long-Term

========== Suggested Break from 10:00 to 10:15 am ==========

2. The Evolving Meaning of "Fiduciary Duty" - Is Your Board Keeping Up
3. Rethinking Investment Beliefs for the 21st Century

VII. OTHER

Possible Executive Session for Attorney Consultation Relating to GM Bankruptcy Litigation pursuant to NDCC §§ 44-04-19.1 and 44-04-19.2. - Ms. Murtha (10 min)

Next Meetings:

SIB - August 28, 2015, 8:30 am - State Capitol, Peace, Garden Room
SIB Audit Committee meeting - September 25, 2015, 1:00 pm - State Capitol, Peace Garden Room

VIII. ADJOURNMENT

Note: The meeting is scheduled to adjourn at approximately 12:00 pm CT.

Any individual requiring an auxiliary aid or service, please contact the Retirement and Investment Office (701) 328-9885 at least three (3) days prior to the scheduled meeting.

AGENDA ITEM V.C.

INFORMATIONAL – NO BOARD ACTION REQUESTED

TO: **State Investment Board**

FROM: **Dave Hunter**

DATE: **June 22, 2015**

SUBJECT: **Pension Governance Offsite**

Overview:

At the request of the SIB, RIO will invite SIB client board members to attend a pension governance offsite on the morning of July 24, 2015, at the University of Mary from 8:30 am to Noon. Our notable guest presenter will be Keith Ambachtsheer of *KPA Advisory Services*. Keith has been a leader in pension fund governance for over 30 years and serves as the Academic Director of the Rotman-ICPM Board Effectiveness Program for Pension Funds and Other Long-Horizon Investment Institutions. Mr. Ambachtsheer also founded KPA Advisory Services in 1985 and co-founded CEM Benchmarking in 1991, the latter of which benchmarks the organizational performance of some 400 major pension funds around the world. Keith's background is attached.

Mr. Ambachtsheer intends to present on the following three major areas of interest:

1) "How Effective is Pension Fund Governance Today and Do Pensions Invest for the Long Term" (a review and discussion of recent survey findings);
2) "The Evolving Meaning of 'Fiduciary Duty': Is Your Board Keeping Up"; and
3) "Rethinking Investment Beliefs for the 21st Century".

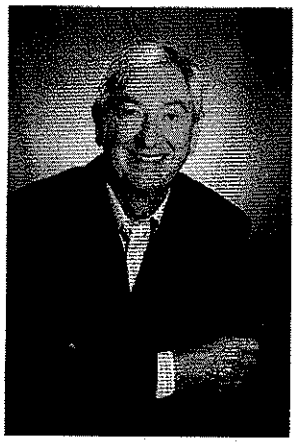
University of Mary Campus and Meeting Location:

The University of Mary is located at 7500 University Drive in Bismarck about 2.5 miles south of Bismarck Municipal Airport. The presentation will be held in the Board Room at the Harold Schafer Leadership Center (Building 1 on the attached University of Mary Campus Map). Attendees can access parking via the South Entrance and park in the lot in front of the School of Business then walk across the white railed concrete pedestrian bridge into the Benedictine Center (where signs will be posted directing you to the Board Room).

Pre-Meeting Materials:

Mr. Ambachtsheer has requested attendees to read the attached articles in advance of our offsite, if possible.

NOTE: SIB clients are likely required to follow North Dakota Open Records and Meetings Law in the event a quorum is reached for their respective governing group.



KEITH AMBACHTSHEER
President
KPA Advisory Services

Keith has been a participant in the pensions and investments industry since 1969. He founded his own firm *KPA Advisory Services* in 1985. Through it, he provides strategic advice to a global clientele in person, and through the monthly *Ambachtsheer Letter*. He is the author of three best-selling books, and has been a regular contributor to industry publications since the 1970s. He was the Editor of the *Rotman International Journal of Pension Management* from 2008 to 2014.

In 1991, Keith co-founded *CEM Benchmarking* which benchmarks the organizational performance of some 400 major pension funds around the world. In 2005, he played a major role in founding the *Rotman International Centre for Pension Management (Rotman ICPM)*. He was appointed Director of *Rotman ICPM* and Adjunct Professor of Finance at the *Rotman School of Management, University of Toronto*. He was appointed Director Emeritus in 2014.

At the start of 2011, he was appointed Academic Director of the Rotman-ICPM Board Effectiveness Program for Pension Funds and Other Long-Horizon Investment Institutions. He has personal governance experience as a member of two corporate boards, and has served as Board Chair of a major medical foundation.

His research, writing and advice have influenced pension and endowment design, policy, and organizational structure in Canada and elsewhere. He has won major awards, including CFA Institute's Award for Professional Excellence in 2011 for "exemplary achievement, excellence of practice, and true leadership", and the EBRI Lillywhite Award in 2010, given in recognition of outstanding lifetime contributions to Americans' economic security. In July of 2009 Keith was awarded James Vertin Award from the *CFA Institute* for his contributions "of enduring value" to investment theory and practice. In 2007, he was honoured with the Outstanding Industry Contribution Award by *Investments and Pensions Europe*. In 2003, he was named 'One of the 30 Most Influential People in Pensions and Investments' by *Pensions and Investments* in the USA. In 2013, *aiCIO* named him one of the globe's "10 most influential academics in institutional investing", and the globe's #1 "knowledge broker" in institutional investing in 2014.

HOW EFFECTIVE IS PENSION FUND GOVERNANCE TODAY?

AND

DO PENSION FUNDS INVEST FOR THE LONG-TERM?

FINDINGS FROM A NEW SURVEY

"We need to move from long-term investing solutions to actions……..

First, we need to address the issue of governance of financial institutions."

Angel Gurria

General Secretary - OECD

Keith Ambachtsheer and John McLaughlin

January 2015

Background to this Study

This study marks the continuation of a series of survey-based research projects on pension fund governance by the authors and colleagues that stretch back over 20 years. A catalyst for this new effort was the *Focusing Capital on the Long Term (FCLT)* initiative launched by Dominic Barton (McKinsey) and Mark Wiseman (CPP Investment Board) in 2013.[1] In a subsequent Harvard Business Review article that provided context for the *FCLT* initiative, they wrote: *"If asset owners and managers are to do a better job of investing for the long-term, they need to run their organizations in a way that supports and reinforces this."*[2]

Obviously, the quality of the governance function in asset owner organizations is critical to this "do a better job of investing for the long-term" quest. Given our prior survey experience in the governance area, we offered to update our work in support of the *FCLT* initiative, and at the same time, gain a better understanding of the degree to which pension funds actually practice 'long-termism' in investing. We sent out a survey in June 2014 to 180 CEOs (or equivalents) of major pension (and related) organizations around the world. The survey's governance component was identical to prior surveys sent out in 1997 and 2005. Two months later we began the work of analyzing the 81 completed surveys, comparing the 2014 governance-related responses to those provided in 1997 and 2005, and interpreting the responses in the long-term investing part of the survey. This paper sets out our findings, and their implications for raising the effectiveness of the governance and investment functions of pension (and related) organizations.

Organization of this Paper

The paper is organized into six parts:

Part I: Study Summary and Conclusions

Part II: Key Findings from Prior Governance Research

Part III: Description of the 2014 Survey and the Survey Respondents

Part IV: 2014 Survey Findings on Governance

Part V: 2014 Survey Findings on Long-Term Investing

Part VI: Key Take-Aways from the 2014 Survey Findings

About the Authors

Keith Ambachtsheer is Director Emeritus of the International Centre for Pension Management (ICPM) and Academic Director of the Rotman-ICPM Board Effectiveness Program at the Rotman School of Management, University of Toronto. He is co-founder and President of KPA Advisory Services, and co-founder and Board Member of CEM Benchmarking Inc.

John McLaughlin is co-founder and Board Chair of CEM Benchmarking Inc. He is also a Board Member of a number of public and private enterprises and a graduate of the ICD / Rotman Directors Education Program and a holder of the ICD.D designation.

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[1] For more information on the *FCLT* initiative, visit *www.FCLT.org*.

[2] From Barton and Wiseman (2014) "Focusing Capital on the Long-Term", Harvard Business Review, Jan-Feb. Barton and Wiseman also published a follow-up article in the Jan-Feb 2015 issue of the HBR titled "Where Boards Fall Short".

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PART I: STUDY SUMMARY AND CONCLUSIONS

We recently conducted a survey-based study on the effectiveness of pension fund governance, and on long-horizon investment attitudes and practices. A broadly-based group of 81 major pension organizations from around the world with aggregate assets of USD $5 trillion participated in the study. Here we set out the major study findings.

On Pension Fund Governance

Prior studies on the effectiveness of pension fund governance over the course of the last 20 years all reached the conclusion that there was considerable room for improvement. Despite evidence that board effectiveness is marginally improving, our survey-based study conducted in 2014 finds that much work still needs to be done:

- Board selection and improvement processes continue to be flawed in many cases.
- The board oversight function in many organizations needs to be more clearly defined and executed.
- Competition for senior management and investment talent is often hampered by uncompetitive compensation structures.

It will require a concerted, ongoing joint effort by pension plan stakeholders, pension organization boards, regulators, and legislators to change the current situation.

On Long-Horizon Investing

There was broad consensus among the survey participants that conceptually and aspirationally, long-horizon investing is a valuable activity for both society, and for their own fund. However, there is a significant gap between aspiration and reality to be bridged. Barriers to putting good long-horizon investing intentions into practice include:

- Regulations that force short-term thinking and acting.
- A short-term, peer-sensitive environment that makes it difficult to truly think and act long-term.
- The absence of a clear investment model, performance metrics, and language that fit a long-term mindset.
- Alignment difficulties in outsourcing, and compensation barriers to in-sourcing.

Here too a concerted effort (both inside pension organizations and among them) will be required to break down these barriers.

On The Relationship between Governance and Long-Horizon Investing

We found statistically positive relationships between the governance quality rankings and the long-horizon investment quality rankings. This raises the question of causation. Is the measured correlation merely a statistical artifact of the biases of the 81 survey respondents? Or is better governance really driving long-horizon investing quality? The qualitative commentary provided by the survey respondents make a plausible case for the latter interpretation.

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PART II: KEY FINDINGS FROM PRIOR GOVERNANCE RESEARCH

Anthropologists O'Barr and Conley caused quite a stir in 1992 with their book "Fortune and Folly: The Power and Wealth of Institutional Investing".[3] After observing the behavior of nine major US pension funds over a two-year period, they concluded that the aim of the funds appeared to be focused more on responsibility deflection and blame management than on good governance and creating value for fund stakeholders. This observed behavior is very much in line with Keynes' 1936 remark about investment committees that "worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally...".[4]

A 1995 study in which we were involved surveyed 50 senior US pension fund executives on what they estimated the "excellence shortfall" to be in their organization. In other words, if the known barriers to excellence could be lifted out of their organizations, by how much might long-term investment performance improve? The median response was 66 bps. When asked to identify the sources of excellence shortfall, respondents most frequently cited poor decision-making processes, inadequate resources, and a lack of focus and clarity of mission.[5] Studies by Clark et al. in the UK (2006 and 2007) and by Clapman et al. in the USA (2007) confirmed the presence of these challenges in many pension organizations.[6]

An article by Clark and Urwin in the inaugural issue of the Rotman International Journal of Pension Management[7] (RIJPM Fall 2008) made these key observations about Boards of pension organizations:

- Understanding human behavior and cognitive biases is an important element in designing effective Board governance structures.
- Board members must be collegial, representative, and make a collective commitment to understand and fairly balance stakeholder interests.
- In reality, Boards often suffer from unacknowledged differences in individual decision-making styles, lack focus, and are overwhelmed by the range of issues they must deal with.
- In this context, the Board Chair role is critically important. The Chair must ensure there is a clear link between stakeholder expectations and the organization's culture, its strategic plan, and how it executes that plan. Most importantly, this person must command strong personal respect.

An article by Ambachtsheer, Capelle, and Lum in that same RIJPM issue[8] describes a pension fund governance survey first carried out by the authors in 1997, and repeated in 2005. Its key findings and conclusions are set out below.

Understanding the Pension Governance Deficit

The survey posed two open-ended questions to pension fund CEOs. One was about Board priorities; the other about organizational priorities. It also asked participants to rank 45 statements about governance, management, and operational effectiveness in their organizations. They were asked to indicate their

[3] O'Barr and Conley (1992) "Fortune and Folly: The Wealth and Power of Institutional Investing". Irwin Books.
[4] Keynes (1936) "The General Theory of Employment, Interest and Money", Chapter 12. Palgrave Macmillan.
[5] Ambachtsheer, Boice, Ezra, McLaughlin (1995), "Excellence Shortfall in Pension Fund Management: Anatomy of a Problem", unpublished working paper.
[6] The studies by Clarke et al. are summarized in (2008) "Best-Practice Pension Fund Governance". Journal of Asset Management. See also Clapman (2007) "Model Governance Provisions to Support Pension Fund Best-Practice Principles". Stanford University Law School.
[7] Clark and Urwin (2008) "Making Pension Boards Work: The Critical Role of Leadership". Rotman International Journal of Pension Management, Fall.
[8] Ambachtsheer, Capelle, and Lum (2008) "The Pension Governance Deficit: Still With Us". Rotman International Journal of Pension Management, Fall.

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disagreement/agreement with each statement on a scale from 1 (total disagreement) to 6 (complete agreement). Each statement was crafted so that the higher the assigned number, the greater the perceived effectiveness. The survey elicited 80 responses in 1997 and 81 in 2005 from diverse groups of pension organizations by type, size, and geography.

Table 1 sets out the CEO responses to the Board and managerial priorities questions in the 2005 survey. They saw big challenges for Board governance in three areas: Agency/Context issues, Board Effectiveness issues, and Investment/Risk Management issues. The biggest managerial challenge is strategic planning and its execution. Table 2 provides greater detail about each of these four perceived challenge areas. Note that while, on the one hand, the four areas are distinct, they are also the four key pieces of a larger pension governance and management puzzle. They revolve around the following questions:

1. How clear are pension Boards about the pension contracts they are overseeing and about the fiduciary duties of loyalty and even-handedness that oversight involves?
2. Does the Board understand the difference between Board governance and management accountability for achieving clearly agreed-on organizational goals? Can the Board ask the right questions about strategy and its execution?
3. Has the organization worked out a set of well-articulated investment beliefs that both the Board and management understand and truly believe in? Is it clear which stakeholders are bearing what risks?
4. Does the organization have the necessary resources to execute its strategic plan? If not, what are the blockages and what is the plan for removing them?

The relevance and importance of these questions is reinforced by the outcomes of the scoring process of the 45 survey statements. Table 3 compares the six lowest-scoring statements in 1997 and 2005. Note they are almost identical, and that, directly or indirectly, all six relate to Board effectiveness problems. Specifically, they point to Board selection and evaluation difficulties, to ineffective delegation to management, and to attracting and retaining top talent into the organization.

Table 1: Pension Fund Oversight and Management: What Really Matters?

1. What are the more important oversight issues?	Proportion of Responses
a. Agency / context issues	44%
b. Governance effectiveness issues	36%
c. Investment beliefs / risk management issues	20%
2. What are the more important management issues?	**Proportion of Responses**
a. Strategic planning / management effectiveness	73%
b. Agency / context issues	15%
c. Investment beliefs / risk management issues	12%

Source, RIJPM, Fall, 2008

Table 2: Pension Fund Governance and Management: Specific Challenges

1. **Agency / Context Issues**
   a. Balancing stakeholder interests
   b. Understanding the legal / regulatory environment
2. **Oversight effectiveness issues**
   a. Appropriate skill / knowledge set for the Board
   b. Clear delegation to management
3. **Investment beliefs / risk management issues**
   a. Understanding context-based risk and its management
   b. Informed investment beliefs and their relevance
   c. Shift to risk budget-based investment process
4. **Strategic planning / management effective issues**
   a. Resource planning, organization design, and compensation
   b. Clear delegation from the Board
   c. Effective information-technology (IT) systems

Source, RIJPM, Fall, 2008

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Table 3: The Six Lowest Scoring Statements in 1997 and 2005

Ranking	1997	2005	Ranking
40	Compensation levels in our organization are competitive	Compensation levels in our organization are competitive	40
41	My Board of Governors does not spend time assessing individual investment managers or investments.	My Board of Governors does not spend time assessing individual investment managers or investments.	41
42	My Board of Governors examine and improve their effectiveness on a regular basis.	My Board of Governors examine and improve their effectiveness on a regular basis.	42
43	Our fund has an effective process for selecting, developing, and terminating members of the Board of Governors.	I have the authority to retain and terminate investment managers.	43
44	I have the authority to retain and terminate investment managers.	Our fund has an effective process for selecting, developing, and terminating members of the Board of Governors.	44
45	Performance-based compensation is an important component of our organization design.	Performance-based compensation is an important component of our organization design.	45

Source: RIJPM, Fall, 2008

Recommendations for Action

Based on these findings, the article identified six opportunities for fixing the documented governance deficit that still existed in many pension organizations in the middle of the first decade of the 21st Century:

1. Redesign pension contracts to eliminate any existing incompleteness, over-complexity, and/or unfairness problems. This is usually not something Boards themselves can do, but their views will likely be carefully listened to by the contracting parties.
2. Create a Board skill/experience matrix to reflect the reality that while pension Boards need to be seen to be representative and hence legitimate, that is not enough. They must also possess the requisite collective skills and experience to be an effective governance body.
3. Initiate a Board self-evaluation protocol in order to identify and address weaknesses.
4. Ensure clarity between Board and management roles. Lack of clarity causes organizational gaps, compressions, and a great deal of frustration.
5. Adopt a high-performance stance through-out the organization and ensure it has the necessary human and technical resources to turn the aspiration into reality.
6. Make Board effectiveness a regulatory requirement. It would be a simple matter for pension regulators to require that pension organizations annual disclose the steps they are taking to ensure that an effective governance function is in place.

A significant outcome of this work was the establishment of the week-long Rotman-ICPM Board Effectiveness Program (BEP) for Pension and Other Long-Horizon Investment Organizations in 2011. Its curriculum covers all six of the 'action' opportunities listed above. The Program has been offered five times thus far, resulting in 153 BEP 'graduates' from 56 different organizations and 11 countries.[9]

[9] BEP6 and BEP7 will be offered February 9-13 and November 30-December 4 in 2015, Visit https://www.rotman.utoronto.ca/ProfessionalDevelopment/Executive-Programs/CoursesWorkshops/Programs/Pension-Management.aspx for more information

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PART III: DESCRIPTION OF THE 2014 SURVEY AND THE SURVEY RESPONDENTS

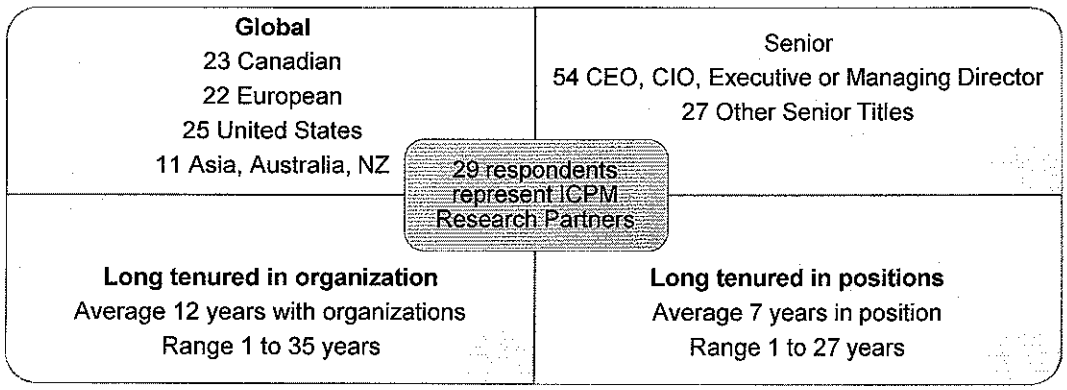
An interesting dimension in the cited 2008 RIJPM article was the ability to compare the assigned CEO scores to the same statements in 1997 and 2005. Based on the average 1997/2005 scores, we found four statements related to strategic planning, Board self-evaluation, and HR/compensation practices showed the greatest improvement over the period. However, Table 3 indicates that these dimensions of pension fund governance and management were still among the lowest ranked among all 45 statements in 2005. The implication was that much work remained to be done.

The introduction to this paper noted that with nine years having passed since the 2005 survey, we decided to conduct the pension fund governance survey a third time in 2014. To focus more directly on Board governance matters, we pruned the 45 original survey statements down to the 23 that focused most directly on the governance function. Once again, we were able to achieve the high response rates of 1997 and 2005. Table 4 compares the demographics of the 2014 responding organizations with those of 1997 and 2005. Note that the 2014 responding group was considerably larger, less corporate, and more geographically diverse than the 1997 and 2005 groups.[10] Aggregate assets amounted to about USD $5 trillion. Table 5 indicates that the people who completed the survey were generally senior, long-tenured pension organization executives.

Table 4: Demographics of the 1997, 2005, and 2014 Responding Groups

Survey Respondents	1997	2005	2014
Number of Respondents	80	81	81
US	54%	44%	29%
Canada	46%	41%	28%
Europe		11%	31%
Asia, Australia, New Zealand		4%	14%
Public Sector	24%	41%	60%
Corporate	63%	38%	19%
Other	14%	21%	21%
Median plan size Billion USD	2.1	3.7	22.7

Table 5: Demographics of the People Completing the 2014 Survey



[10] The "Other" category in Table 4 was a mix of multi-employer pension plans, union pension plans, fiduciary managers, and special-purpose organizations such as workers compensation insurers.

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PART IV: 2014 SURVEY FINDINGS ON GOVERNANCE

We explained above that the respondents to the earlier 1997 and 2005 surveys were asked to rank 45 statements about governance, management, and operational effectiveness in their organizations. They were asked to indicate their disagreement/agreement with each statement on a scale from 1 (total disagreement) to 6 (complete agreement). Each statement was crafted so that the higher the assigned number, the greater the perceived effectiveness. As already noted, the 2014 survey was reduced to the 23 statements directly related governance effectiveness. In the analysis that follows, the 2014 responses to these 23 statements were compared to the 1997 and 2005 responses to the same 23 statements.

Insights from the Rankings

Figure 1 displays the distribution of responses to the 23 governance statements in 1997, 2005, and 2014. The general bias towards high rather than low scores is a common phenomenon with this type of survey design. However, note that the average ranking marginally increased over to the 17-year period (i.e., from 4.5 to 4.7 to 4.8), possibly indicating a marginal improvement in the effectiveness of pension boards over this period.

Figure 1: The Response Distributions in 1997, 2005, and 2014

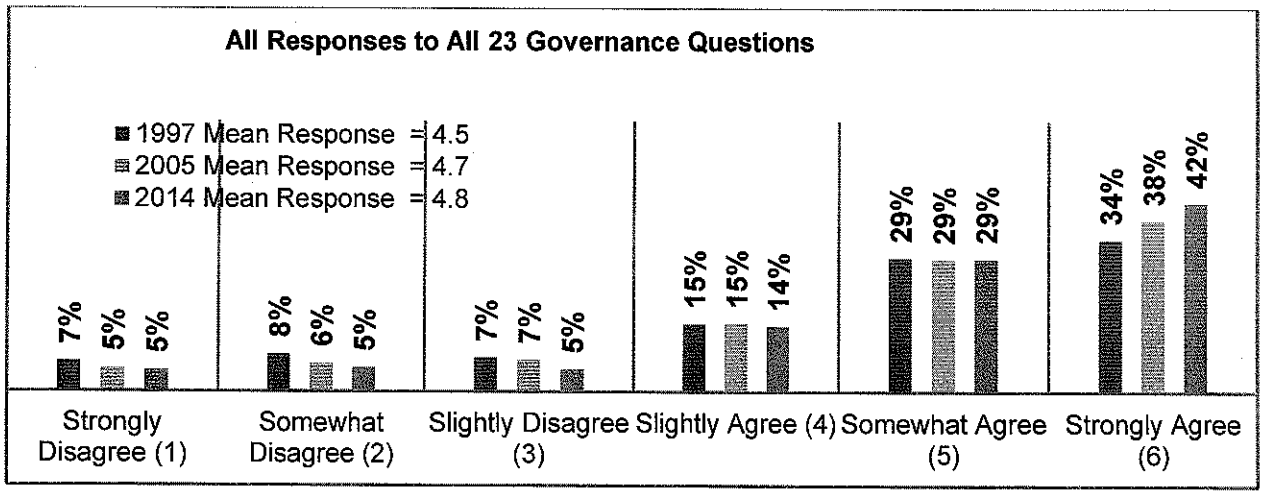

Table 6 compares the five highest-scoring statements in 2014 (i.e., indicating the highest satisfaction levels) with the five lowest-scoring statements (i.e., indicating the lowest satisfaction levels). Readers are invited to draw their own conclusions from Table 6. It seems to us there are elements of contradiction in these two sets of survey responses. For example, how is it possible for senior executives in pension organizations to, on the one hand, say they are getting the resources necessary to do their job, but on the other, say that compensation levels in the organization are uncompetitive? Similarly, how is it possible for senior executives in pension organizations to say that their Boards hold them accountable for results, but on the other, that they meddle in operational matters (e.g., the hiring and firing of investment managers)?

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Table 6: Areas of Highest vs. Lowest CEO Satisfaction

GOVERNANCE

Highest agreement in latest survey	Mean Score 2014 Rank
My governing fiduciaries do a good job of representing the interests of plan stakeholders.	1
Developing our investment policy required considerable effort on the part of myself and the governing fiduciaries and it reflects our best thinking.	2
There is a clear allocation of responsibilities and accountabilities for fund decisions between the governing fiduciaries and the pension investment team.	3
My governing fiduciaries hold me accountable for our performance and do not accept subpar performance.	4
My governing fiduciaries approve the necessary resources for us to do our work.	5

Lowest agreement in latest survey	Mean Score 2014 Rank
I have the authority to retain and terminate investment managers.	19
Compensation levels in our organization are competitive.	20
My governing fiduciaries have superior capabilities relevant knowledge, experience, intelligence, skills necessary to do their work.	21
Our fund has an effective process for selecting, developing and terminating its governing fiduciaries.	22
Performance based compensation is an important component of our organizational design.	23

Table 7 compares the five lowest-scoring statements in 1997, 2005, and 2014. Remarkably, they were the same five each time. To us, they offer the clearest indication of where the challenges with governance in the pensions field continue to lie, and the consequences they continue to lead to. Specifically, inadequate selection processes for board members continue to lead to ineffective board oversight protocols, which in turn continue to lead to board meddling in operational matters, and to inadequate resourcing in such key functional areas as investing.

Table 7: The Five Lowest-Scoring Statements in 1997, 2005, and 2014

GOVERNANCE

Lowest agreement over 3 surveys	Mean Score 1997 Rank	Mean Score 2005 Rank	Mean Score 2014 Rank
Compensation levels in our organization are competitive.	18	18	20
My governing fiduciaries examine and improve their own effectiveness on a regular basis.	20	20	17
I have the authority to retain and terminate investment managers.	22	21	19
Our fund has an effective process for selecting, developing and terminating its governing fiduciaries.	21	22	22
Performance based compensation is an important component of our organizational design.	23	23	23

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Table 8 assesses the regional variations in how the 23 statements were ranked. The clear message here is that the European respondents scored a number of governance statements materially lower than their counterparts in North America and the Pacific Rim. At the other end of the spectrum, pension organizations in Canada, Australia, and New Zealand were more likely to feature a performance-based element in their compensation arrangements.

Table 8: Regional Variations in Governance Quality

GOVERNANCE

Regional variation from mean response to questions	Europe	Canada	USA	Asia Australia New Zealand	All plan mean response
Performance based compensation is an important component of our organizational design.	−	+		+	3.7
My governing fiduciaries set a clear, appropriate, understandable and well-communicated framework for values and ethics.	−				5.1
My governing fiduciaries set clear, appropriate, understandable and well communicated standards for our organizational performance.	−				4.9
My governing fiduciaries do a good job of balancing over-control and under-control.	−				4.8
I have the necessary managerial authority to implement long term asset mix/balance sheet risk policy within reasonable limits.	−		+		5.0
There is a clear allocation of responsibilities and accountabilities for fund decisions between the governing fiduciaries and the pension investment team.				−	5.4

+	Response more than 0.5 above mean
−	Response more than -0.5 below mean

Additional Insights on Governance from Respondent Comments

In addition to ranking the 23 governance statements, survey participants were asked to address the question: "What do you see as the most important governance questions facing your Board at this time?" This is what they told us:

<u>Board Composition and Skills</u>

- *"Our board members should be more experienced and have more skills and intelligence."*
- *"Getting timely appointments..."*
- *"Board turnover: too much among beneficiary reps and legislative reps. Too little among appointed investment experts. Control rests with state legislature"*
- *"Too much board turnover (due to term limits). Too much staff turnover (due to retirements) Even though policies are well documented, the loss of institutional memory and continuity has the potential for negative outcomes..."*
- *"The most important issue in governance ...is illiteracy in committee members regarding pension fund management. Governance is in place but hardly operational..."*
- *"Selection of pension committee members with sufficient investment expertise ..."*

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- *"Education of Board members..."*
- *"Getting new governing fiduciaries up to speed on pensions, pension investing, and fiduciary management (80% turnover) ..."*
- *"...Ensuring ongoing Board capacity for increasing oversight and risk management functions.."*
- *"...Securing the ability of the board to actually handle the (increasing) responsibilities allocated to the board through regulatory changes..."*

Board Process

- *"The board spends too much time on administrative issues and individual approvals of investments and not enough time on overall strategic positioning of the portfolio and longer-term macro risks and opportunities for the fund and the business. "*
- *"...blessed with a ...truly outstanding group...., but they are collectively flying just above the tree tops instead of a higher fiduciary altitude. ... time is largely spent at the deal and manager level..."*
- *"Refused to delegate manager hiring and firing..."*
- *"...(Management) can terminate while (Board) Investment Committee retains managers"*
- *"Time management: spending more time on interviewing and meeting with investment managers versus strategic business decisions... "*
- *"Staying purposefully high level/ strategic in their decision making and understand/ be comfortable with the importance of clear delineation of responsibilities between the board and the organization...."*
- *"The board spends too much time on administrative issues and individual approvals of investments and not enough time on overall strategic positioning of the portfolio and longer-term macro risks and opportunities for the fund and the business."*

Compensation

- *"The design and implementation of market-competitive compensation plans to attract and retain high-caliber investment and senior management talent. As (a public entity we are) subject to restraint legislation and policies affecting compensation and business-related expenses. "*
- *"Alternative compensation models: no appetite to review or discuss these. "*

Clearly, these respondent comments strongly re-enforce the insights extracted from the survey statement rankings.

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PART V: 2014 SURVEY FINDINGS ON LONG-TERM INVESTING

Consistent with the design of the governance component of the survey, respondents were also asked to rank their agreement/disagreement with 22 statements related to the organization's attitudes and practices regarding long-horizon investing on a scale from 6 to 1. Below, we report their responses, both to the 22 statements and to our invitation to share any comments they might have on the topic.

Insights from the Rankings

Figure 2 displays the distribution of assigned rankings to the 22 long-horizon investing statements. Note the shape of the distribution is the same as those of the governance quality rankings, with a strong bias towards assigning high rankings. Recall that the average 2014 governance quality ranking was 4.8, almost identical to the average long-horizon investing satisfaction ranking of 4.9.

Figure 2: The Long-Horizon Investment Ranking Distribution

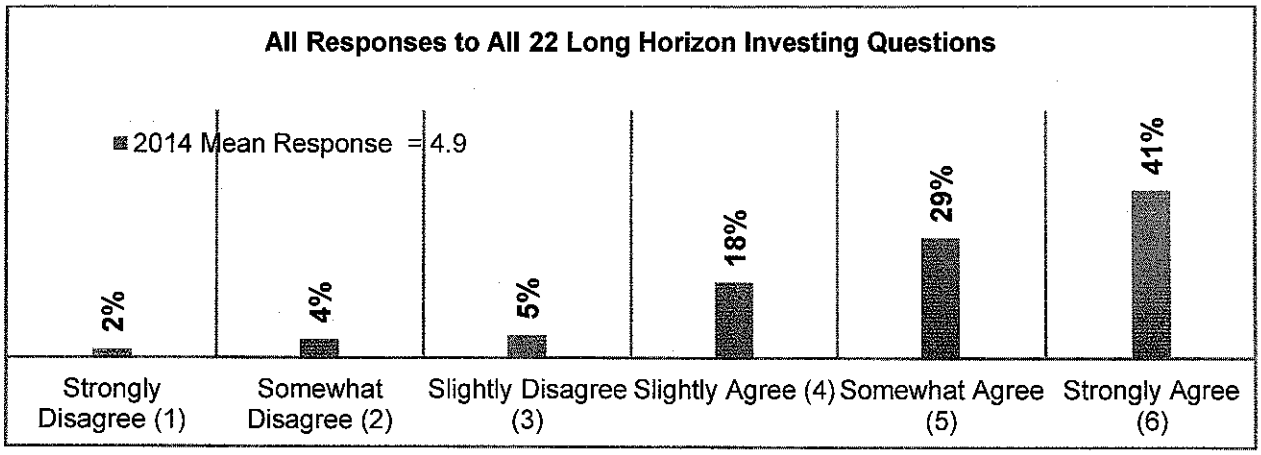

Table 9 shows a strong dichotomy between highly-ranked aspirational statements about long-horizon investing, and the much lower-ranked implementation realities. For example, on the one hand, pension funds seem to have good policy intentions and strong beliefs that long-horizon investing is a potentially promising value-adding activity. On the other hand, survey respondents indicate they have considerable difficulties with such implementation activities as creating proper incentives for long-horizon investing, participating in constructive Environmental, Social, and Governance-related and engagement strategies, and designing effective performance monitoring and measurement systems.

Table 10 provides a geographic breakdown of the long-horizon investing rankings. It shows an interesting contrast with Table 8, which provided a geographic breakdown of the governance quality rankings. Whereas European pension organizations scored lower on a number of key governance criteria in Table 8, they score higher on two key long-horizon investing criteria (e.g., in engagement strategies and in integrating ESG criteria into investment decision-making).

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Table 9: Highly-Ranked vs. Lowly-Ranked Long-Horizon Investing Statements

LONG HORIZON INVESTING

Highest agreement	Mean Score 2014 Rank
We believe that the capability to invest for the long-term is a significant advantage in creating value.	1
Our organization's statement of investment policy explicitly states that we invest for the long-term.	2
Specific components of our Fund are explicitly designated to focus on investing for the long-term.	3
We have a specific overall allocation policy to implement a long-term orientation in our Fund.	4
We believe that our long-term investing protocols create significant value.	5

Lowest agreement	Mean Score 2014 Rank
We (or our managers on our behalf) have explicit policies for engaging corporations (or other organizations) we invest in when we think proactive engagement is warranted.	18
The mandates for each long-term component explicitly express long-term objectives and shorter-term downside tolerance.	19
Our approach to evaluating long-term fund components is meaningfully different from other components.	20
The investment manager compensation for the long-term fund components has been explicitly designed to reflect the long investment horizon.	21
We (or our managers on our behalf) explicitly integrate environmental and social factors into deciding which corporations we invest in.	22

Table 10: Regional Variations in Long-Horizon Investing Rankings

LONG HORIZON INVESTING

Regional variation from mean response to questions	Europe	Canada	USA	Asia Australia New Zealand	All plan Mean Response
We or our managers on our behalf have explicit policies for engaging corporations or other organizations we invest in when we think proactive engagement is warranted.	+	−			4.4
We or our managers on our behalf explicitly integrate environmental and social factors into deciding which corporations we invest in.	+	−	−		4.1
Specific components of our Fund are explicitly designated to focus on investing for the long-term.				−	5.5

+	Response more than 0.5 above mean
−	Response more than -0.5 below mean

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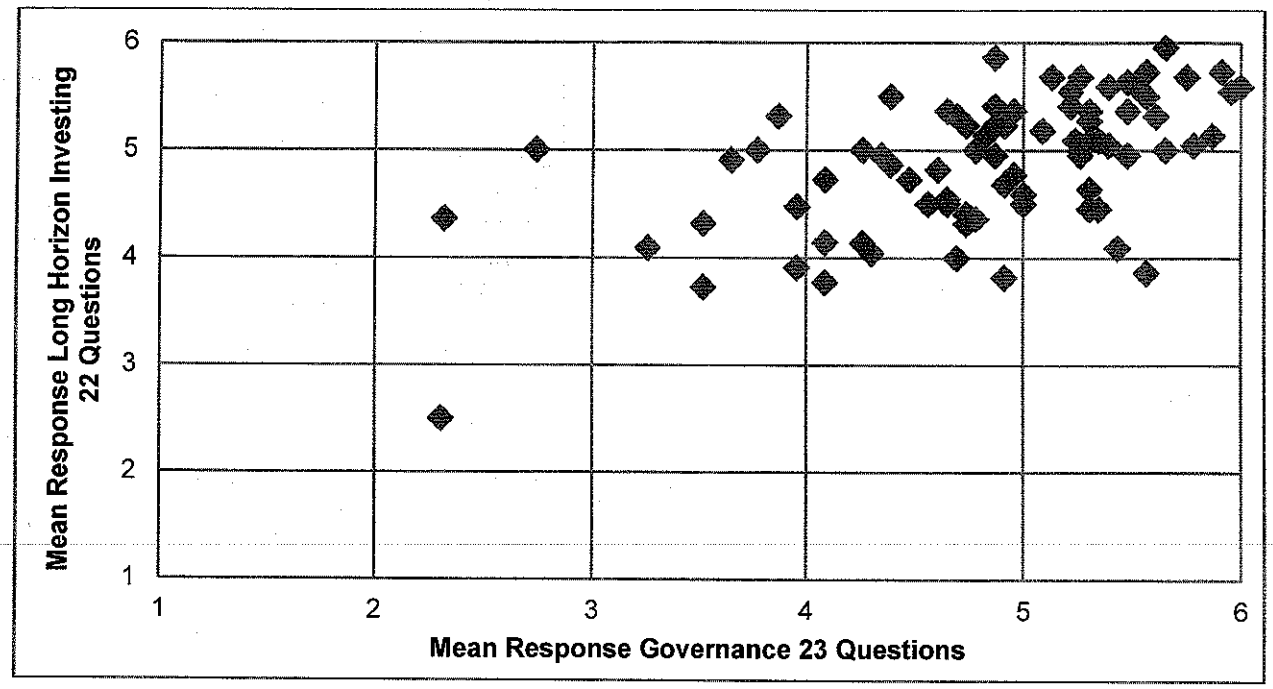
It is tempting to attach considerable weight to the positive correlation between the governance scores and the long-horizon investing scores indicated in Figure 3.[11] Does stronger pension governance really lead to a greater emphasis on long-horizon investing? Or does it simply reflect a consistent high/low ranking bias by the survey participants? (i.e., some participants may have a consistently positive ranking bias, while other may have a consistently negative bias). The written participant comments below shed light on how these questions might be answered.

Figure 3: A Positive Correlation between Governance and Long-Horizon Investing Scores?



Additional Insights on Long-Horizon Investing from Respondent Comments

In addition to ranking the 22 long-horizon investing statements, survey participants were asked to address the question: "Please feel free to elaborate on any of the rankings you have assigned. We would also like to learn more about your organization's journey towards long-horizon investing to date, and your intentions over the next three years." This is what they told us:

- *"...(We have) long term strategic planning, but we are facing regulation that forces us to think short term..."*
- *"...It is difficult to describe differences in our approach with respect to long-term and short-term investing. Our due diligence processes are consistently applied with a view to longer-term performance."*
- *"Really at the start of the journey but progressing fast. ... DB funds not always as long-term as they would like to be given de-risking."*
- *"In a peer sensitive environment, it is generally difficult to be truly long-term in investing. Even if the current board and investment team take long-term positions, competitive pressures can stand to dominate. In such cases, a change in the board can bring risks of change in approach. Extraction from long-term positions can be very expensive."*

[11] The correlation coefficient is 0.55. Its t-value is 5.9, indicating a high degree of statistical significance.

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- *"The long-term investing belief is now firmly rooted... A lot of work had to be done on policy making, mandate formulation and actually starting long-term mandates. We find it challenging to define a monitoring and guidance framework for long-term investing (we feel we need new "Language" there, Not many people seem to have answers to these questions)..."*
- *"...competitive advantage accrues to investors able to take a long view. This (led us to) high weightings in illiquid or semi-liquid investments. Returns have mostly been good but ... returns to external managers have been much better (fees!) ... long-termism did not sufficiently permeate our liquid investments...organized around market index-relative metrics. We are in the process of developing a much more joined-up approach, with ...internal investment selection...buy-to-hold and more substantial approach to sustainable ownership."*
- *"All our investments, apart from short term liquidity, are invested with a long-term perspective. ...We do not believe that the interests of external fund managers are genuinely aligned with ours..."*
- *"Long-term investing is less about time frame and more about alignment with long-term objectives of the investor and long-term structural trends (e.g. climate change). It is when you invest with an interest in the cashflow-generating potential of the investment over the long-term. It is not a buy and hold strategy. Investors who are permanently invested in equity indices are not long-term investors, even if they have low turnover/ no turnover"*
- *"...having long term liabilities does not entail a particular – and particularly patient – approach to investment. We may buy assets, that you would think of as "long term" – e.g. infrastructure or forests – but if markets or other developments create a situation where we find that selling is in the better interest of our clients, that is what we will do."*

To us, these comments suggest that the measured statistical correlation between the Survey governance quality rankings and the long-horizon investment quality rankings are likely not to simply reflect survey respondent biases. Plausibly, the comments suggest that better-governed pension funds do indeed 'think smarter', and as a result, have more effective long-horizon investment programs.

PART VI: KEY TAKE-AWAYS FROM THE 2014 SURVEY FINDINGS

In our view, the survey findings lead to three key conclusions:

1. On Governance: while there is some evidence of improvement in the governance of pension organizations since 1997, major concerns about how board members are selected and trained, about the effectiveness of board oversight processes, and about the ability to attract and retain key executive and professional skills remain.
2. On Long-Horizon Investing: the comfort with, and the aspirations for the concept of long-horizon investing has yet to be matched with the design and application of an effective suite of implementation strategies that can realize those aspirations.
3. On the Relationship between Governance and Long-Horizon Investing: the survey offers plausible evidence of a positive relationship between governance quality and long-horizon investing quality. This relationship is likely not a spurious one.

In short, there is still much work to do to materially strengthen the effectiveness of both the governance and long-horizon investing functions in pension organizations. Likely, better governance also means better long-horizon investing, which in turn likely means higher return investing.[12]

[12] See Ambachtsheer (2014) "The Case for Long-Termism", Rotman International Journal of Pension Management (Fall) for more on the connection between investment performance and long-horizon investing.

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The AMBACHTSHEER Letter

Sustainable Pension Design • Effective Pension Management

December 2014

THE EVOLVING MEANING OF 'FIDUCIARY DUTY':

IS YOUR BOARD OF TRUSTEES KEEPING UP?

"Years of focus on the duty of prudence by fiduciaries has generated myopic investment herding behaviors, undermined intergenerational pension equity, and disrupted attention to the duty of loyalty and impartiality.... ".

From "Reclaiming Fiduciary Duty Balance"
By Hawley, Johnson, and Waitzer (2011)

"The duty of impartiality requires fiduciaries to consider and balance the divergent interests of beneficiaries....including the intergenerational implications of their decisions.... ".

From "Reconnecting the Financial Sector and the Real Economy: A Plan for Action"
By Waitzer and Sarro (2014)

Pension Boards Lag Courts in Interpreting 21st Century 'Fiduciary Duty'

One of the most important, and possibly most underappreciated research projects funded by the Rotman International Centre for Pension Management (ICPM) over the course of the last four years was on the evolving meaning of 'fiduciary duty' for boards of pension organizations in the 21st Century. This work was conducted by legal scholars Jim Hawley, Keith Johnson, Doug Sarro, and Ed Waitzer. Their work led to the two articles in the Rotman International Journal of Pension Management (RIJPM) from which we quote above.[1] The two quotes capture the essence of their message: pension boards lag 'the trajectory of the law' in their understanding of their fiduciary duties. Boards have some serious 'catch-up' work to do.

This *Letter* summarizes the conclusions of the ICPM 'fiduciary duties' project, and sets out a work plan for pension boards that want to keep up with the evolving meaning of 'fiduciary duties' in the 21st Century, rather than suffering the regret f having to play 'catch up' ball in possibly unpleasant circumstances a few years down the road.

Why Now?

Why now? The authors point to four 'inflection point' catalysts that argue for proactive action by the boards of pension organizations now, rather than reactive action later:

- The Growth of Pension Funds: collectively, the global pension fund sector has become a major global financial force, with assets somewhere in the $30T-$40T range. The growing sovereign wealth fund and the foundation/endowment fund sectors add materially to these numbers. Collectively, these massive asset pools represent the multi-generational financial interests of hundreds of millions if not billions of beneficiaries. Collectively, the investment decisions of these pools directly impact both how the global financial markets work, and how the global real economy works. With their scale and necessarily long-term perspective to understand and meet the retirement income needs their members, pension organizations should be highly motivated to ensure they understand, and are in fact fulfilling their fiduciary duties.

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- The Pervasive Influence of Agents and Emphasis on the Short-Term: while the investment policy documents of pension organizations tend to emphasize long-termism, actual practices continue to reflect short-termism in many cases. This dichotomy is re-enforced through multiple channels: the media, how performance is measured, how incentive compensation is structured, and through the presence multiple intermediary agents (e.g., consultants, money managers). There is no natural alignment between the financial interests of these agents and those of trust beneficiaries. In such an increasingly complex world, fiduciaries are seriously challenged to articulate the best short and long-term interests of current and future beneficiaries, and to demonstrate they are actually serving these interests in a balanced manner through their investment policies.

- Over-Reliance on Simplistic Investment Theories: while investment theories such as the Efficient Markets Hypothesis (EMH) are elegant, the assumptions behind them are far from reflecting reality. For example, in the case of the EMH, material information about individual investments is not always known by all investors all the time; further, information that is generally known is not always interpreted identically by all investors, and is not always accurately reflected in asset prices. Also, investors are not always 'rational', and risk tolerances are not always stable. Investment returns are not independently and identically distributed. As a result, while events like the Global Financial Crisis (GFC) cannot happen in an EMH world, they do happen in the real world. The point is that attempting to exercise the fiduciary duties of prudence, loyalty, and impartiality by taking the assumptions and implications of the EMH as 'reality' is not defensible conduct today. Board of trustees have an obligation to understand the world as it is, and not as it is posited in order to create elegant investment theory.

- Recent Legal Responses to Financial System Dysfunction: the four legal experts in the two RIJPM articles point to a number of recent legal opinions and actions that bear on the evolving meaning of 'fiduciary duty' in the 21st Century. In a pensions dispute, the US Supreme Court ruled that fiduciary duty requires "trustees to take impartial account of all beneficiaries...both present and future". The Dutch pension act requires fiduciaries to take into account the interests of all plan stakeholders in setting policy and making decisions. The GFC prompted a number of actions against financial institutions and individuals working in these institutions for fiduciary misbehavior. In contrast, the Supreme Court of Canada recently ruled against a class action initiated by a corporation's bond holders against its board of directors, ruling that the board had made reasonable decisions reflecting not only the interests of the corporation's creditors and shareholders, but also the corporation's broader obligations "as a good corporate citizen". Emerging out of these opinions and judgments is a new 'reasonable expectations' standard for the exercise of fiduciary duty. This emerging view contrasts sharply with the historical view that attention to fiduciary duty could be demonstrated by engaging in a standard box-checking exercise drawn up by legal counsel.

There is a fifth 'why now' argument we would add to the four offered by the cited legal experts:

- Passive Acceptance of Unsustainable Pension Designs: readers of this *Letter* know of our discomfort with the traditional DB and DC pension designs. In our view, neither design fully acknowledges the differing needs of the young and the old today, as well as the financial interests of the young and the old of tomorrow. As a result, these traditional designs are problematic in a number of ways (e.g., the one-size-fits-all problem, the fuzzy property rights problem, the fuzzy risk definition and allocation problem). We set these views out in detail in a recent invited paper titled "Taking the Dutch Pension System to the Next Level: a View from the Outside".[2] If the duty of impartiality requires pension fiduciaries to consider and balance the divergent interests of various classes of beneficiaries and other risk-bearing stakeholders (including the intergenerational implications of their decisions), then it is reasonable to expect that these fiduciaries also

have a duty to test the pension design of the plan they are governing for its long-term sustainability and for fairness regarding all plan stakeholder groups, present and future.

Now we move on from the 'why now?' question to the 'what now?' question. How should pension organizations individually, and collectively at the national and global pension community levels, respond to these five catalysts for action? The four cited law experts have some thoughts on these questions, as do we.

Responses at the Pension Organization Level

Stating the obvious, nothing much will happen at the organizational level unless its Board of Trustees (led by the Board Chair) is prepared to own the 'fiduciary duties' file. If that is the case, the following six-point check list may be helpful:

- Pension Design: do we have a fair, sustainable, understandable pension formula? How can we best address this question? What we would do if our formula doesn't pass a reasonable fair/ sustainable/understandable test?

- Stakeholder Communications: are we clear about who are stakeholders are? Do we communicate with them effectively about pension design? About the value the pension organization is creating for them? How do we know our communication strategies are effective?

- Organization Design: do we have a cost-effective organization that produces 'value for risk' and 'value for money' in its key functions? How can we best address this question? What would we do if our organization doesn't benchmark well in its key functions, using credible metrics?

- Board Effectiveness: how effective are we as a Board? Do we have the right mix of skills and experience? Are we seen as trustworthy by our plan stakeholders? Are we public-minded? Do we measure our own effectiveness and improve our own performance?

- Risk Management: what risks do we need to measure and manage? Do we have the people, protocols, and technology to do this well? If not, what are we going to do about it?

- Investment Beliefs and Policies: do we have an investment program geared to generate plan member wealth through long-horizon return compounding? Is it working well? How do we know? Do we have an investment program geared to meeting the payment obligations to retirees? Is it working well? How do we know?

While living by this six-point checklist would undoubtedly produce a good score on the organizational 'fiduciary duties' scale, there is another 'fiduciary duty' dimension that also needs attention.

Collective Responses at the National and Global Levels

In their 2014 "Reconnecting the Financial Sector to the Real Economy" article, Waitzer and Sarro propose four specific initiatives that financial institutions such as pension organizations, as well as law makers and regulators, could collectively undertake to strengthen the expectations and responsibilities attached to the fulfilling 'fiduciary duties':

- Foster 'Win-Win' Collaborations: there is a 'trust dilemma' in situations where there is no clear short-term net (i.e., after-cost) benefit for a single organization to become a 'first mover' on an issue that may be of great long-term collective benefit. The way out of such a dilemma is for multiple parties to agree on the importance of the issue, and to share the cost of addressing it. Examples of such collaborations already exist (e.g., ICGN, PRI, WEF, ICPM, CII, CCGG, Eumedion, NAPF, ASFA, ACSI, ICPM).[3] The recent FCLT (*Focusing Capital on the Long-Term*) initiative opens up the prospect of direct investor/investee collaboration on such issues as fostering a long-term perspective in investing and the measurement of organization success.

- Create Legal Mechanisms to Protect Future Generations: a possible measure to fight short-termism in political decision-making is to establish a commissioner or ombudsman to represent the rights of future generations. Such mechanisms already exist in the environmental and human rights spheres. More day-to-day decision-making could be delegated to non-partisan, independent agencies or to senior administrators with guaranteed term lengths.

- Rethink Legislation: much post-GFC financial legislation and regulation has spawned "complicated rules breeding complicated systems", which in turn feed a box-checking 'is it legal?' mentality. A far-better approach would be to specify far-fewer broad, coherent, concise, enforceable rules that focus on core expectations. Courts can also play a constructive role here through emphasizing the 'reasonable expectations' principle.

- Reassert the Social Utility of the Financial Sector: the GFC and the events that followed it greatly exacerbated the lack of public trust and understanding of the financial system writ large. Many years of hard work will be required to regain that public trust, and to enhance public understanding of the vital role the financial sector in general, and the pensions sector in particular, play in mobilizing capital and in pricing and allocating financial risks in a well-functioning economy. The CFA Institute's *Future of Finance* initiative is an example of the work already underway to address this challenge.

In the exercise of their fiduciary duties, pension boards of trustees need to be aware of these collective national and global initiatives, and they need to understand the roles their organizations are playing (or should be playing) in moving one or more of these four initiatives towards successful implementation.

Doing the Right Thing

In conclusion, Waitzer and Sarro argue that too much of board governance in the financial sector has, and continues to focus on 'doing things right'. That is, on technical compliance with whatever rules exist at the time a decision needs to be made. They argue a fundamental mind shift is required. Instead of focusing on 'doing things right', boards must begin to focus on 'doing the right thing'. In their view, this will be the basis on which their decisions and actions will increasingly be judged, both in courts of law, and of public opinion.

So 'doing the right thing' based on balancing the financial interests of all relevant stakeholder groups is the new 21st Century standard for testing the proper fulfillment of 'fiduciary duty'. It is all a board of trustees can reasonably be expected to do. Is your board meeting this standard?

Endnotes

1. *The two articles are required reading for participants in the Rotman-ICPM Board Effectiveness Program (BEP). The articles and as well as information about BEP can be accessed through the ROTMAN ICPM website.*
2. *Presented and discussed in Amsterdam this past December 11 and 12. Accessible through the KPA ADVISORY SERVICES website.*
3. *Collaboration theory and practices is another unique area where Rotman ICPM has invested research monies. See Danyelle Guyatt's RIJPM articles "Pension Collaboration: Strength in Numbers" (2008), and "Effective Investor Collaboration: Enhancing the Shadow of the Future" (2013).*

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416.925.7525 www.kpa-advisory.com

The AMBACHTSHEER Letter

Sustainable Pension Design • Effective Pension Management

March 2015

RETHINKING INVESTMENT BELIEFS FOR THE 21ST CENTURY

"Piketty sees the 60-year WW1-1970s period as an anomaly....which is now well behind us.... Future annual returns on capital will likely fall below the 5% experience of the 18th and 19th Centuries...."

The Ambachtsheer Letter - April 2014

Rethinking MPT

When we entered the investment business 45 years ago, the big new thing was Modern Portfolio Theory, or MPT for short. It was elegant and radical at the same time: elegant because it embodied a simple, understandable set of investment beliefs....and radical because these beliefs were at odds with the conventional wisdom of the day.

Today, MPT is no longer new, and no longer seen by most as elegant or radical. Just as Thomas Piketty (of "Capital in the 21st Century" fame) saw the 60-year period from World War 1 to the 1970s as a socio-economic anomaly in the grander sweep of things, so is MPT increasingly seen as an interesting anomaly in an investment context. At its core lay the Efficient Markets Hypothesis (EMH). It posits that investors act rationally, have access to the same information sets, interpret that information the same way, and consequently, hold the same risky market portfolio. Investors expressed their different tolerances for risk-bearing through their different weightings of this risky market portfolio and a risk-free asset.

Today, we recognize that we cannot invoke MPT as a substitute for thinking about how investment markets really work, and for thinking about how the resulting investment beliefs should lead us to invest the financial wealth of other people. This *Letter* traces the evolution of our own investment beliefs over the course of the last four decades, and the investment policy conclusions they lead to today.

The Lo and Minsky Contributions

MIT's Andrew Lo offers a plausible alternative to the EMH: the Adaptive Markets Hypothesis, or AMH for short.[i] Lo explains it as taking a biological/evolutionary approach to understanding investment markets and the people in it, rather than a robotic 'physics' approach. It is fear and greed that drives these markets, more than sober, rational calculation. In a similar vein, Washington University's Hyman Minsky posited the Financial Instability Hypothesis (FIH), arguing that financial stability in developed economies would naturally become a source of future instability through speculative risk-taking. His work was largely ignored until people acknowledged that the Global Financial Crisis offered a text book example (a 'Minsky Moment') of the FIH in action.[ii]

In the tradition of Lo's AMH and Minsky's FIH, long-time readers of this publication will recognize Table 1 on the next page. It has played a central role in our prognostications about capital markets prospects for many years now, for three reasons:

1. The table reflects the FIH by reminding us that financial markets have mindsets that swing from extended periods of growing optimism to extended periods of growing pessimism.
2. It also reflects the AMH because these mindset swings impact pricing in the capital markets in predictable ways. Growing optimism leads to rising prices for risk assets, generous risk premium realizations, and hence falling

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prospective risk premiums. Conversely, growing pessimism leads to falling prices for risk assets, negative risk premium realizations, and hence rising prospective risk premiums.

3. The table facilitates focused conversations about past investment eras, about the current one we are living through, and about periods during which one era transitions into another.

We stated the belief in our January 2014 *Letter* that the *Double Bubble Blues* era ended around 2010/2011, and that we have been transitioning into a new era which we called *Mature Capitalism*. Our challenge now is to visualize how a *Mature Capitalism* era might play out. A clue from Table 1 is that we should give it an optimistic spin, contrary to the prevailing mood of pessimism.

Conventional Narratives about the *Mature Capitalism* Era

As noted, most prognostications today about the unfolding future paint a rather dreary picture of it, with four defining elements:

- Demographics: as populations age and worker/retiree ratios fall from 4:1 to 2:1 in the developed world, consumption, capital formation, productivity will weaken, and hence economic growth will also weaken.
- Fiscal Deficits: both families and governments are borrowing to make ends meet. This cannot go on forever. Eventually, a day of reckoning will come. This too will dampen future economic demand, and hence growth prospects.
- Geopolitical Risks: seem to always be with us, with an assertive China, a belligerent Russia, and an unsettled Middle East making current headlines.
- Environmental Risks: are also in play in the form of global warming and changing weather patterns, which in turn cause wide-spread floods and droughts. The concomitant financial risk relates to assets becoming 'stranded' as the full costs of production are internalized (e.g., for carbon emission and water pollution).

If these four elements fully defined the now-unfolding *Mature Capitalism* era, one would think they would be reflected in how markets are pricing long-horizon financial assets such as equities. Yet, the earnings yield of the S&P500 is about 5% today, versus a long term average somewhere between 6% and 7%. In short, the pessimism embedded in the demographics, debt, geopolitical conflict, and climate change narratives don't seem to be embedded in the pricing of risky USA-based assets. European and Emerging Markets equities appear to be somewhat more conservatively priced at earnings yields of 6% and 7% respectively.[iii] Why are equity prices not deep in the dumps? Our January 2014 *Letter* referenced an *FAJ* article by William Bernstein titled "The Paradox of Wealth" as an explanation.

The Paradox of Wealth

Bernstein offers four reasons for why *Mature Capitalism* might turn out better than most people expect:

Table 1: Entering the Eighth Capital Markets Era Since WW1

Investment Era	Investor Mindset	Approximate Time Span	Dividend Yield Change	Realized *ERP**
The WW I Decade	Pessimistic	10 years	5% → 7%	- 5%
Roaring Twenties	Optimistic	10 years	7% → 4%	+ 12%
Dirty Thirties/ Fateful Forties	Pessimistic	20 years	4% → 7%	0%
Pax Americana I	Optimistic	20 years	7% → 3%	+ 8%
Scary Seventies	Pessimistic	10 years	3% → 6%	- 3%
Pax Americana II	Optimistic	20 years	6% → 1%	+ 9%
Double-Bubble Blues	Pessimistic	10 years	1% → 2%	- 6%
Mature Capitalism?	Optimistic?	20 years?	2% → ?%	?%

* Stock returns come from *Triumph of the Optimists* by Dimson, Marsh, Staunton. Bond returns are based on a hypothetical CPI-linked bond with a real yield of 2.5%. If the actual LT TIPS return had been used for the *Double-Bubble Blues* era, the realized ERP would have been -10%.

Table 2: S&P500 Fundamentals in Transition from *Double Bubble Blues* to *Mature Capitalism*

Year	Dividend Yield	Net Buy-Back Yield	Payout Yield	Plow-Back Yield	Earnings Yield	LT TIPS Yield	Implied ERP	Index Value	Trailing Earnings
2000	1.20%	0.70%	1.90%	1.70%	3.60%	3.70%	-0.10%	1320	$50
2001	1.30%	0.80%	2.10%	0.00%	2.10%	3.50%	-1.40%	1148	$25
2002	1.60%	0.80%	2.40%	0.60%	3.00%	2.70%	0.30%	880	$28
2003	1.80%	1.10%	2.90%	2.10%	5.00%	2.30%	2.70%	1112	$49
2004	1.70%	1.50%	3.20%	1.80%	5.00%	1.90%	3.10%	1212	$59
2005	1.80%	1.70%	3.50%	2.50%	6.00%	2.00%	4.00%	1248	$70
2006	1.90%	2.20%	4.10%	2.00%	6.10%	2.80%	3.30%	1418	$82
2007	1.90%	4.10%	6.00%	-1.50%	4.50%	2.50%	2.00%	1468	$66
2008	2.60%	2.40%	5.00%	-3.60%	1.40%	2.40%	-1.00%	903	$15
2009	2.50%	0.90%	3.40%	2.30%	5.70%	2.00%	3.70%	1115	$51
2010	2.00%	2.10%	4.10%	2.70%	6.80%	1.80%	5.00%	1258	$77
Mean	1.80%	1.70%	3.50%	1.00%	4.50%	2.50%	2.00%		
2011	2.10%	3.10%	5.20%	1.80%	7.00%	0.80%	6.20%	1258	$87
2012	2.30%	2.60%	4.90%	1.40%	6.30%	0.40%	5.90%	1426	$87
2013	2.10%	2.40%	4.50%	1.60%	6.10%	1.60%	4.50%	1848	$100
2014	2.10%	2.60%	4.70%	0.70%	5.40%	0.80%	4.60%	2059	$103
Mean	2.10%	2.70%	4.80%	1.40%	6.20%	0.90%	5.30%		

Sources: Bloomberg, Standard & Poor's, Garland, Lazonick

Should investors still be comfortable? Certainly 'yes' relative to the 2000 situation. And plausibly 'yes' if (a) US stocks in the index can maintain or grow their real earnings from here, and (b) if there is no permanent spike up in the LT TIPS yield from current levels. Further, recall our observation earlier that European and Emerging Markets equites are priced more cheaply than US equities.

Table 2 points to another unfolding trend: an apparent secular rise in Net Share Buybacks, from under 1% of the S&P500 index value in the early 2000s....to figures approaching 3% today, compared to a dividend yield of 2%. So corporations are now using more of their earning to buy back stock than they are to pay dividends. Further, when you add the two yields together (i.e., the Payout Yield), the sum of the two almost approaches the Earnings Yield. The implication is that corporations are now returning most of their earnings to shareholders in the form of dividends and share buy-backs, and retaining little for capital re-investment. This is yet another indication of the arrival of *Mature Capitalism*.

So where does all this lead to? The most important conclusion is that, despite the strong rise in the S&P500 in first four years of the *Mature Capitalism*, its valuation is not in 'bubble' territory. Pricing is consistent with a lower return-on-capital, lower growth, lower long-term interest rate environment. In such an environment, an equity risk premium in the 4% area does not seem out of line.

However, we advise readers to re-read last month's *Letter* on the excess return potential of what we called high-sustainability 'stakeholder value-creation' companies. There is a strong case that emphasizing this type of investment will continue to produce excess returns relative to the market portfolio in the *Mature Capitalism* era.

Endnotes:

i. *See, for example, Lo's 2011 book "A Non-Random Walk Down Wall Street".*

ii. *Look for a new film titled "Boom Bust Boom" on Hyman Minsky and his Financial Instability Hypothesis. Contact Marja Koolschijn at Cardano for more information. (m.koolschijn@cardano.com)*

iii. *See GMO's 4Q Quarterly Letter for more on this topic.*

iv. *For more on the share buy-back phenomenon, see William Lazonick's article "Profits Without Prosperity" in HBR – September 2014.*

The information herein has been obtained from sources which we believe to be reliable, but do not guarantee its accuracy or completeness.

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Hunter, David J.

From: Medora M. Sletten <mmsletten@umary.edu>
Sent: Monday, June 22, 2015 11:12 AM
To: Hunter, David J.
Subject: HSLC Map
Attachments: Map to Harold Schafer Leadership Center1.pdf

Hi Dave,

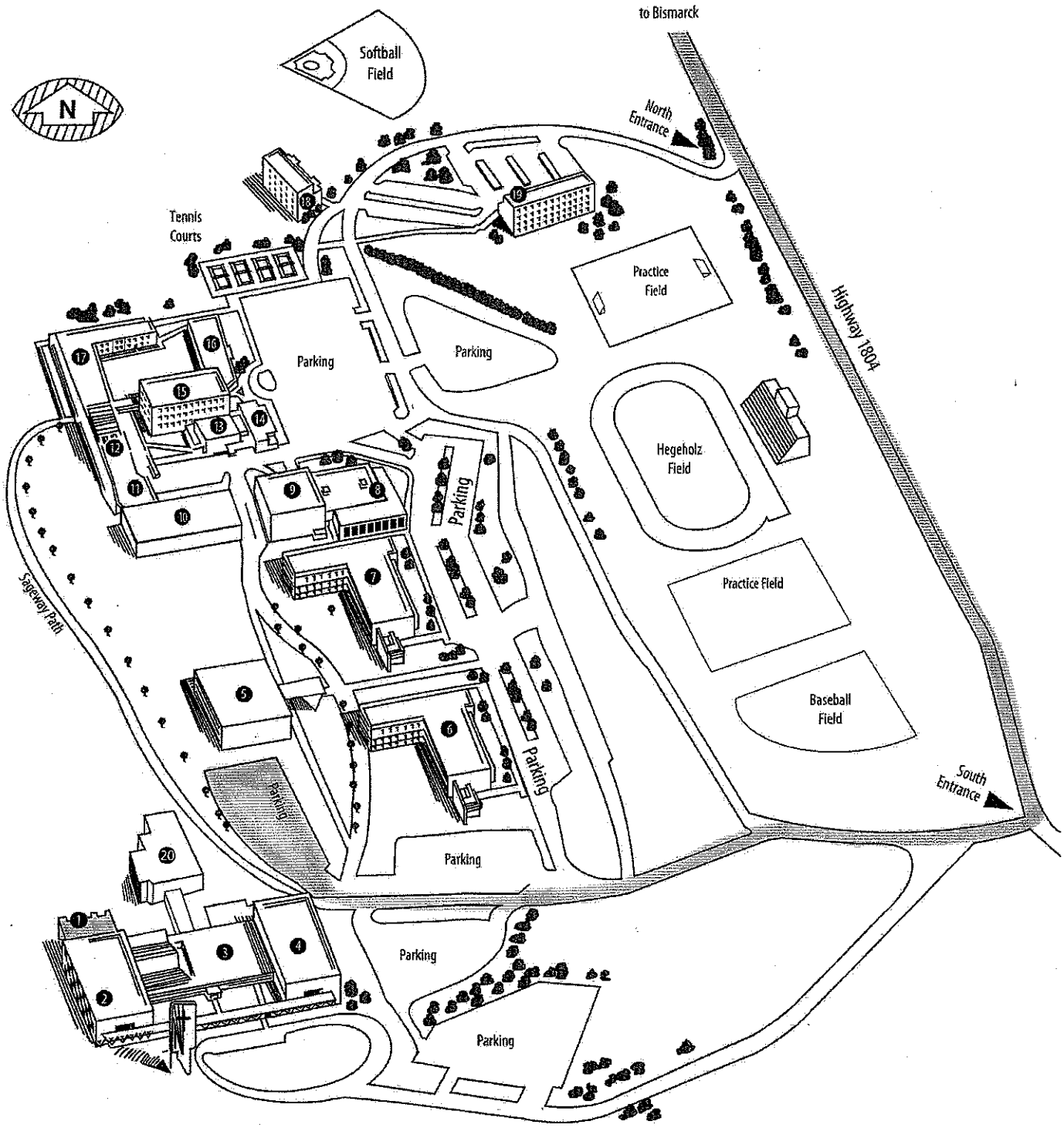
I have a map attached.

Take the south entrance onto campus. Guests can park in front of the School of Business and take the white pedestrian bridge into the brick Benedictine Center. Once inside, directional signs will be leading guests to the Harold Schafer Leadership Center down the long hallway.

Thanks,

Medora

Medora Sletten
Hospitality Coordinator
Office of Public Affairs
University of Mary
701.355.8089



UNIVERSITY OF MARY · BISMARCK, NORTH DAKOTA

1. Harold Schafer Leadership Center
2. Boniface Riverview Residence
3. Benedictine Center for Servant Leadership
4. Boniface Hall
5. Welder Library
6. Greg Butler Hall
7. Hillside Hall
8. Richard Tschider Center for Health Science
9. McDowell Activity Center
10. Leach Field House
11. Leach Center for Student Life
12. University Hall
13. Arno Gustin Hall
14. Clairmont Center
15. Harold J. Miller Center
16. Casey Center for Nursing Education
17. North Campus Residence Hall
18. Deichert Hall
19. Boyle Hall
20. Tharaldson School of Business

Revised 23 May 2008

NORTH DAKOTA STATE INVESTMENT BOARD
MINUTES OF THE
JUNE 26, 2015, BOARD MEETING

MEMBERS PRESENT:
Drew Wrigley, Lt. Governor, Chair
Mike Sandal, Vice Chair
Lance Gaebe, Land Commissioner (TLCF)
Kim Franz, TFFR Board
Adam Hamm, Insurance Commissioner (TLCF)
Rob Lech, TFFR Board
Mel Olson, TFFR Board
Kelly Schmidt, State Treasurer
Yvonne Smith, PERS Board
Cindy Ternes, WSI designee
Tom Trenbeath, PERS Board

STAFF PRESENT:
Eric Chin, Investment Analyst
Connie Flanagan, Fiscal & Invt Op Mgr
Bonnie Heit, Assist to the SIB
David Hunter, ED/CIO
Fay Kopp, Dep ED/CRO
Terra Miller-Bowley, Supvr Audit Services
Cody Schmidt, Compliance Officer
Darren Schulz, Dep CIO

CALL TO ORDER:

Lt. Governor Wrigley called the State Investment Board (SIB) meeting to order at 8:30 a.m. on Friday, June 26, 2015, at the State Capitol, Peace Garden Room, Bismarck, ND.

AGENDA:

IT WAS MOVED BY MS. TERNES AND SECONDED BY TREASURER SCHMIDT AND CARRIED ON A VOICE VOTE TO ACCEPT THE AGENDA FOR THE JUNE 26, 2015, MEETING AS DISTRIBUTED.

AYES: COMMISSIONER HAMM, MS. TERNES, MS. FRANZ, MS. SMITH, MR. SANDAL, MR. LECH, MR. OLSON, TREASURER SCHMIDT, AND LT. GOVERNOR WRIGLEY
NAYS: NONE
MOTION CARRIED
ABSENT: COMMISSIONER GAEBE, MR. TRENBEATH

MINUTES:

IT WAS MOVED BY MR. SANDAL AND SECONDED BY MR. LECH AND CARRIED ON A VOICE VOTE TO APPROVE THE MAY 22, 2015, MINUTES AS DISTRIBUTED.

AYES: MS. FRANZ, COMMISSIONER GAEBE, MS. SMITH, TREASURER SCHMIDT, MR. LECH, COMMISSIONER HAMM, MR. OLSON, MR. SANDAL, MS. TERNES, AND LT. GOVERNOR WRIGLEY
NAYS: NONE
MOTION CARRIED
ABSENT: MR. TRENBEATH

INVESTMENTS

Asset and Performance Overview **-** Mr. Hunter updated the SIB on the status of the portfolios they manage on behalf of their clients as of April 30, 2015. Assets under management grew by approximately 19 percent or $1.67 billion. The SIB's client assets, based on unaudited valuations, currently exceed $10.6 billion. The Pension Trust posted a net return of 7.3 percent with gains of $327 million. The Insurance Trust generated a net return of 4.9 percent with gains of $217 million. The Legacy Fund's net return was 6.1 percent and assets increased by $1.3 billion.

Mr. Hunter also briefed the board on strategic initiatives as of June 19, 2015.

Tobacco Prevention and Control Trust Fund – Mr. Hunter presented an investment policy statement for the Tobacco Prevention and Control Trust Fund (TPC Fund) for the board's consideration and acceptance. Discussion was held on the TPC Fund's non-tobacco investment restriction.

After discussion, the investment policy statement was tabled until further clarification is received from the client regarding their investment objectives.

ND Bankers Association – Mr. Hunter stated staff continues to work with the ND Bankers Association to obtain an understanding of the investment services offered by North Dakota firms. RIO has received due diligence questionnaires from five firms. RIO, in conjunction with Callan Associates, will be reviewing the questionnaires in the coming months.

Springbank – Mr. Hunter updated the board on contract negotiations with Timberland Investment Resources (TIR). RIO and TIR mutually agreed to reasonable business terms for the Springbank property and extended the contract to 2022. Mr. Hunter also reviewed key points of the contract.

GOVERNANCE

Governance Policy Review - The Board received the second reading of the "Investments" policies section. Mr. Hunter clarified the section on proxy voting as a result of the first reading of the policies. Exhibit E-II was amended to include Ms. Kopp.

The Board received the first reading of the "Bylaws" policies. The policies will be presented for a second reading.

Discussion was held on transparency and how important it is for the public to be able to easily access information regarding the investment program of the SIB. RIO will review the information they currently house on the agency website and determine what and if any changes need to be made.

IT WAS MOVED BY MR. OLSON AND SECONDED BY MR. TRENBEATH AND CARRIED BY A ROLL CALL VOTE TO ACCEPT THE SECOND READING OF THE INVESTMENTS POLICIES SECTION AS AMENDED.

AYES: MR. OLSON, MS. FRANZ, MR. SANDAL, MS. SMITH, MR. TRENBEATH, MS. TERNES, COMMISSIONER HAMM, COMMISSIONER GAEBE, MR. LECH, TREASURER SCHMIDT, AND LT. GOVERNOR WRIGLEY
NAYS: NONE
MOTION CARRIED

ADMINISTRATION

Legislative Update – Mr. Hunter stated both the Legislative Assembly and the Governor approved RIO's budget, SB2022. He also stated an application was prepared to be submitted to the Emergency Commission in the event RIO's budget was not finalized but events did not warrant submission of the application.

The SIB expressed their gratitude to the staff of the Attorney General's Office in releasing an expedited opinion on whether or not the Public Employees Retirement System and the Retirement and Investment Office are authorized to make expenditures during the 2015-17 biennium without a biennial appropriation approved by the Legislature.

Staff Update – Mr. Hunter informed the board RIO's Data Processing Coordinator position was vacated on May 29, 2015, and staff is in the process of seeking a qualified candidate to fulfill the agency's needs.

Board Offsite – Mr. Hunter reminded the board that the next meeting of the SIB will entail a review of Pension Governance by Mr. Keith Ambachtsheer of KPA Advisory Services at the University of Mary. An invitation will also be extended to the Teachers' Fund for Retirement Board, Public Employees Retirement System Board, and Workforce Safety & Insurance Board.

Executive Review – The Executive Review Committee, Mr. Lech, Chair, Ms. Ternes, and Mr. Sandal, met on June 22, 2015, and finalized their recommendation regarding a compensation increase for Mr. Hunter. The Committee recommended an increase of 7 percent for an annual salary of $224,700 effective July 1, 2015. The Committee took into consideration Mr. Hunter's salary, which has remained at $210,000 since beginning his position as the Executive Director/CIO of RIO on December 2, 2013.

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MS. SMITH AND CARRIED BY A ROLL CALL VOTE TO ACCEPT THE RECOMMENDATION OF THE EXECUTIVE REVIEW COMMITTEE.

AYES: MS. TERNES, MR. OLSON, COMMISSIONER HAMM, TREASURER SCHMIDT, COMMISSIONER GAEBE, MR. TRENBEATH, MR. LECH, MR. SANDAL, MS. SMITH, MS. FRANZ, AND LT. GOVERNOR WRIGLEY
NAYS: NONE
MOTION CARRIED

Lt. Governor Wrigley thanked Mr. Lech, Ms. Ternes, and Mr. Sandal for serving on the Committee.

Lt. Governor Wrigley, on behalf of the SIB, thanked Mr. Hunter for his support and cooperation during the evaluation process and for all that he does on behalf of the board.

OTHER:

Next scheduled meetings:

SIB Meeting – July 24, 2015, 8:30 a.m. – University of Mary
SIB Audit Committee Meeting – September 25, 2015, 1:00 p.m. – State Capitol, Peace Garden Room

ADJOURNMENT:

With no further business to come before the SIB, Lt. Governor Wrigley adjourned the meeting at 9:42 a.m.

_____
Lt. Governor Wrigley, Chair
State Investment Board

_____
Bonnie Heit
Assistant to the Board

NORTH DAKOTA STATE INVESTMENT BOARD
MINUTES OF THE
MAY 22, 2015, BOARD MEETING

MEMBERS PRESENT:
Drew Wrigley, Lt. Governor, Chair
Mike Sandal, Vice Chair
Lance Gaebe, Land Commissioner
Mike Gessner, TFFR Board
Adam Hamm, Insurance Commissioner (TLCF)
Rob Lech, TFFR Board
Mel Olson, TFFR Board
Yvonne Smith, PERS Board
Cindy Ternes, WSI designee
Tom Trenbeath, PERS Board

MEMBERS ABSENT:
Kelly Schmidt, State Treasurer

STAFF PRESENT:
Eric Chin, Investment Analyst
Connie Flanagan, Fiscal & Invt Op Mgr
Bonnie Heit, Assist to the SIB
David Hunter, ED/CIO
Fay Kopp, Dep ED/CRO
Terra Miller-Bowley, Supvr Audit Services
Cody Schmidt, Compliance Officer
Darren Schulz, Dep CIO

OTHERS PRESENT:
Sarah Angus, Callan Associates
Paul Erlendson, Callan Associates
Clair Ness, Attorney General's Office

CALL TO ORDER:

Lt. Governor Wrigley called the State Investment Board (SIB) meeting to order at 8:30 a.m. on Friday, May 22, 2015, at the State Capitol, Peace Garden Room, Bismarck, ND.

AGENDA:

IT WAS MOVED BY MR. LECH AND SECONDED BY MS. SMITH AND CARRIED ON A VOICE VOTE TO ACCEPT THE AGENDA FOR THE MAY 22, 2015, MEETING AS DISTRIBUTED.

AYES:COMMISSIONER GAEBE, MR. SANDAL, MR. OLSON, MS. TERNES, MR. GESSNER, MR. TRENBEATH, MR. LECH, MS. SMITH, AND LT. GOVERNOR WRIGLEY
NAYS: NONE
MOTION CARRIED
ABSENT: TREASURER SCHMIDT, COMMISSIONER HAMM

MINUTES:

IT WAS MOVED BY MS. TERNES AND SECONDED BY MR. TRENBEATH AND CARRIED ON A VOICE VOTE TO APPROVE THE APRIL 24, 2015, MINUTES AS DISTRIBUTED.

AYES: MR. GESSNER, COMMISSIONER GAEBE, MS. SMITH, MS. TERNES, MR. LECH, MR. OLSON, MR. TRENBEATH, MR. SANDAL, AND LT. GOVERNOR WRIGLEY

NAYS: NONE
MOTION CARRIED
ABSENT: TREASURER SCHMIDT, COMMISSIONER HAMM

INVESTMENTS

Asset and Performance Overview **–** Mr. Hunter updated the SIB on the status of the portfolios they manage on behalf of their clients. Highlights as of March 31, 2015 - assets under management grew by approximately 19 percent or $1.66 billion in the last year.

The Pension Trust posted a net return of over 6.5 percent with gains of $293 million. All Pension Trust clients generated positive excess returns for the 1, 3, and 5 year periods ended March 31, 2015.

The Insurance Trust generated a net return of 5.4 percent with gains of $233 million. All Insurance Trust's clients generated positive excess returns for the 3 and 5 year periods ended March 31, 2015.

The Legacy Fund's net return was 5.7 percent and assets increased by 66 percent or $1.3 billion for the year ended March 31, 2015.

SIB client assets, based on unaudited valuations, exceeded $10.5 billion as of March 31, 2015.

Callan Associates Report **–** Mr. Erlendson provided Callan's insight on the economic and market environment for the period ended March 31, 2015.

Commissioner Hamm joined the meeting by teleconference.

Mr. Erlendson also reviewed the consolidated Pension Trust and Consolidated Insurance Trust performance for the period ending March 31, 2015.

IT WAS MOVED BY COMMISSIONER GAEBE AND SECONDED BY MR. SANDAL AND CARRIED BY A VOICE VOTE TO ACCEPT THE CALLAN REPORT AS PRESENTED.

AYES: MR. OLSON, MR. TRENBEATH, COMMISSIONER GAEBE, MR. GESSNER, COMMISSIONER HAMM, MS. SMITH, MR. SANDAL, MS. TERNES, MR. LECH, AND LT. GOVERNOR WRIGLEY
NAYS: NONE
ABSENT: TREASURER SCHMIDT

Executive Session

IT WAS MOVED BY MS. SMITH AND SECONDED BY MR. TRENBEATH AND CARRIED BY A VOICE VOTE TO MOVE INTO EXECUTIVE SESSION PER NDCC §44-04-19.1(9) AND NDCC §44-04-19.2 TO DISCUSS THE SPRINGBANK AGREEMENT.

AYES: MS. SMITH, MR. SANDAL, MR. OLSON, MR. GESSNER, MR. LECH, MR. TRENBEATH, MS. TERNES, COMMISSIONER HAMM, COMMISSIONER GAEBE, AND LT. GOVERNOR WRIGLEY
NAYS: NONE
MOTION CARRIED
ABSENT: TREASURER SCHMIDT

The SIB entered into Executive Session at 9:25 a.m. The SIB, Ms. Ness, Callan Associates representatives, and RIO personnel were present.

The SIB exited Executive Session at 10:07 a.m.

IT WAS MOVED BY MR. TRENBEATH AND SECONDED BY MS. TERNES AND CARRIED BY A VOICE VOTE TO ACCEPT THE FOLLOWING STAFF RECOMMENDATIONS: (1) ACCEPT CALLAN'S RECOMMENDATION TO EXTEND AND REVISE THE TERMS OF THE SPRINGBANK AGREEMENT; (2) AUTHORIZE RIO TO FINALIZE THE REVISED TERMS THROUGH SEPTEMBER 30, 2022.

AYES: MR. TRENBEATH, MR. OLSON, COMMISSIONER GAEBE, MR. LECH, MR. SANDAL, COMMISSIONER HAMM, MR. GESSNER, MS. SMITH, MS. TERNES, AND LT.GOVERNOR WRIGLEY
NAYS: NONE
MOTION CARRIED
ABSENT: TREASURER SCHMIDT

The SIB recessed at 10:09 a.m. and reconvened at 10:20 a.m.

GOVERNANCE

Legislative Update – Mr. Hunter updated the SIB on legislation affecting RIO. SB2022 which contains the biennial appropriation for RIO and the Public Employees Retirement System (PERS) was not approved by the 64th Legislative Assembly prior to the adjournment of the session. The bill had a number of amendments relating to PERS which were adopted by the Government Operations Sub-committee of the House Appropriations Committee. No amendments were adopted that affected RIO.

RIO and PERS requested the Attorney General provide an opinion on whether and to what extent the agencies are authorized to make expenditures during the next biennium. Both entities believe the opinion will be issued by the end of the biennium. After discussion,

IT WAS MOVED BY COMMISSIONER GAEBE AND SECONDED BY MS. TERNES AND CARRIED BY A VOICE VOTE TO AUTHORIZE STAFF TO SUBMIT AN APPLICATION TO THE EMERGENCY COMMISSION FOR ADDITIONAL FUNDING DURING THE NEXT BIENNIUM SO AS TO ALLOW RIO TO CONTINUE OPERATING UNDER NORMAL CONDITIONS UNTIL FURTHER NOTICE.

AYES: MS. TERNES, MR. OLSON, COMMISSIONER HAMM, COMMISSIONER GAEBE, MR. TRENBEATH, MR. LECH, MR. SANDAL, MS. SMITH, MR. GESSNER, AND LT. GOVERNOR WRIGLEY
NAYS: NONE
MOTION CARRIED
ABSENT: TREASURER SCHMIDT

Mr. Hunter also commented on the meetings with the ND Bankers Association (NDBA) representatives. The SIB's due diligence questionnaire was provided to the NDBA to allow North Dakota based investment firms an opportunity to elaborate on their backgrounds; specifically the firm's history, experience, size, and performance. The questionnaire is generally completed by all SIB investment managers on an annual basis. The information will serve to develop a better understanding of the North Dakota based investment firm's qualifications, experience, and areas of strength. Staff and Callan will be working with the North Dakota investment firms and applying all of the due diligence processes that are relevant to any investment manager of the SIB.

Audit Committee Report – Ms. Miller Bowley updated the SIB on the Audit Committee's activities as of May 21, 2015.

IT WAS MOVED BY MR. TRENBEATH AND SECONDED BY MR. SANDAL AND CARRIED BY A VOICE VOTE TO ACCEPT THE AUDIT REPORT AS PRESENTED.

AYES: COMMISSIONER HAMM, MS. TERNES, MR. OLSON, MR. SANDAL, MR. GESSNER, MS. SMITH, COMMISSIONER GAEBE, MR. LECH, MR. TRENBEATH, AND LT. GOVERNOR WRIGLEY
NAYS: NONE
MOTION CARRIED
ABSENT: TREASURER SCHMIDT

Governance Review - The Board received the second reading of the "Ends" policies. There were no modifications made to the policies. No action was taken.

The Board received the first reading of the "Investments" policies. The policies will be presented for a second reading at the next meeting.

MONITORING:

A "Watch List" as of March 31, 2015, was provided to the SIB. No action was taken.

OTHER:

Next scheduled meetings:

SIB Meeting – June 26, 2015, 8:30 a.m. – State Capitol, Peace Garden Room
SIB Audit Committee Meeting – September 25, 2015, 1:00 p.m. – State Capitol, Peace Garden Room

ADJOURNMENT:

With no further business to come before the SIB, Lt. Governor Wrigley adjourned the meeting at 10:48 a.m.

_____
Lt. Governor Wrigley, Chair
State Investment Board

_____
Bonnie Heit
Assistant to the Board

NORTH DAKOTA STATE INVESTMENT BOARD
MINUTES OF THE
April 24, 2015, BOARD MEETING

MEMBERS PRESENT:
Drew Wrigley, Lt. Governor, Chair
Mike Sandal, Vice Chair
Lance Gaebe, Land Commissioner
Mike Gessner, TFFR Board
Adam Hamm, Insurance Commissioner (TLCF)
Rob Lech, TFFR Board
Mel Olson, TFFR Board
Cindy Ternes, WSI designee
Tom Trenbeath, PERS Board

MEMBERS ABSENT:
Kelly Schmidt, State Treasurer
Yvonne Smith, PERS Board

STAFF PRESENT:
Eric Chin, Investment Analyst
Connie Flanagan, Fiscal & Invt Op Mgr
Bonnie Heit, Assist to the SIB
David Hunter, ED/CIO
Terra Miller-Bowley, Supvr Audit Services
Cody Schmidt, Compliance Officer

OTHERS PRESENT:
Jan Murtha, Attorney General's Office

CALL TO ORDER:

Mr. Sandal called the State Investment Board (SIB) meeting to order at 8:30 a.m. on Friday, April 24, 2015, at Workforce Safety & Insurance, 1600 E Century Ave., Bismarck, ND.

AGENDA:

IT WAS MOVED BY MS. TERNES AND SECONDED BY MR. GESSNER AND CARRIED ON A VOICE VOTE TO ACCEPT THE AGENDA FOR THE APRIL 24, 2015, MEETING AS DISTRIBUTED.

AYES:COMMISSIONER GAEBE, COMMISSIONER HAMM, MR. OLSON, MS. TERNES, MR. GESSNER, MR. TRENBEATH, MR. LECH, AND MR. SANDAL
NAYS: NONE
MOTION CARRIED
ABSENT: TREASURER SCHMIDT, MS. SMITH, LT. GOVERNOR WRIGLEY

MINUTES:

IT WAS MOVED BY MR. OLSON AND SECONDED BY MR. LECH AND CARRIED ON A VOICE VOTE TO APPROVE THE MARCH 27, 2015, MINUTES AS DISTRIBUTED.

AYES: MR. GESSNER, COMMISSIONER GAEBE, MS. TERNES, MR. LECH, COMMISSIONER HAMM, MR. OLSON, MR. TRENBEATH, AND MR. SANDAL

NAYS: NONE
MOTION CARRIED
ABSENT: TREASURER SCHMIDT, MS. SMITH, LT. GOVERNOR WRIGLEY

INVESTMENTS

Annual Board Planning Cycle - Mr. Hunter reviewed the SIB biennial agenda for 2015-2017, which also included a strategic investment plan.

IT WAS MOVED BY MR. TRENBEATH AND SECONDED BY COMMISSIONER GAEBE AND CARRIED BY A ROLL CALL VOTE TO ACCEPT THE SIB BIENNIAL AGENDA FOR 2015/17 AS WELL AS THE STRATEGIC INVESTMENT PLAN.

AYES: MR. OLSON, MR. TRENBEATH, COMMISSIONER GAEBE, MR. GESSNER, COMMISSIONER HAMM, MS. TERNES, MR. LECH, AND MR. SANDAL
NAYS: NONE
MOTION CARRIED
ABSENT: TREASURER SCHMIDT, MS. SMITH, LT. GOVERNOR WRIGLEY

City of Grand Forks - Mr. Hunter conducted an investment review for the year ended December 31, 2014, with City of Grand Forks representatives on April 22, 2015. Future meetings will be conducted with the City of Grand Forks representatives to review the Fund's asset allocation and investment policy statement.

Executive Session

IT WAS MOVED BY MR. TRENBEATH AND SECONDED BY MR. LECH AND CARRIED BY A ROLL CALL VOTE TO MOVE INTO EXECUTIVE SESSION PER NDCC §44-04-19.1(9) AND NDCC §44-04-19.2 TO DISCUSS THE SPRINGBANK AGREEMENT.

AYES: MR. GESSNER, COMMISSIONER HAMM, MS. TERNES, COMMISSIONER GAEBE, MR LECH, MR. SANDAL, MR. TRENBEATH, AND MR. OLSON
NAYS: NONE
MOTION CARRIED
ABSENT: TREASURER SCHMIDT, MS. SMITH, LT. GOVERNOR WRIGLEY

The SIB entered into Executive Session at 8:45 a.m. The SIB, Ms. Murtha, and RIO personnel were present.

The SIB exited Executive Session at 9:00 a.m.

IT WAS MOVED BY MR. LECH AND SECONDED BY MR. OLSON AND CARRIED BY A ROLL CALL VOTE TO EXTEND THE TERM OF THE EXISTING SPRINGBANK AGREEMENT FROM JUNE 30, 2015, TO SEPTEMBER 30, 2015, TO ALLOW ADDITIONAL TIME TO RENEGOTIATE THE AGREEMENT.

AYES: MR. OLSON, MR. GESSNER, MR. LECH, MR. TRENBEATH, MS. TERNES, COMMISSIONER HAMM, COMMISSIONER GAEBE, AND MR. SANDAL
NAYS: NONE
MOTION CARRIED
ABSENT: TREASURER SCHMIDT, MS. SMITH, LT. GOVERNOR WRIGLEY

GOVERNANCE

Legislative Update - Mr. Hunter updated the SIB on legislation as of April 17, 2015, which may affect RIO and the SIB.

Governance Review - The Board received the second reading of the Board Staff Relationship policies. There were no modifications made to the policies. No action was taken.

The Board received the first reading of the Ends policies. The policies will be presented for a second reading and possible acceptance at the next meeting.

MONITORING:

Per Governance Policy, Board/Staff Relationship/Monitoring Executive Performance C-4, the following monitoring reports for the quarter ending March 31, 2015, were provided to the SIB for their consideration: Budget/Financial Conditions, Executive Limitations/Staff Relations, Investment Program, and Retirement Program.

An updated Watch List was also distributed.

IT WAS MOVED BY MR. TRENBEATH AND SECONDED BY MR. OLSON AND CARRIED BY A ROLL CALL VOTE TO ACCEPT THE MARCH 31, 2015, MONITORING REPORTS.

AYES: MR. TRENBEATH, MR. OLSON, COMMISSIONER GAEBE, MR. LECH, MR. SANDAL, COMMISSIONER HAMM, MR. GESSNER, AND MS. TERNES
NAYS: NONE
MOTION CARRIED
ABSENT: TREASURER SCHMIDT, MS. SMITH, LT. GOVERNOR WRIGLEY

BOARD EDUCATION:

ND Bankers Association - Mr. Hunter, Mr. Schulz, and Mr. Erlendson, Callan Associates, met on April 13, 2015, with Mr. Rick Clayburgh, President and CEO of the ND Bankers Association, along with ten North Dakota based investment professionals. The entities met to gain a better understanding of the investment services offered by the North Dakota based firms and review the search process and selection criteria utilized by the SIB and RIO. Future meetings will be scheduled and Mr. Hunter will keep the SIB apprised.

Lt. Governor Wrigley entered the meeting. Mr. Sandal continued to preside over the meeting.

SIB Offsite Preview - Mr. Hunter informed the SIB he has contracted with Mr. Keith Ambachtsheer, KPA Advisory Services, Toronto, Ontario, Canada. Mr. Ambachtsheer will address the following at the SIB's pension governance offsite meeting on July 24, 2015, at the University of Mary: survey findings on pension fund governance and their implications, preferred investment board dynamics and practices, and investment beliefs and policies for the 21st Century.

OTHER:

Next scheduled meetings:

SIB Meeting - May 22, 2015, 8:30 a.m. - State Capitol, Peace Garden Room
SIB Audit Committee Meeting - May 21, 2015, 3:00 p.m. - State Capitol, Peace Garden Room

ADJOURNMENT:

With no further business to come before the SIB, Mr. Sandal adjourned the meeting at 9:32 a.m.

Mr. Mike Sandal, Vice Chair
State Investment Board

Bonnie Heit
Assistant to the Board

MEMORANDUM

TO: **TFFR Board**

FROM: **Fay Kopp**

DATE: **July 16, 2015**

SUBJ: **RIO Budget**

As you are aware, on June 4, 2015, RIO and PERS obtained an Attorney General's Opinion (attached) which said that RIO and PERS were authorized to make expenditures during the 2015-17 biennium without a biennial appropriation by the Legislature. The AG Opinion states:

> *"It is my opinion that the express continuing appropriation authority granted these agencies combined with their independent legal obligations as fiduciaries of the plans they administer carry with them the implied authority to expend funds for the salaries and associated operating expenses of the individuals needed to effectuate those appropriations in order to fulfill their fiduciary obligations, to the extent the implied authority is not prohibited under state law. While I cannot, in a legal opinion, determine the amounts these agencies may expend pursuant to this implied authority, I will remind the governing Boards of these Agencies, that they are and remain fiduciaries, and any expenditure of funds must be done prudently."*

On June 16, 2015, the 64th Legislative Assembly reconvened and approved SB 2022 which included the biennial appropriation for RIO and PERS. The bill was signed by the Governor.

Thank you to Jan Murtha, Dave Hunter, and Sparb Collins for their efforts.

Attachment

LETTER OPINION
2015-L-04

June 4, 2015

Mr. Sparb Collins
Public Employees Retirement System
PO Box 1657
Bismarck, ND 58502-1657

Mr. Dave Hunter
Retirement and Investment Office
PO Box 7100
Bismarck, ND 58507-7100

Dear Mr. Collins and Mr. Hunter:

Thank you for your letter requesting my opinion on whether and to what extent the North Dakota Public Employees Retirement System and the North Dakota Retirement and Investment Office are authorized to make expenditures during the 2015-2017 biennium, without a biennial appropriation approved by the Legislature.

For the following reasons, it is my opinion that the express continuing appropriation authority granted these particular agencies, governed by boards which have fiduciary responsibilities over funds held in trust, carries with it the implied authority to expend funds for the salaries and associated operating expenses of the individuals needed to effectuate those appropriations, to the extent the implied authority is not prohibited under state law.

ANALYSIS

You have indicated that the Sixty-Fourth Legislative Assembly adjourned without approving Senate Bill 2022, and that this bill contained the biennial appropriations for both the North Dakota Public Employees Retirement System (NDPERS) and the North Dakota Retirement and Investment Office (NDRIO).[1] As introduced, S.B. 2022 proposed to appropriate funds to these agencies for salaries and wages, operating expenses, and

[1] See S. and H. Journals, S.B. 2022, 2014 N.D. Leg.

contingencies during the 2015-2017 biennium.[2] Subsequent to its introduction, various amendments were made to S.B. 2022 unrelated to the biennial appropriation for these agencies.[3] Ultimately the Legislature adjourned without passing S.B. 2022.[4] The Legislature did not, however, repeal, rescind, or otherwise alter the responsibilities of these agencies toward program participants and investment clients.

AGENCY RESPONSIBILITIES

While the Legislature did not approve a biennial appropriation for the salaries and wages of agency employees, board members, or other operating expenses, these agencies are and continue to be charged with the management, investment, and processing of total funds in excess of $10.5 billion on behalf of the state, various political subdivisions, and public employees.[5] Unlike many other state agencies, NDRIO and NDPERS are governed by boards that function in a fiduciary capacity and must satisfy the legal obligations of that role. Pursuant to state law, NDPERS is responsible for the administration of a myriad of programs that provide benefits to public employees, retirees, and their dependents and beneficiaries. These programs include the North Dakota public employees defined benefit hybrid retirement plan ("defined benefit plan"),[6] the defined contribution retirement plan, the highway patrolmen's retirement system, the job service retirement plan established under N.D.C.C. § 52-11-01, the deferred compensation plan, the pre-tax benefits program, and the uniform group insurance program.[7] The NDRIO is responsible for administration of both the North Dakota Teachers' Fund for Retirement (NDTFFR) plan and the investment program overseen by the North Dakota State Investment Board (NDSIB).[8] The retirement plan established to provide retirement benefits to the teachers of this state and their beneficiaries is NDTFFR.[9] The NDSIB is the body charged with the investment of multiple funds on behalf of the state and political subdivisions including NDPERS, NDTFFR, and the Legacy fund.[10]

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[2] As introduced, S.B. 2022 proposed a total biennial appropriation of slightly more than $15 million for salaries and wage, operating expenses, and contingencies, as well as 55.50 full-time equivalent positions, for these two agencies.
[3] S. and H. Journals, S.B. 2022, 2014 N.D. Leg.
[4] Id.
[5] The Investment Performance Summary published by NDRIO indicates that the NDSIB for the quarter ended March 31, 2015 has over $10.5 billion of assets under management; NDPERS and the NDTFFR are included in the funds under management.
[6] The defined benefit plan encompasses the North Dakota judges retirement plan under N.D.C.C. § 54-52-06.1 and the law enforcement and national guard security officers and firefighters retirement plans under N.D.C.C. §§ 54-52-06.2, 54-52-06.3, and 54-52-06.4.
[7] N.D.C.C. §§ 54-52-04, 54-52.3-02, 54-52.6-04.
[8] N.D.C.C. § 54-52.5-01.
[9] N.D.C.C. § 15-39.1-09.
[10] N.D.C.C. § 21-10-06.

APPROPRIATION AUTHORITY

Under these unique circumstances, your question requires an examination of what, if any, appropriation authority these agencies have absent a specified biennial appropriation from the Legislature. An appropriation "is the setting apart from the public revenue of a definite sum of money for the specified object in such manner that officials of the government are authorized to use the amount so set apart, and no more, for that object."[11] The Legislature is not prohibited, however, from enacting continuing appropriations.[12] "A continuing appropriation is an appropriation running from year to year, without further legislative action, until the purpose of the levy and appropriation is accomplished."[13] The North Dakota Supreme Court has stated that a continuing appropriation is a valid appropriation first made by the Legislature, and it remains continuing only if future legislative assemblies choose not to repeal or modify it.[14] In a prior opinion I observed that continuing appropriations have long been recognized as valid in this state and are nothing new to the legislative process.[15]

NDPERS CONTINUING APPOPRIATION AUTHORITY

Previous legislative assemblies have granted NDPERS express continuing appropriation authority for almost all of the payments associated with the programs it is responsible for administering. For example, NDPERS has express continuing appropriation authority for: the payment of the benefits, consulting fees, and making of investments for the defined benefit plan;[16] costs related to the making of investments and payments to beneficiaries of the North Dakota highway patrolmen's retirement system;[17] the administrative and consultant expenses of the defined contribution plan;[18] the payment of consultants, vendors providing claims administrations services, any insurance costs associated with the medical spending account, and medical reimbursement for the medical spending account if necessary, and payments to the employees participating in, the pretax benefits

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[11] Gammons v. Sorlie, 219 N.W. 105, 108 (N.D. 1928).
[12] N.D.A.G. 2004-L-78.
[13] 81A C.J.S. States § 405.
[14] Gange v. Burleigh Cnty. Dist. Ct., 429 N.W.2d 429, 436 (N.D. 1988).
[15] N.D.A.G. 2004-L-78.
[16] N.D.C.C. §§ 54-52-04(6), 54-52-13, 54-52-13.1, 54-52-14.1.
[17] N.D.C.C. § 39-03.1-05.
[18] N.D.C.C. § 54-52.6-06. This section provides for an explicit continuing appropriation for a consultant for the plan and indicates that any administrative expenses must be paid by the plan participants and authorizes the board or its contracted vendor to charge and deduct those expenses directly from the participants' account.

program;[19] the consulting fees and insurance benefits related to the uniform group insurance program, including investments of and contributions toward benefits permitted under the retiree health benefits fund, the payment of claims and costs as provided under the contingency reserve fund, the acceptance and expenditure of third party payments for the benefits, premiums and administrative expenses of the uniform group insurance program, and use of funds that may become available from various sources for a collaborative drug therapy program.[20]

Notably, there is no express continuing appropriation authority for the payment of benefits for the deferred compensation plan established under N.D.C.C. § 54-52.2-01 or the retirement plan established under N.D.C.C. § 52-11-01 and administered by NDPERS ("job service retirement plan"). For the following reasons, however, there exists sufficient authority under state law to permit the payment of benefits under these programs.

Generally funds held in trust are not subject to the appropriation power of the Legislature:

> To be subject to the appropriation power of the Legislature, funds held by state officers or agencies must belong to the state. Funds held in trust to be distributed according to legislatively prescribed conditions are not subject to appropriation, even though they are received on account of the state and the state treasurer is designated custodian.[21]

Both the deferred compensation program and job service retirement plan are comprised of funds held in trust by NDPERS.

Prior opinions of this office have observed that the administration of the deferred compensation program is for the benefit of the employees and involves the deferral of the employees' compensation pursuant to the employees' direction.[22] State law requires NDPERS to act as administrator and fiduciary for the deferred compensation program.[23]

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[19] N.D.C.C. §§ 54-52.3-03, 54-52.3-06. While this section does provide a continuing appropriation for many of the costs associated with the pre-tax benefits program, this continuing appropriation authority is not unlimited. N.D.C.C. § 54-52.3-03 goes on to state that "[a]ll other expenses of administering the program must be paid in accordance with the agency's appropriation authority as established by the legislative assembly." The language is indicative of a requirement for a biennial appropriation for the remaining administrative expenses of the program. N.D.A.G. Letter to Collins (May 16, 1990).

[20] N.D.C.C. §§ 54-52-04(6), 54-52.1-03.2, 54-52.1-04.3, 54-52.1-06, 54-52.1-06.1, 54-52.1-15, 54-52.1-16.

[21] 63C Am. Jur. 2d Public Funds § 28.

[22] N.D.A.G. Letter to Rolfson (Mar. 29, 1985); N.D.A.G. Letter to Person (Oct. 14, 1988)(1).

[23] N.D.C.C. § 54-52.2-03.

Further, administrators of the program are authorized to make payments or investments as specified by the employee, and, by statute such payments or investments are not a prohibited use of the general assets of the state, county, city, or other political subdivision.[24] Given that the funds of the deferred compensation program are held in trust for the participating employees, NDPERS is a fiduciary of those funds and has the authority to disburse and invest them, and state law specifically designates that such disbursement will not constitute a prohibited use of general assets of a governmental body, the investment and benefit payments of the deferred compensation program are not subject to the Legislature's appropriation authority.

Likewise, the job service retirement plan is a pension plan that was established for employees of Job Service North Dakota having assets held in trust for its members.[25] In another prior opinion, this office has observed that "it has been successfully argued that the assets of a state pension plan are owned by the members of the system and not the state."[26] As a result, the payment of benefits from the job service retirement plan is also not subject to legislative appropriation authority.[27]

Additionally, it should be noted S.B. 2022 did not contain a biennial appropriation for benefits payable under the job service retirement plan. In finding appropriation authority was intended in a situation where a biennial appropriation was not made, the North Dakota Supreme Court has opined:

> Where the meaning of a statute is doubtful, the construction placed upon it by the officers charged with the administration thereof is entitled to considerable weight; and this is especially so if it is apparent that the members of the state Legislature in dealing with the subject must have been aware of the construction which had been placed upon the statute by those administering it and failed to indicate any disapproval of such construction.[28]

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[24] N.D.C.C. § 54-52.2-05.
[25] N.D.C.C. § 52-11-01.
[26] N.D.A.G. Letter to Person (Jan. 11, 1988).
[27] Also, it is reasonable to conclude that there is continuing appropriation authority for benefit payments from the job service retirement fund. N.D.C.C. §§ 54-52-04(6) and 54-52-13.1 each provide continuing appropriation for benefit payments from a retirement fund administered by NDPERS. State statutory construction principles allow singular words to be interpreted to include the plural, so likewise it is reasonable to conclude there is continuing appropriation authority for benefit payments from the job service retirement fund as well. N.D.C.C. §1-01-35.
[28] Gammons v. Sorlie, 219 N.W. 105, 108 (N.D. 1928).

In this case, the administrators and legislators exhibited agreement that NDPERS had appropriation authority to make payments from the job service retirement plan and did not need additional legislative action to effectuate it.

NDRIO CONTINUING APPROPRIATION AUTHORITY

The governing boards supported by NDRIO have also been granted express continuing appropriation authority for almost all of the payments associated with the programs the agency is responsible for administering. The responsibility for the administration of NDTFFR and for the investment program overseen by NDSIB lies with NDRIO. Express continuing appropriation authority has been granted for NDTFFR for the payment of benefits and consultant fees.[29] The NDSIB is charged with the investment of various funds, and the board is granted continuing appropriation authority for the associated investment costs and "all moneys required for the making of investments of funds under the management of the board."[30] Additionally, NDRIO itself also has some continuing appropriation authority for the cost of operation of the agency. Section 54-52.5-03, N.D.C.C., establishes the state retirement and investment fund and provides a continuing appropriation from the funds managed by the NDSIB to the state retirement and investment fund for the actual amount of administrative expenses incurred by NDRIO for services rendered. This section goes on to state that the actual amount of administrative expenses incurred by NDRIO must be paid from the fund in accordance with the agency's appropriation authority.[31] This statute provides continuing appropriation authority to transfer money to the retirement and investment fund from investment clients for the payment of administrative expenses but restricts disbursement from the fund to an amount established by the Legislature.

IMPLIED AUTHORITY

Given that the Legislature had granted these agencies continuing appropriation authority, and adjourned without approving a biennial appropriation, but left in place the appropriation authority and the responsibility to administer the programs, it is necessary to consider whether the continuing appropriation authority can be effectuated without funding for staff and other operational expenses.

While appropriation acts are strictly construed, they should not be construed so strictly as to defeat their manifest objects.[32] Further, "an appropriation for a stated purpose or object may be used for any matter reasonably included within that purpose or object."[33] "An

[29] N.D.C.C. § 15-39.1-05.2(4).
[30] N.D.C.C. §§ 21-10-05, 21-10-06, 21-10-06.2.
[31] N.D.C.C. § 54-52.5-03.
[32] 81A C.J.S. States § 409.
[33] 81A C.J.S. States § 410.

agency has only those powers given to it by the Legislature or necessarily implied therefrom."[34] In the absence of a state law to the contrary, an implied power may exist for an action if an express power cannot be effectuated without it.[35]

As previously noted, NDPERS and NDRIO are expressly charged with the management, investment, and processing of funds on behalf of the state, various political subdivisions, and public employees. The boards supported by NDPERS and NDRIO act as fiduciaries for the funds invested and the programs overseen.[36] As fiduciaries holding funds in trust for the members, beneficiaries, and clients, the boards and their supporting agencies have legal obligations to administer those funds prudently. Those obligations must be fulfilled as long as there are member, beneficiary, and client funds managed by the agencies.[37] For the reasons below, those fiduciary obligations and the agencies' express authority to administer the funds give rise to the agencies' implied authority for the wages and operating costs of the individuals necessary to effectuate the continuing appropriations.

As fiduciaries, these boards and their supporting agencies must prudently administer the funds with which they are entrusted. The Legislature has provided continuing appropriations for most of the functions these agencies need to carry out as prudent plan administrators. To the extent these agencies lack express appropriation authority for necessary and prudent administrative and operating expenses, however, their legal obligations as fiduciaries would be frustrated without some implied appropriation authority.[38] For example, a continuing appropriation for the payment of any benefit under the programs is of no effect unless there is a person available to authorize the payment; nor is a continuing appropriation for the retention of consultants effective unless there is a person available and authorized to negotiate and sign the contract with the consultant; nor a continuing appropriation for the making of investments or payment of investment costs

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[34] N.D.A.G. 2014-L-03.
[35] Id.
[36] N.D.C.C. chs. 54-52, 15-39.1; N.D.C.C. § 21-10-07; N.D.A.G. Letter to Omdahl (May 29, 1990).
[37] There is no indication in the legislative history that the Legislature's failure to pass a budget for these agencies was intended to defund or terminate the plans and programs the agencies administer.
[38] The failure of the Legislature to provide express appropriation authority for these activities places the agencies in a position where, absent implied appropriation authority, they could be subject to legal action by members, beneficiaries, and clients of the programs at issue.

unless there is a person available to authorize and monitor the investment.[39] It is not reasonable to conclude that these employees or board members could responsibly perform the necessary functions for administration of the various programs without incurring operating expenses including but not limited to expenses for office space, office supplies, appropriate equipment and technology support, necessary insurance, and being able to travel and engage in appropriate professional development activities.

The implied authority to effectuate express appropriation authority necessary to fulfill fiduciary obligations is strictly limited, however.[40] First, those same fiduciary obligations to plan beneficiaries that permit the existence of implied authority in this situation also circumscribe the agencies' authority to incur administrative and operating costs. By law, the boards must limit staffing and operating expenses to levels that do not exceed those which are required to prudently administer the programs for which these boards are responsible.[41]

Second, I have previously found implied authority may exist only when it is not prohibited by other law.[42] While there is no express authority which generally prohibits a state agency from operating entirely on a continuing appropriation,[43] I refer to any limit specifically placed on the agencies' authority to expend funds for administrative expenses. Such explicit limitation would additionally curtail the agencies' implied appropriation authority.

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[39] While I have found implied authority for these agencies to pay their board members, there is an argument to be made that the Legislature has already granted a continuing appropriation to these boards for board member pay. Generally "an unrepealed and unmodified legislative act which creates an office, fixes the salary, and designates the time, mode, or manner of payment constitutes a continuing appropriation." 63C Am. Jur. 2d Public Funds § 27; see State v. Jorgenson, 142 N.W. 450, 457 (N.D. 1913). The authority, amount, and frequency for payments to the board members of NDTFFR, NDSIB, and NDPERS are set forth in N.D.C.C. §§ 15-39.1-08, 21-10-01, 54-52-03.

[40] In an opinion provided to the North Dakota Wheat Commission I indicated that a theory of continuing appropriation could implicate the debt limit prohibition found in N.D. Const. art. X, § 13. N.D.A.G. 2004-L-78. I have considered, but do not find, the debt limit prohibition implicated here because the continuing appropriation authority relied on is still subject to repeal or modification by future legislative assemblies. See Lesmeister v. Olson, 354 N.W.2d 690, 700 (N.D. 1984).

[41] It is reasonable to assume the current staffing levels and operating expenses fall within these limits.

[42] N.D.A.G. 2014-L-03.

[43] For example there exist multiple state entities under N.D.C.C. title 4.1 that are wholly funded by continuing appropriations. N.D.C.C. §§ 4.1-02-19, 4.1-03-16, 4.1-04-17, 4.1-05-14, 4.1-06-18, 4.1-07-18, 4.1-08-05, 4.1-09-22, 4.1-10-15, 4.1-11-15, 4.1-12-08, 4.1-13-21, 4.1-52-11, 4.1-72-07.

Of particular note is the limitation on NDRIO's disbursement of funds otherwise appropriated for the payment of administrative expenses under N.D.C.C. § 54-52.5-03. This section provides continuing appropriation authority to transfer money to the retirement and investment fund for the payment of administrative expenses by NDRIO but limits disbursement of that money to amounts set by the Legislature. While the language of this limitation may be clear on its face, a latent ambiguity was created when read together with the continuing appropriation authority otherwise granted the investment and retirement programs it manages, and as applied to this particular set of facts. Statutes which contain a latent ambiguity when applied to a particular situation make it appropriate to consider the statute's meaning in light of extrinsic aids, which may include the object sought to be attained and the consequences of a particular construction.[44]

The Legislature has granted NDRIO a continuing appropriation for the funds necessary to pay the benefits and consultants of the retirement program, the funds necessary to make and pay the cost of investments for the investment program, and the funds necessary to pay the administrative costs of these programs.[45] By adjourning without acting on S.B. 2022, the Legislature did not negate the funding of these programs, rather it failed to meet its obligation to advise NDRIO on how to spend the funds that had already been appropriated. There is no indication in the legislative history that the Legislature's failure to pass a budget for these agencies was intended to defund or terminate the plans and programs the agencies administer. A conclusion that this inaction prevents NDRIO from spending funds otherwise appropriated would result, for the reasons herein discussed, in a termination of the programs and a failure of fiduciary obligations. Therefore this latent ambiguity must be resolved in favor of NDRIO's implied authority to effectuate its continuing appropriations and fulfill the fiduciary obligations of the boards and the plans they administer.[46]

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[44] N.D.A.G. 2011-L-05.

[45] N.D.C.C. §§ 15-39.1-05.2(4), 21-10-05, 21-10-06.2.

[46] In addition, both the retirement and investment programs are responsible for administering funds having constitutional protection. The retirement program administers the TFFR plan, which is the successor fund to the teachers' insurance and retirement fund, assuming all of its money, rights and obligations. N.D.C.C. §§ 15-39.1-01, 15-39.1-02, and 15-39.1-03. N.D. Const. art. X, § 12 appropriates the funds necessary for payments required by law to be paid to beneficiaries of the teachers' insurance and retirement fund. Therefore, TFFR enjoys the special status conferred on the teachers' insurance and retirement fund. N.D.A.G. Letter to Hanson (Feb. 25, 1987). Likewise the investment program overseen by the NDSIB has a constitutional mandate to invest the legacy fund. N.D.A.G. 2011-L-05. Neither the Legislature nor the people may refuse to fund a constitutionally mandated function. N.D.A.G. 2011-L-05.

CONCLUSION

NDPERS and NDRIO are large, complex agencies governed by a myriad of state statutes. Among those statutes are a few laws that specifically require biennial legislative appropriation to pay certain expenses.[47] To the extent the agencies rely on their implied appropriation authority, they must recognize these express limits and, where practicable, avoid expending funds for activities that explicitly require biennial legislative action. Where such activities are inescapably intertwined with other agency activities, however, it would be unreasonable to require the agencies to separate them, especially considering that neither the agencies nor the members, beneficiaries, or clients of the funds they administer are responsible for the current circumstances necessitating this opinion.

Under these unique circumstances, it is my opinion that the express continuing appropriation authority granted these agencies combined with their independent legal obligations as fiduciaries of the plans they administer carry with them the implied authority to expend funds for the salaries and associated operating expenses of the individuals needed to effectuate those appropriations in order to fulfill their fiduciary obligations, to the extent the implied authority is not prohibited under state law. While I cannot, in a legal opinion, determine the actual amounts these agencies may expend pursuant to this implied authority, I will remind the governing Boards of these agencies that they are and remain fiduciaries, and any expenditure of funds must be done prudently.

Sincerely,

Wayne Stenehjem
Attorney General

This opinion is issued pursuant to N.D.C.C. § 54-12-01. It governs the actions of public officials until such time as the question presented is decided by the courts.[48]

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[47] See, e.g., N.D.C.C. §§ 54-52.3-03, 54-52-04(11), 39-03.1-04.
[48] See State ex rel. Johnson v. Baker, 21 N.W.2d 355 (N.D. 1946).

MEMORANDUM

TO: **TFFR Board**
FROM: **Fay Kopp and Shelly Schumacher**
DATE: **July 16, 2015**
SUBJ: **Experience Study Implementation**

At the April 30, 2015 meeting, the TFFR Board received the results of the 5-year Actuarial Experience Study from the plan's actuarial consultant. The Board voted to adopt Segal's recommendations relating to revised actuarial assumptions. **The revised assumptions will be used by Segal in the July 1, 2015 valuation report.**

Shelly and I have started working on a plan to implement the Experience Study assumption changes in plan rules, calculations, and documents. Following is a list of changes identified to date.

1) **Update ND Administrative Code**
   Actuarial factors contained in NDAC 82-05-04 will need to be updated. We have contacted Segal to review applicable administrative rules and suggest changes. Staff will then discuss with TFFR's legal counsel and draft rule changes. We plan to review proposed administrative rule changes and process with the TFFR Board in September 2015. The administrative rules process takes about 6-9 months.

2) **Incorporate revised interest rate and mortality assumptions into CPAS pension administration computer system and plan calculations.**
   Revised assumptions must be incorporated into certain member calculations including, but not limited to, election of optional forms of benefit payments at retirement, service credit purchases, and installment payment schedules. Therefore, TFFR's pension administration computer system (CPAS) will need to be updated to calculate the benefit options and service purchases using the new interest rate and mortality assumptions. Staff has started working with Segal and CPAS to provide updated tables, determine impact, and modify computer systems. This will likely take 6-12 months.

3) **Incorporate revised interest rate assumption into late employer reporting and prior fiscal year corrections.**
   State law and board policy requires that the interest rate to be charged to employers for unintentional late reporting of contributions is the actuarial assumption for investment earnings of the trust. This is also the interest rate charged for prior fiscal year corrections. Therefore, the rate must be reduced from 8.0% to 7.75%. Because this is an internal calculation done by RIO on Excel spreadsheets, we were able to make this change effective July 1, 2015.

4) **Communicate changes to members and employers.**
   Member and employer newsletters published this summer will contain an article on Experience Study assumption changes. Publications and other written communications are being reviewed and will be updated accordingly.

Summary of Economic Assumptions

Assumption	Current	Proposed
Inflation	3.00%	2.75%
Productivity	1.50%	1.50%
Payroll Growth	3.25%	3.25%
Salary Scale	Merit rates based on years of service plus inflation and productivity.	No change to merit rates. Total rates decreased by 0.25% due to lower recommended inflation.
Investment Return	8.00%	7.75%
Administrative Expense	Implicitly included in the investment return assumption.	Explicit load to normal cost equal to prior year administrative expenses plus inflation.

Summary of Demographic Assumptions

Assumption	Current	Proposed
Turnover	Gender distinct rates based on years of service.	Lower rates for members with less than 15 years of service and for males with 20 or more years of service.
Disability	Age based rates	No change
Active Retirement	Gender distinct rates based on age that range from 1.5% to 100% at age 75. Higher rates are assumed when a member is eligible to retire with unreduced benefits. In the first year that members become eligible for unreduced benefits, the unreduced retirement rate is increased 10%.	Unisex, increased rates for members retiring early with reduced benefits. Lower rates at younger ages for members retiring with unreduced benefits. Increased rates for females around age 65. No change to the 10% rate increase in the first year that members become eligible for unreduced benefits.
Inactive Retirements	100% at normal retirement age	5% at early retirement ages and 100% at normal retirement age

Summary of Demographic Assumptions *(continued)*

Assumption	Current	Proposed
Healthy Mortality	GRS specific mortality tables.	RP-2014 Healthy Annuitant Table set back one year, multiplied by 50% for ages under 75 and grading up to 100% by age 80. The MP-2014 improvement scale is applied.
Disabled Mortality	RP-2000 Disabled Mortality Table for males and females multiplied by 80% and 95%, respectively.	RP-2014 Disabled Mortality Table set forward four years.
Active Mortality	Healthy Post-Retirement Mortality multiplied by 60% for males and 40% for females.	RP-2014 Employee Mortality Table with generational mortality improvement using scale MP-2014.
Spouse Information	75% married, male spouses are three years older than female spouses, and 100% of spouses are opposite gender.	No changes.

MEMORANDUM

TO: **TFFR Board**

FROM: **Fay Kopp**

DATE: **July 16, 2015**

SUBJ: **U.S. Supreme Court Ruling: Same Sex Marriage**

As you are aware, a recent U.S. Supreme Court decision requires that same sex marriages be recognized in all states and that married same sex couples receive all the legal rights and benefits afforded married opposite sex couples. See attached article from Ice Miller law firm.

Jan Murtha, TFFR legal counsel, will also be at the board meeting to comment on how this decision impacts the TFFR plan.

Attachment

MEMORANDUM

TO: Fay Kopp, Deputy Executive Director, Retirement and Investment Office

FROM: Janilyn Murtha, Assistant Attorney General

RE: Update regarding U.S. Supreme Court decision in *Obergefell v. Hodges*

DATE: July 20, 2015

The United States Supreme Court decision in *Obergefell v. Hodges* issued June 26, 2015, held that the Due Process and Equal Protection clauses of the Fourteenth Amendment to the United States Constitution require every state to license same-sex marriages and recognize same-sex marriages licensed in other states. In order to implement the *Obergefell* decision T.F.F.R. must recognize and accord same-sex spouses the same rights and benefits as opposite-sex spouses under the plan. For example, in our discussions it has become apparent that for purposes of plan administration, identification of a spouse is at least necessary for purposes of the spousal consent, benefit options and payment, and sharing of confidential information requirements under N.D.C.C. § 15-39.1-16, 15-39.1-17, 15-39.1-30 and N.D.A.C. § 82-05-02-02. For these reasons it is appropriate that T.F.F.R. request both active and retired members to notify the administrative office of any change in marital status or update their designation of beneficiary.

Please let me know if you have any questions regarding this issue.

Governmental Plans: Moving Forward After the Obergefell Decision

July 10, 2015
Mary Beth Braitman, Malaika K. Caldwell, Robert L. Gauss, Lisa Erb Harrison, Tara Schulstad Sciscoe, Christopher S. Sears

NOTE: This bulletin is tailored for government retirement systems and government plan administrators. There are significant differences in the impact of the Supreme Court's holding in Obergefell on plans covered by the Employee Retirement Income Security Act (ERISA). If you have an ERISA-covered plan, please see our bulletin for private sector plans here.

Background

On June 26, 2015, the U.S. Supreme Court issued its monumental decision in the case of *Obergefell v. Hodges*, finding that same-sex couples have the legal right to marry in all U.S. jurisdictions and that states must recognize same-sex marriages performed in other states. As a result of *Obergefell*, all governmental plan administrators must recognize same-sex spouses. Because the Supreme Court partially based *Obergefell* on the U.S. Constitution's Equal Protection Clause, it appears that governmental employers and plans can no longer make distinctions between opposite-sex and same-sex married couples. This will require all governmental employers and plans to review employment policies and employee benefit plans to ensure that all married couples are treated equally. Given the enormity of this decision, we want to identify specific areas of concern for governmental plan administrators and provide some preliminary recommendations. Governmental plan administrators considering immediate changes to their benefit plans will want to take these issues into consideration.

The *Obergefell* decision follows the Supreme Court's decision in *United States v. Windsor*, in which the Court struck down section 3 of the Defense of Marriage Act (DOMA), which - *for federal law purposes* - limited the terms "marriage" and "spouse" to opposite-sex persons. The *Windsor* decision, however, did not address section 2 of DOMA, which allowed states to refuse to recognize same-sex marriages performed in other states, nor did it address state laws or state Constitutional bans on same-sex marriages. As a result, many governmental plans did not implement full recognition of same-sex spouses for purposes of spousal benefits due to state law bans on same-sex marriage in the state where the plan is located. Those plans must now revisit all provisions that make distinctions between opposite-sex and same-sex spouses and, we believe, eliminate those differences.

Governmental Retirement Plans Considerations

Many governmental retirement plans contain design features that will need to be reviewed, and likely amended, to comply with *Obergefell*. Governmental retirement plans should already be in compliance with plan qualification requirements under the Internal Revenue Code following *Windsor*. This would include requirements related to the treatment of eligible rollover distributions to same-sex spouses under IRC Sec. 401(a)(31), the treatment of minimum required distributions for same-sex spouses under IRC Sec.

401(a)(9), and the testing of survivor benefits for same-sex spouses under IRC Sec. 415(b).

The *Obergefell* decision will now impact state level eligibility and benefit plan designs that are not governed by the qualification requirements of the Internal Revenue Code. Following *Obergefell*, impacted plan features likely include:

- *Survivor Benefits*: Survivor benefits provided to spouses must be amended to provide the same treatment to opposite-sex and same-sex spouses.
- *Death Benefits*: Forms of death benefits provided to "surviving spouses" (both optional and automatic) must include both opposite-sex and same-sex spouses.
- *Beneficiary Provisions*: The treatment of beneficiary designations, changes, and revocations must be the same for same-sex spouses and opposite-sex spouses. Any provisions providing benefits to surviving spouses in the absence of or in lieu of a beneficiary must include same-sex spouses.
- *Qualified Domestic Relations Orders (QDROs)*: Governmental plans that accept QDROs will be required to recognize and administer domestic relations orders issued in divorces of same-sex spouses.

Governmental Health and Welfare Plans

Neither *Obergefell* nor *Windsor* addressed whether a same-sex spouse must be treated the same as an opposite-sex spouse for purposes of eligibility for health and welfare plans. However, *Windsor* made clear that if same-sex spouses are eligible for health, dental, vision and cafeteria plan coverage, they must be treated the same as opposite-sex spouses for all federal tax purposes. Accordingly, if a governmental employer offers same-sex spouse health coverage, vision or dental coverage, flexible spending account coverage, or pre-tax premium coverage under a 125 plan, then *Windsor* requires that the covered same-sex spouse is entitled to the same federal tax benefits as an opposite-sex spouse.

State Income Tax Issues

As a result of *Windsor*, governmental employers located in states that recognized same-sex marriage and that, therefore, extended health and welfare benefits to same sex spouses, health and welfare benefit plan administration has largely been identical for both state and federal income tax purposes. However, if a governmental employer provided same-sex spouses with health coverage (perhaps through domestic partner benefits) in a state that did not recognize same-sex marriage, the employer would be required to impute state income to the employee on the value of the same-sex spouse's health coverage (even though such coverage was not taxable for federal income tax purposes).

Obergefell now requires all states, including the District of Columbia and U.S. territories, to recognize same-sex marriages. Therefore, all states will be required to treat same-sex and opposite-sex spouses identically, and the state law impact on coverage for same sex-spouses should now follow the tax treatment of opposite-sex spouses.

Are Employers Now Required to Offer Same-Sex Spouses Health and Welfare Coverage?

In *Obergefell*, the Supreme Court relied on the Fourteenth Amendment to find that state laws prohibiting same-sex marriage was unconstitutional. State and local governments are subject to the Fourteenth Amendment, so we believe that governmental plans are now required to treat same-sex spouses the same as opposite-sex spouses for all federal and state law purposes. For governmental plan administrators that have not yet extended same-sex spousal coverage under their health and welfare plans, the time may be ripe to consider amending these plan provisions.

Additional Considerations

Domestic Partner Benefits

For many employers, the reasons for offering domestic partner benefit coverage no longer exist. Because same-sex couples will now have the opportunity to marry in any state and have their marriages recognized in all states, some employers that currently offer same-sex domestic partner benefits are considering whether to eliminate domestic partner benefit coverage. In addition, governmental plan administrators must also now consider the ramifications of maintaining same-sex domestic partner benefits, including the risk of Fourteenth Amendment discrimination claims by opposite-sex employees who are not offered domestic partner benefit coverage. Employers considering eliminating their domestic partner benefits should carefully consider several factors including: (1) the number of employees affected; (2) cost of maintaining such coverage; and (3) whether domestic partner benefits were added to address other state or local

requirements or other concerns.

Plan sponsors might determine that terminating domestic partner coverage reduces administrative complexity in plans. For example, by eliminating domestic partner benefits, a plan would not have to maintain a separate set of rules for domestic partner eligibility, which may require domestic partner affidavits and documentation to provide proof of a marriage-like relationship. Furthermore, administering mid-year status changes due to the beginning or end of a marriage is generally more straightforward than administering mid-year changes due to the beginning or end of a domestic partnership, which is often more difficult to determine. Finally, eliminating domestic partner benefits will also eliminate the need to impute income to an employee on the value of benefits provided to domestic partners so the value of those benefits can be taxed (to the extent that the domestic partner is not a tax dependent).

If the decision is made to eliminate domestic partner benefit coverage, a transition period should be established to allow affected employees the opportunity to consider all of their options for benefits coverage, which might include getting married or finding other coverage options for a domestic partner. We believe that many employers will use a one-year transition period in conjunction with the open enrollment period in 2016, resulting in the elimination of domestic partner benefits for the 2017 plan year. However, each employer will need to determine what is a reasonable transition period given its unique employee population.

Retroactivity of Obergefell Decision

An open issue that has not been decided is the effective date for employers to comply with *Obergefell*. In other words, what is the date upon which a same-sex marriage should be recognized? For example, if a previously unrecognized same-sex spouse was denied a death benefit because the plan did not recognize the marriage, does the plan have to go back and pay the death benefit if the plan participant died prior to the *Obergefell* decision? How far back must a plan go with respect to these benefits? Similarly, if a plan refused to recognize a QDRO of a divorcing same-sex couple that was ordered prior to the *Obergefell* decision, must it now recognize that QDRO, or will it only have to recognize QDROs for same-sex divorcing couples that are ordered after the date of the *Obergefell* decision?

Following the *Windsor* decision, the Internal Revenue Service (IRS) issued guidance which required changes for plan qualification purposes to be made on a *prospective basis* only (see Ice Miller notice dated April 14, 2014 click here). The guidance also required employers to treat employees in same-sex marriage as though their date of marriage was effective on the date of the *Windsor* decision. In the absence of other guidance, a reasonable plan administrator might turn to the IRS's approach after *Windsor* (even if only by analogy) and set the "compliance date" for *Obergefell* as the date of the Court's decision (June 26, 2015). While we think this is a reasonable approach, it could still be challenged in federal court by same-sex spouses claiming that the Constitution requires retroactive recognition of their marriage to their wedding date. Moreover, since the *Obergefell* decision will largely affect the tax laws of those states/jurisdictions that previously did not recognize same-sex marriage, each state or jurisdiction may issue its own guidance on the timing of the implementation of the *Obergefell* decision (which may present a series of compliance hurdles).

While we have addressed some of the areas of concern that governmental plan administrators should be considering in light of the *Obergefell* decision, it is too soon to know its full implications. We will continue to monitor legal developments and advise on approaches taken by governmental plans and employees.

If you would like further information on the recent decision and the treatment of same-sex married couples under governmental benefit plans, please contact Mary Beth Braitman, Malaika Caldwell, Robert Gauss, Lisa Harrison, Tara Sciscoe, Chris Sears or one of the attorneys in our Employee Benefits Group.

This publication is intended for general information purposes only and does not and is not intended to constitute legal advice. The reader must consult with legal counsel to determine how laws or decisions discussed herein apply to the reader's specific circumstances.

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MEMORANDUM

TO: **Teachers' Fund for Retirement (TFFR) Board**

FROM: **Terra Miller Bowley, Supervisor of Audit Services**

DATE: **July 6, 2015**

SUBJECT: **Audit Activities Update**

This memorandum provides an update regarding audit activities which have occurred from January 1, 2015 – June 30, 2015

Third Quarter Audit Activities Update

Included with this memorandum is the Third Quarter Audit Activity Report which was provided to the State Investment Board (SIB) Audit Committee on May 21, 2015. The Third Quarter Audit Activity Report details all audit activities which have occurred from January 1, 2015 – March 31, 2015.

Year End Audit Activities Update

A formal Year End Audit Activity Report will be provided to the SIB Audit Committee on September 25, 2015 and to the TFFR Board on October 22, 2015. The Year End Audit Activity Report will detail all audit activities which have occurred from July 1, 2014 – June 30, 2015. Following is a brief update regarding year end audit activities:

- Annual audit planning completed and approved
- Twenty-eight employers were notified of upcoming TFFR Compliance Audits
- Twenty-two TFFR Compliance Audits completed
- Two Not In Compliance (NIC) Reviews completed
- Four TFFR File Maintenance Audits completed
- One Benefit Payments Audit completed
- Annual Salary Verification Project completed
- TFFR Benefit Payment Cost Efficiency Review completed
- Executive Limitations Audit completed
    - Two organization wide employee surveys completed
    - Two exit interviews (Executive Limitations A-2) completed
- Assisted external auditors (CliftonLarsonAllen) with GASB 68 Census Data Audits and Confirmation of TFFR Contributions for FY 2014

TFFR Benefit Payment Cost Efficiency Review

The Audit Services Division of the Retirement and Investment Office (RIO) conducted a review to verify retirement benefits are being paid at TFFR on a cost effective basis according to the *Ends* policy in the SIB Governance Manual. One of the missions of RIO is to ensure that TFFR benefit recipients receive their retirement benefits in a cost effective and timely manner. This review was conducted per the request of the Executive Director/CIO. Included with this memorandum is a copy of the final audit report which was issued on June 23, 2015.

RETIREMENT AND INVESTMENT OFFICE
AUDIT SERVICES

AUDIT ACTIVITIES REPORT FOR THE THIRD QUARTER
JANUARY 1, 2015 – MARCH 31, 2015

The audit objective of Audit Services is twofold: first, to provide comprehensive, practical audit coverage of the Retirement and Investment Office (RIO) programs; second, to assist RIO management and the State Investment Board (SIB) by conducting special reviews or audits.

The SIB Audit Committee opted to postpone development of a detailed audit work program for Fiscal Year July 1, 2014 through June 30, 2015. The SIB Audit Committee did provide guidance related to audit activities and planning for Fiscal Year July 1, 2014 through June 30, 2015. The audit activities undertaken are consistent with the Audit Services charter and goals, and the goals of RIO. To the extent possible, our audits are being carried out in accordance with the International Standards for the Professional Practice of Internal Auditing. Audit effort is being directed to the needs of RIO and the concerns of management and the SIB Audit Committee.

Retirement Program Audit Activities

- **TFFR Compliance Audits**

We examine employer reporting to the Teachers' Fund for Retirement (TFFR) to determine whether retirement salaries and contributions reported for members of TFFR are in compliance with the definition of salary as it appears in NDCC 15-39.1-04(9). Other reporting procedures reviewed during the audit process are calculation of service hours and eligibility for TFFR membership. A written report is issued after each audit examination is completed.

During the third quarter nine employer audits were completed, eight employer audits were in progress, and two employer audits were pending but not yet started. One Not In Compliance (NIC) Review was completed and one NIC Review was in progress. Five additional employers were notified of upcoming audits. The attached report details the current status of all audits remaining in the third audit cycle.

As of March 31, 2015 sixteen employer audits and two NIC Reviews have been completed for a total of eighteen audits.

This is an area that requires special emphasis due to the level of risk identified through previous audit results. Our long-range plans include auditing each employer over a five year period.

- **External Audit Support (GASB 68)**

GASB 68 Census Data Audit fieldwork was completed by our external audit partners January 19 – January 30, 2015. A total of seventeen employers received on-site visits from our external audit partners and a total of 202 member accounts were reviewed. External auditors were at the RIO on January 29, 2015 and Audit Services provided in office support. The GASB 68 Census Data Audits have been completed and two corrections were required. A memo from CliftonLarsonAllen related to the Census Data Audits was provided to the SIB Audit Committee at the meeting held February 26, 2015.

At the request of RIO's external auditor, CliftonLarsonAllen, Audit Services in cooperation with the Fiscal and Investment Operations Manager contacted thirty three employers and requested confirmation of TFFR contributions for the fiscal year ending June 30, 2014. Confirmation of TFFR contributions is required as a part of the financial statement audit, however due to significantly lower material thresholds related to the audit of the Schedule of Employer Allocations a larger sample size than usual was required.

- **TFFR File Maintenance**

Audit Services quarterly tests changes made to TFFR member account data by RIO employees.

Audit tables are generated and stored indicating any file maintenance changes made to member accounts. Our external auditors recommended that Audit Services review these tables on a regular basis. The third quarter TFFR File Maintenance audit was completed and no exceptions were noted.

- **Annual Salary Verification Project**

The accurate reporting of salary to TFFR by participating employers is vital to the administration of retirement benefits, therefore each year Retirement Services during the third quarter of the fiscal year undertakes an effort to verify salaries reported to TFFR for the prior fiscal year. Moving forward Audit Services will complete this annual project. In January 2015 fifty member accounts representing forty one employers for the fiscal years 2012-2013 and 2013-2014 were reviewed and the salary for each fiscal year was reconciled. Ultimately five member accounts required corrections.

<u>Administrative and Investment Audits</u>

- **Executive Limitation Audit**

Audit Services completed the Executive Limitations audit for the calendar year beginning January 1, 2014 and ending December 31, 2014. The purpose of the audit was to determine the Executive Director/CIO's level of compliance with State Investment Board

(SIB) Governance Manual Executive Limitation polices (A-1 through A-11). Audit Services is sufficiently satisfied that the Executive Director/CIO is in compliance with the SIB Governance Manual Executive Limitation polices A-1 through A-11. A final audit report was issued in February of 2015 and shared with the SIB Audit Committee at the meeting held February 26, 2015.

Audit Services facilitated a second organization wide survey of employees during the third quarter. The purpose of the survey was to provide employees the opportunity to evaluate their immediate supervisor as well as other members of the management staff. Employees were also asked to generate ideas related to improving organizational communication, productivity, morale and/or efficiency.

- **TFFR Cost Effective Benefit Payments**

Audit Services was asked by the Executive Director/CIO to verify if retirement benefits are being paid at TFFR on a cost effective basis according to the *Ends* policy in the SIB Governance Manual which supports one of the RIO's overall missions which is to ensure that TFFR benefit recipients receive their retirement benefits in a cost effective and timely manner. Initial planning work was undertaken in March 2015. The audit will commence in the fourth quarter and be completed by June 2015.

Professional Development Activities

In early January of 2015 a professional development plan was approved for the Supervisor of Audit Services. The Supervisor of Audit Services will begin pursuing a Certified Internal Auditor designation. Members of Audit Services also attended monthly IIA meetings of the Central NoDak Chapter.

SUMMARY

Audit effort will continue to be on those activities which are of greatest concern to the SIB Audit Committee, RIO management, and the external auditors.

Audit Services – North Dakota Retirement and Investment Office

TFFR Benefit Payment Cost Efficiency Review

Final Audit Report

June 23, 2015

Background

The Audit Services Division of the Retirement and Investment Office (RIO) conducted a review to verify retirement benefits are being paid at the Teachers' Fund for Retirement (TFFR) on a cost effective basis according to the *Ends* policy in the State Investment Board (SIB) Governance Manual. One of the missions of RIO is to ensure that TFFR benefit recipients receive their retirement benefits in a cost effective and timely manner. This review was conducted per the request of the Executive Director/CIO.

Results Summary

Audit Services found that benefits are being paid at TFFR on a cost effective basis according to the *Ends* policy in the SIB Governance Manual. RIO's overall mission of ensuring that TFFR benefit recipients receive their retirement benefits in a cost effective and timely manner is also being met.

Scope

Audit work commenced in March 2015 and concluded in June 2015. Audit work encompassed three phases:

- Phase I – Identify and Document Key Retirement Process(es)
- Phase II – Sample Selection and Testing
- Phase III – Analysis of TFFR Financial Metrics and Member Feedback

Observations, Conclusions and Recommendations

Observations, Conclusions and Recommendations Phase I

The Presumptive Retirement Process and the Recalculation of Benefit Process have been identified as the two critical retirement processes. These processes are responsible for the initial processing of retirement benefits and the recalculation of retirement benefits following the close of the fiscal year. A review of both processes indicates efficiency in operations.

Individual members are counseled to notify TFFR of their intent to retire from covered employment 90 calendar days (65 business days) prior to their desired retirement date, the date on which retirement benefit payments are to begin. Upon receipt of this notification, TFFR initiates the Presumptive Retirement Process which estimates final salary and service hours and issues the first retirement benefit payments based on these estimated amounts. The initial retirement benefit payment is to commence on the desired retirement date provided by the individual members.

A majority of the time members are failing to notify TFFR of their intent to retire from covered employment 90 calendar days (65 business days) prior to their desired retirement date. For the 25 member accounts tested:

- 18 out of the 25 member accounts sampled notified TFFR less than 90 calendar days (65 business days) prior to their desired retirement date.

- Members notified TFFR of their intent to retire an average of 43 business days prior to their desired retirement date.
- TFFR requires on average 44 business days to complete the Presumptive Retirement Process.

Retirement Services counsels perspective retirees on the need to notify TFFR of their intent to retire from covered employment at least 90 calendar days (65 business days) prior to their desired retirement date. The purpose of this request is to ensure that Retirement Services has adequate time to complete the Presumptive Retirement Process. If delays occur, retirement benefits will be paid retroactively to the retirement date desired by the member.

Finding #1: Members are not notifying TFFR of their intent to retire in a timely manner. Retirement Services staff and the overall efficiency and flexibility of the Presumptive Retirement Process greatly benefits from members providing timely notice of retirement.

Recommendation #1: Audit Services recommends Retirement Services evaluate current communication methods and consider the use of different methods or tactics to improve the timeliness of member retirement notifications.

Management Response Recommendation #1:
Retirement Services concurs with this recommendation and will continue to evaluate communication methods as part of our ongoing effort to pay benefits in a timely manner.

Retirement Services currently recommends that members begin the retirement process 90 calendar days prior to their retirement date. The 90-day time frame is a guideline, not a requirement, and is communicated to members verbally during phone and personal benefits counseling sessions, and is also included in written communications including the Retirement Brochure, Member Handbook, Retirement Planning Checklist, and Retirement Benefit Estimate letter. The 90-day guideline should allow staff adequate time to process the claim and pay the new retiree their first benefit on their retirement date. However, if the member does not give adequate notice or if delays occur in processing the claim, the TFFR plan pays benefits retroactive to date of benefit eligibility. Therefore, even though members may be aware of the 90-day guideline, because benefits are paid retroactively, members often decide to delay beginning the retirement process for a number of reasons. In any event, Retirement Services staff has been very successful in paying benefits on or soon after the member's retirement date regardless of late notification, and member satisfaction with the timeliness of benefit payments is very high.

TFFR's intent is to ensure that the initial retirement benefit payment is received by the member on their desired date of retirement. For the 25 member accounts tested:

- 17 of 25 members received initial retirement benefit payments on their desired date of retirement.
- The remaining 8 members received the initial retirement benefit payment after their desired date of retirement:
    - 2 members failed to notify TFFR of their intent to retire in a timely manner.

- 4 members failed to notify TFFR of their intent to retire prior to their desired retirement date.
- 1 member account had delayed processing caused by the member's actions.
- 1 member failed to notify TFFR of their intent to retire in a timely manner and the reconciliation of salary necessary to estimate the retirement benefit amount required more than 30 business days.

TFFR issues initial retirement benefit payments on the retirement date desired by the member a majority of the time despite not being notified by members 90 calendar days (65 business days) prior to their desired retirement date. Of the eight exceptions noted during testing, member controlled delays contributed to the overall processing delays of initial retirement benefits. Most notably, seven of the eight members failed to notify TFFR of their intent to retire in a timely manner.

The Presumptive Retirement Process utilizes estimated final salary and service hours when calculating initial retirement benefit amounts. Every member account which utilized estimated final salary and service hours must be recalculated once the employer has reported actual final salary, service hours, and last day worked to TFFR at the close of the fiscal year. The Recalculation of Benefit Process utilizes actual final salary and service hours to recalculate the retirement benefit amount owed the member. If the recalculated retirement benefit amount is different than the amount determined during the Presumptive Retirement Process, the member account is updated to reflect the new retirement benefit payment amount. Subsequent payments will reflect the updated amount. For the 25 member accounts tested:

- 21 of 25 member accounts required retirement benefits to be recalculated.
- TFFR required on average 10 business days to complete the Recalculation of Benefit Process for each member account.
- The retirement benefit amount increased on all 21 member accounts.
- Recalculated retirement benefit amounts were paid on the next available payment date on all 21 member accounts with no delays.

At the time of this review no additional performance metrics or benchmarks beyond those previously addressed are used by Retirement Services to monitor the effectiveness of the Presumptive Retirement Process and/or the Recalculation of Benefit Process. For the purposes of evaluating the overall efficiency of the processes under review, each process was segmented and key dates used to determine timeframes required to move from one point in the process to the next. It is anticipated that lengthy completion times may signify a point in the process where increased efficiency could be gained.

> **Finding #1:** All timeframes identified for both processes under review appeared reasonable and provided no indication that either process experienced a failure at any point. This review has provided insight into the Presumptive Retirement Process and the Recalculation of Benefit Process as well as provided a wide variety of data points. TFFR has the potential to leverage this new information to its advantage.

Recommendation #2: Audit Services recommends that timeframes identified be reviewed for reasonableness and additional performance metrics be developed to improve overall monitoring of current processes.

Management Response Recommendation #2:
Retirement Services concurs with this recommendation and will enhance our review of timelines and performance metrics as additional data becomes available.

The current presumptive retirement process allows new retirees to begin retirement benefits even before all final salary and service has been reported to the pension plan. This timely payment of a first benefit is appreciated by members and is a high priority for Retirement Services staff. The current process allows a small staff to process hundreds of retirement claims during the busy retirement months (March – August). The process also gives staff flexibility to work on retirement requests in addition to completing their other duties. Current timeframes are reasonable for the major tasks required to complete the retirement process. However, now that more data is available, Retirement Services plans to use this information to better monitor the effectiveness of the retirement process in the future. As additional data becomes available each year, we will continue to evaluate timelines and information to identify if the process can be improved, if the process has broken down, or if an anomaly has occurred.

Observations, Conclusions and Recommendations Phase II

TFFR has controlled total appropriated expenses since 2012, continued to lower appropriated cost per member since 2012, and maintained current staffing levels all while experiencing higher than normal increases in membership. TFFR financial metrics for the last five fiscal years indicate efficiency in operations.

Appropriated expenses at TFFR continue to increase, which is not unexpected. Appropriated expenses have increased at a consistent rate of 1% - 2% each year, except for fiscal year 2011 which saw an increase of approximately 7%. This increase was directly related to the search for a new Executive Director/CIO and larger than normal salary increases agency wide. These expenses would be considered an anomaly and unexpected. Appropriated expenses have increased on average 2.41% per year. If fiscal year 2011 is removed from the analysis, appropriated expenses have increased at a rate of 1.25% per year.

Total membership continues to increase at an average rate of 2.41% per year, with the largest increases in membership occurring in fiscal year 2013 and 2014. Increases in total TFFR membership correlate to changing demographic conditions in North Dakota, which per the US Census Bureau has experienced a population increase of 9.9% since 2010. In 2013, 29.2% of North Dakota's population was under the age of 18 which will continue to place increased demands on the educational system and by extension TFFR. The number of retirees, beneficiaries, and terminated members continues to increase at a faster rate than active members.

Appropriated cost per member has steadily decreased since 2012 at an increasing rate. An increase in the appropriated cost per member in fiscal year 2011 was the result of an overall increase in appropriated expenses. During the last three fiscal years the appropriated cost per

member has been reduced on average of a $1.00 per year or 1.37%. In fiscal year 2014, appropriated cost per member was $70.89 which is only slightly higher than the appropriated cost per member in fiscal year 2010 ($70.61).

The administration of TFFR is conducted by the Retirement Services Division of RIO. Eight full time staff members are allocated at 100% to TFFR. An additional eight full time staff members have a portion of their time allocated to TFFR at varying percentages, which equates to four full time staff members allocated at 100% to TFFR. Staff to member ratios for the last five fiscal years are as follows:

	FY 2014	***FY 2013***	***FY 2012***	***FY 2011***	***FY 2010***
Total	20,222	19,690	19,116	18,807	18,382
Staff (12): Active, Retirees, Beneficiaries, Terminated	1:1685	1:1641	1:1593	1:1567	1:1532

Observations, Conclusions and Recommendations Phase III

Member comments and feedback solicited throughout the most recent fiscal year overwhelmingly indicate that members receive excellent service from TFFR staff. TFFR member comments and feedback provide support to the opinion that TFFR is achieving efficiency in operations.

Members were asked to rate staff courtesy, promptness, and content/information on a scale of excellent, above average, average, and poor. Members were also given the opportunity to provide written comments. Member satisfaction results for the three previously noted categories are as follows:

***Staff Courtesy* Survey Ratings:**

	Excellent	Above Average	Average	Poor
Totals	172	9	0	0
Weight	4.0	3.0	2.0	1.0
Percent	95%	5%	0%	0%
Average	**4.0**			

***Promptness* Survey Ratings:**

	Excellent	Above Average	Average	Poor
Totals	165	12	3	1
Weight	4.0	3.0	2.0	1.0
Percent	91%	7%	2%	1%
Average	**3.9**			

***Content/Information* Survey Ratings:**

	Excellent	Above Average	Average	Poor
Totals	163	15	2	0
Weight	4.0	3.0	2.0	1.0
Percent	91%	8%	1%	0%
Average	**3.9**			

Distribution:
David Hunter, Executive Director/CIO
Fay Kopp, Deputy Executive Director/Chief Retirement Officer
Connie Flanagan, Fiscal and Investment Operations Manager
Shelly Schumacher, Retirement Program Manager

MEMORANDUM

TO: **TFFR Board**

FROM: **Fay Kopp**

DATE: **July 16, 2015**

SUBJ: **Annual TFFR Program Review**

Because the TFFR Board is responsible for administering the retirement program, periodic review of the Board's mission, goals, policies, and by-laws included in the TFFR Program Manual is important in order to fulfill your fiduciary responsibilities. This will be reviewed at the meeting.

Board responsibilities include:

1. Establish and monitor policies for the administration of the TFFR program.
2. Establish and monitor investment policy, goals, objectives, and asset allocation.
3. Hire and monitor actuarial and medical consultants; establish and monitor actuarial assumptions and methods; and ensure periodic actuarial valuations, experience studies, asset liability modeling studies, and actuarial audits are conducted.
4. Pay benefits and consultant fees.
5. Submit legislation and monitor the statutory responsibilities of the TFFR program.
6. Determine appropriate levels of service to members and employers.
7. Communicate and monitor TFFR program expectations to the SIB that are expected to be provided through RIO.
8. Promulgate administrative rules as needed.

TFFR Program Monitoring Summary

2014-15

Ends Policy	Responsibility	Action	Scheduled	Completed
Mission	TFFR Board	Annual Review	July	7-24-14
Goals	TFFR Board	Annual Review	July	7-24-14
Plan Beneficiaries	TFFR Board	Annual Review	July	7-24-14
Membership Data	TFFR Board	Annual Review	July	7-24-14
	Internal Audit	Annual Report	October	10-23-14
	External Audit	CliftonLarsonAllen/Audit Comm.	October	10-23-14
	Retirement Officer	* Staff Presentations	Ongoing	
Investments	TFFR Board/SIB	Qtrly Reports	Ongoing	
	Investment Director	Annual Report	September	9-25-14
Retirement Services	TFFR Board	Annual Review	July	7-24-14
	Internal Audit	Annual Report	October	10-23-14
	External Audit	CliftonLarsonAllen/Audit Comm.	October	10-23-14
	Interest Groups	Annual Report	July	7-24-14
	Retirement Officer	*Staff Presentations	Ongoing	
Account Claims	TFFR Board	Annual Review	July	7-24-14
	Internal Audit	Annual Report	October	10-23-14
	External Audit	CliftonLarsonAllen/Audit Comm.	October	10-23-14
	Retirement Officer	*Staff Presentations	Ongoing	
Trust Fund Valuation	TFFR Board	Annual Review	July	7-24-14
	Segal	Annual Valuation	October	10-23-14
	Internal Audit	Annual Report	October	10-23-14
	External Audit	CliftonLarsonAllen/Audit Comm.	October	10-23-14
	Retirement Officer	*Staff Presentations	Ongoing	
Program Policies	TFFR Board	Annual Review	July	7-24-14
_	_	_	_	9-25-14

* Ongoing RIO Staff Presentations include:

	TFFR Accomplishments	Retirement Officer	July	7-24-14
	Customer Satisfaction	Retirement Officer	July	7-24-14
	RIO Budget Summary	Fiscal Management	September	9-25-14
	TFFR Ends & Statistics	Retirement Services	January	1-22-15
	Retirement Trends	Retirement Services	January	1-22-15
	Pension Plan Comparisons	Retirement Officer	March	3-26-14
	Technology Review	Information Tech	July	7-24-14

TFFR BOARD ACCOMPLISHMENTS 2014-15

- ✓ Established and managed annual board calendar and education plan.
- ✓ Conducted annual election of officers and annual TFFR program review including mission, goals, ends and program policies, and by-laws.
- ✓ Approved modifications to TFFR program policy on “Board Meetings” and approved new policy on “Disclosure of Confidential Information.”
- ✓ Approved annual TFFR member and employer customer satisfaction reports, TFFR ends and statistics report, RIO budget and expense report, RIO technology review, and other program and statistical reports.
- ✓ Received quarterly updates and approved annual investment report of TFFR asset allocation, fund performance, investment expenses, investment guidelines, and goals and objectives.
- ✓ Received quarterly updates and approved annual report on status of TFFR employer compliance audits, agency financial audit, and other retirement program audits and reviews.
- ✓ Discussed potential technology initiatives: electronic board material process and guidelines (RIO Reference Library); using personal devices at board meetings; board meeting video conference (test site WSI); continued exploration of technology for board, member, employer, and staff utilization.
- ✓ Analyzed and approved TFFR Retirement Trends report.
- ✓ Reviewed 2013 Public Fund Survey and various public plan surveys comparing NDTFFR to other statewide public pension plans.
- ✓ Monitored, testified, and provided information on TFFR and other pension related bills during 2014 legislative interim and 2015 legislative session.
- ✓ Received results of 2014 actuarial valuation and funding projections from Segal Company.
- ✓ Reviewed actuarial consulting contract and costs. Renewed contract with Segal for 2015-17.

- ✓ Received results of Experience Study conducted by Segal. Adopted various demographic and economic assumptions recommended by the actuary.

- ✓ Initiated plans for Asset Liability Study.

- ✓ Received status reports on implementation of new GASB 67 and 68 pension accounting standards including training, actuarial and audit reports, template note disclosure, and other GASB materials and information.

- ✓ Received legal analysis and guidance from outside tax counsel (IceMiller) on potential impact of U.S. Supreme Court's "Windsor decision" regarding same sex marriages on NDTFFR plan statutes and operations.

- ✓ Received periodic updates on national pension issues and federal legislation relating to public pension plans.

- ✓ Received 2014 Public Pension Standards Award for Funding and Administration from PPCC.

- ✓ Received 2014 Certificate of Achievement for Excellence in Financial Reporting from GFOA.

- ✓ Approved seven disability applications, and one QDRO application.

- ✓ Approved board resolution for former trustee, Clarence Corneil, thanking him for his service.

- ✓ Welcomed new retired trustee, Mike Burton, to the Board. Provided new TFFR trustee orientation.

- ✓ Received board education on GASB statements 67 and 68, Defined Contribution and Hybrid plans, and other pension topics from Segal Company.

- ✓ Received board education on ND Education Demographics from DPI, and ND teacher shortages from ESPB.

- ✓ Attended 2014-15 trustee or administrator educational conferences and meetings (external).

Mike Gessner	--		
Kim Franz	NCTR Annual Conf	10/14	Indianapolis, IN
Rob Lech	Callan College	10/14	San Francisco, CA
Mel Olson	NCTR Annual Conf	10/14	Indianapolis, IN
Mike Burton	--		
Treas. Schmidt	--		
State Supt Baesler	--		
Fay Kopp	NCTR Director's Mtg	06/15	Nashville, TN

TFFR Board Calendar and Education Plan 2015-16

JULY 23, 2015 – 10 am
Election of Officers
Asset Liability Study Presentations
Annual TFFR Program Review
Annual Customer Satisfaction Reports
Qtrly Audit Services Update (3/30)
Qtrly Investment Update (3/30)
Education: Member/Employer

SEPTEMBER 24, 2015 – 1 pm
IRS Qualification Review Results
Asset Liability Study Update
GASB Update
Annual Investment Report (6/30)
Annual Budget and Expense Report
Annual Technology Report
Education: Web Services Demo

OCTOBER 22, 2015 – 1 pm
2015 Actuarial Valuation Report – Segal
2015 GASB Report - Segal
Actuarial Audit Discussion
Annual TFFR Program Audit Report (6/30)
Annual Retirement Statistics Report
Education: Actuarial Valuation Process

Possible Nov or Dec Meeting
Asset Liability Study Report

JANUARY 21, 2016 – 1 pm
2017 Legislative Planning
Actuarial Audit Planning
Annual Retirement Trends Report
Qtrly Audit Services Update (9/30)
Qtrly Investment Update (9/30)
GASB Update
Education: Fiduciary Duties/Ethics

MARCH 17, 2016 – 1 pm
2017 Legislative Planning
Annual Pension Plan Comparisons
Qtrly Audit Services Update (12/30)
Qtrly Investment Update (12/30)
Education: Disability & QDROs

APRIL 21, 2016 – 1 pm
Actuarial Audit Report
2016-17 Board Calendar and Educ Plan
Education: Open Records/Open Meeting

Note: Agenda items or education topics may be rearranged if needed.

07/15/15

MEMORANDUM

TO: **TFFR Board**

FROM: **Fay Kopp**

DATE: **July 16, 2015**

SUBJ: **Annual Customer Satisfaction Reports**

1) To assist the **TFFR Board** in monitoring how well the TFFR program is serving member and employer needs, each year we survey the interest groups, and collect evaluations from members and employers. Here are the 2014-15 survey responses.

   - Responses to the TFFR Customer Satisfaction Surveys from NDRTA, NDSBA, NDASBM, NDCEL, and ND United.

   - Evaluation responses and comments received directly from the members and employers from benefits counseling sessions, preretirement seminars, business manager workshops, and other member and employer contacts.

As you can see, feedback is overwhelmingly positive, thanks to the efforts of our wonderful staff who interact with TFFR members and employers every day. Our staff does a terrific job serving the needs of our customers, and I am very proud of them.

2) The **State Investment Board** also wants to know from its customers (TFFR, PERS, WSI, etc.) if the SIB (through the RIO staff) is providing quality service. RIO Audit Services has sent the annual SIB Customer Satisfaction Survey (via Survey Monkey) to Mike Gessner, TFFR Board President. Last year, the TFFR Board decided to have each TFFR trustee complete the form individually and forward to the Board president to compile results. The TFFR Board then reviewed the compiled responses at the September meeting and approved submission. The Board should decide if you want to handle the survey response the same way this year, or utilize a different method.

Enclosures

Is the TFFR Board, through the RIO staff, providing TFFR members and employers with quality service? Please help the TFFR Board measure their performance and identify areas for improvement by completing this annual survey.

	Excellent	Above Average	Average	Poor	N/A
Staff courtesy and professionalism	x				
Staff responsiveness	x				
Staff accessibility	x				
Staff knowledge of TFFR program	x				
Clarity and effectiveness of information	x				
Ease of obtaining information or services - phone, website, newsletters, publications	x				
Member outreach services -presentations, conferences, meetings, benefits counseling and preretirement seminars	x				
Employer outreach services -presentations, conferences, meetings	x				
Legislative proposals, presentations	x				
Overall quality of service	x				

How can the TFFR Board and/or RIO staff improve their service to TFFR members and employers?

_____

_____

_____

Comments: Staff always do a stellar job. They are always accessible, courteous and knowledgeable. It is a pleasure to have the opportunity to work with them.

Signature Erica Cermak _____ Date 07/10/2015

Organization NDRTA _____

THANK YOU for helping us improve service to TFFR members and employers.

ND Retirement and Investment Office, P.O. Box 7100, Bismarck, ND 58507-7100
Phone: 701-328-9885 or 800-952-2970 - FAX: 701-328-9897 - Email: fkopp@nd.gov

Is the TFFR Board, through the RIO staff, providing TFFR members and employers with quality service? Please help the TFFR Board measure their performance and identify areas for improvement by completing this annual survey.

	Excellent	Above Average	Average	Poor	N/A
Staff courtesy and professionalism	X				
Staff responsiveness	X				
Staff accessibility	X				
Staff knowledge of TFFR program	X				
Clarity and effectiveness of information	X				
Ease of obtaining information or services - phone, website, newsletters, publications	X				
Member outreach services -presentations, conferences, meetings, benefits counseling and preretirement seminars	X				
Employer outreach services -presentations, conferences, meetings	X				
Legislative proposals, presentations	X				
Overall quality of service	X				

How can the TFFR Board and/or RIO staff improve their service to TFFR members and employers?

Comments Staff is awesome! She is always willing to speak at our convention and responds to my questions immediately and in great detail. Thanks the staff!

Signature [signature] Date July 1, 2015

Organization ND School Boards Association

THANK YOU for helping us improve service to TFFR members and employers.

ND Retirement and Investment Office, P.O. Box 7100, Bismarck, ND 58507-7100
Phone: 701-328-9885 or 800-952-2970 - FAX: 701-328-9897 - Email: fkopp@nd.gov

RECEIVED
JUL 01 2015
NDRIO

Is the TFFR Board, through the RIO staff, providing TFFR members and employers with quality service? Please help the TFFR Board measure their performance and identify areas for improvement by completing this annual survey.

	Excellent	Above Average	Average	Poor	N/A
	X				
Staff courtesy and professionalism	X				
Staff responsiveness	X				
Staff accessibility	X				
Staff knowledge of TFFR program	X				
Clarity and effectiveness of information	X				
Ease of obtaining information or services - phone, website, newsletters, publications	X				
Member outreach services -presentations, conferences, meetings, benefits counseling and preretirement seminars	X				
Employer outreach services -presentations, conferences, meetings	X				
Legislative proposals, presentations					X
Overall quality of service	X				

How can the TFFR Board and/or RIO staff improve their service to TFFR members and employers?

Keep up the good work!

Comments

Signature [signature] Date June 26, 2015

Organization ND ASBM

THANK YOU for helping us improve service to TFFR members and employers.

ND Retirement and Investment Office, P.O. Box 7100, Bismarck, ND 58507-7100
Phone: 701-328-9885 or 800-952-2970 - FAX: 701-328-9897 - Email: fkopp@nd.gov

RECEIVED
JUL 02 2015
NDRIO

Is the TFFR Board, through the RIO staff, providing TFFR members and employers with quality service? Please help the TFFR Board measure their performance and identify areas for improvement by completing this annual survey.

	Excellent	Above Average	Average	Poor	N/A
Staff courtesy and professionalism					
Staff responsiveness					
Staff accessibility					
Staff knowledge of TFFR program					
Clarity and effectiveness of information					
Ease of obtaining information or services - phone, website, newsletters, publications					
Member outreach services -presentations, conferences, meetings, benefits counseling and preretirement seminars					
Employer outreach services -presentations, conferences, meetings					
Legislative proposals, presentations					
Overall quality of service					
	✓				

How can the TFFR Board and/or RIO staff improve their service to TFFR members and employers?

Comments Great job, being responsive to resolutions & legislative updates!!

Signature [signature] Date 7/14/15

Organization NDCEL

THANK YOU for helping us Improve service to TFFR members and employers.

ND Retirement and Investment Office, P.O. Box 7100, Bismarck, ND 58507-7100
Phone: 701-328-9885 or 800-952-2970 - FAX: 701-328-9897 - Email: fkopp@nd.gov

TFFR Customer Satisfaction Survey

Is the TFFR Board, through the RIO staff, providing TFFR members and employers with quality service? Please help the TFFR Board measure their performance and identify areas for improvement by completing this annual survey.

	Excellent	Above Average	Average	Poor	N/A
	X				
Staff courtesy and professionalism	X				
Staff responsiveness	X				
Staff accessibility	X				
Staff knowledge of TFFR program	X				
Clarity and effectiveness of information		X			
Ease of obtaining information or services - phone, website, newsletters, publications		X			
Member outreach services -presentations, conferences, meetings, benefits counseling and preretirement seminars		X			
Employer outreach services -presentations, conferences, meetings					X
Legislative proposals, presentations					X
Overall quality of service		X			

How can the TFFR Board and/or RIO staff improve their service to TFFR members and employers? More retirement planning events. Perhaps we should discuss some type of partnership in this area that would get information out to more members.

Comments__ The comments are based on three sources (1) comments from members received in the course of my everyday activity as a manager at NDU, (2) comments received at the 10 pre-retirement planning sessions we sponsored for members during the year, (3) the personal experiences I had during the processing of my wife's death claim. No one has ever said "I did not receive an answer from TFFR." I have heard people mention names of individuals who helped them prepare for retirement or answered questions about the various payment options available to school districts. Personally, I am most impressed with the way the staff answers the phone and directs inquires to the correct person. Basically I appreciate the human voice vs the answering machine approach.

Signature Gary D. Rath, CFO Date 7/15/2015

Organization North Dakota United

THANK YOU for helping us improve service to TFFR members and employers.

ND Retirement and Investment Office, P.O. Box 7100, Bismarck, ND 58507-7100
Phone: 701-328-9885 or 800-952-2970 - FAX: 701-328-9897 - Email: fkopp@nd.gov

Annual Tabulation 2014-15
Comment Cards 154

NORTH DAKOTA RETIREMENT AND INVESTMENT OFFICE
COMMENT CARD

Are we providing you with quality service and information on your TFFR benefits?

	Excellent	Above Average	Average	Poor
Staff Courtesy	144	9		
Promptness	136	16	2	
Content/Information	136	16	2	

- I dealt with the TFFR staff only through the paperwork, not on the phone. I did call & could not understand the machine well enough to leave a voice mail. ☹
- Counselor is like visiting with a caring, dear friend. Thanks! ☺
- Very pleased!!
- Would it be possible to send a postcard/email to those that had a private meeting in the fall with TFFR personnel reminding them that forms should be sent in the month of February in order to receive benefits beginning June 1 of that year?
- YOU DO A GREAT JOB!
- My counselor is a pleasure to work with!
- It is so very nice to have these services because there are so many questions to be answered. Thank you so much!
- Thanks for everything counselor -- you have made this whole process very easy.
- Meeting with counselor answered any and all questions I had. She explained the information fully and had everything highlighted and in a very user friendly format. I am really glad that we met to go over all the paperwork -- it made it so much easier when completing the process.
- My counselor did an awesome job of walking me thru all the paperwork.
- Very helpful staff.
- I was very pleased with the assistance I received. The staff was respectful, prompt and courteous.
- My counselor has been really nice and helpful to us. She has been able to answer all of my questions and given us advice when we asked for it. She has answered our questions in an understandable way. Thank you.
- I have been very pleased with the service from the NDTFFR.
- Counselor has been an outstanding resource for me in preparation for my retirement. Thank you, counselor! ☺
- Superb work - so organized. Thanks!
- They were so willing to help me and I didn't worry about calling and asking questions. I had a very good experience with the office.
- My counselor is personable and answers are prompt.
- You folks really know your stuff and are a comfort in a time of transition. Thank you.
- This was a very emotional situation for me and the staff was more than WONDERFUL! Thank you!
- Thank you very much for all your help.
- My counselor is an excellent TFFR employee - she could explain everything so well.
- Counselor did an outstanding job for getting my enrollment requirements completed accurately and promptly. Outstanding! Thank you!
- Very helpful group of professionals . . . Thank you!
- The paperwork was easier to complete than that required by the state of Montana for their retirement system.

- I had wonderful assistance from counselor and staff while completing my paperwork for retirement. She was informative and efficient. Thank you!
- It was helpful when counselor informed me that I could "rollover" my other retirement plan to purchase service credit. And that the investment is at a steady 6% interest. Thanks counselor!
- Counselor did a great job of going over all the info. Thanks!
- Thanks for making my retirement requirements easy.
- You made the process comfortable and expedient! Thank you!
- Well done!
- Thank you for your excellent service.
- They were very good!
- Thanks so much for all the help counselor! You made paperwork easy!
- Continue doing the excellent behind the scenes work so we can enjoy this retirement process as stress free as you are making it happen.
- Excellent customer service! Very helpful!
- Counselor was very helpful and got us the information we needed in a timely manner! A+
- I appreciate your swift & humble response to assist with retirement pre-planning info. Thanks!
- Thanks!
- Answer voice mail more promptly.
- Thank you for all of the set-up help counselor!
- Everything was easy and very efficient. Thanks!
- Everyone was very helpful and friendly -- especially my counselor. She is the one I worked with the most.
- My counselor was very helpful.
- My counselor was excellent in all areas.
- My counselor has been so helpful through phone calls, emails, and the packet she put together for me. Great service!
- Counselor was very helpful. She is friendly and proficient with her clients. Her teaching experience is a notable characteristic and sign of good background in education. Kudos to her! ☺
- Have called with questions 2 or 3 times and were very helpful and friendly.
- My counselor is a PERFECT professional for your office. She is so "down to earth" and genuine to all teachers. Give her a RAISE!
- Thanks for going the "extra mile" for me as my file got complicated.
- Thanks!
- This office always answers my questions and returns my calls promptly.
- I was unaware that I had to call and go to Bismarck. Teachers who are nearing retirement need to be informed of ND retirement requirements.
- I received excellent advise and direction, wonderful people to work with.
- The lady was great to work with. Thanks!
- Thanks for your wonderful service.
- Excellent. Will miss my counselor in your office -- but she gave me names of others who could help if need be.
- Thanks so much for your help. Everyone I've talked to has been extremely cheerful and helpful! Wish I got this kind of service more places!
- Your employees have always been amazing. They take the time to explain the many options that are available. I thank you!
- Good job!
- Send some of your people over to Motor Vehicle and teach them about courtesy. I think the people over there hate their jobs.
- Keep up the fine work.
- I am currently working on my PERS retirement & wish you could help me with that as well. So much paperwork.
- So far I've had all my questions answered. Thanks counselor.
- Very informative. Thanks for the help!
- Everything has been explained well to me and I was notified of all documents needed in a timely fashion. My first check has been deposited. Thank you!

- I really appreciate how well you took care of me!
- It was a great experience. Everyone was helpful.
- Great help for an old warrior teacher. Appreciate your assistance with my out-of-state bank (USAA). I look forward to many years of cooperation.
- Staff was always friendly, helpful and very patient with me! Thank you!!
- Appreciated the email acknowledgement after my initial application in February.
- TFFR retirement staff has done such an informational and process job for me. It is greatly appreciated.
- Excellent job folks!
- Very friendly, helpful. I will not hesitate to contact them if I have questions.
- Staff provided excellent customer service and was great to work with. Very knowledgeable.
- Thanks for all your help!
- Great help!
- I was able to ask questions at any time. Call backs were prompt and useful.
- Keep up the good work!
- Nice job!
- Thanks for making the process easy!
- Everyone I contacted was very courteous and helpful. I was due to receive some benefits I didn't know about if I reached the rule of 85. Thanks so much for giving me the heads up!
- Thank you!!
- Your office was great -- from the individual meeting last November with counselor, to the friendliness received whenever I called the office for help or with questions! Thank you!!
- Counselor was very helpful. I appreciate how fast and timely all transactions took place -- great work TFFR!
- Information straight forward/easy to fill out.
- Excellent help & friendly staff. Counselor was very efficient.
- Thank you for all your help in my transition to retirement!
- Thank you for all of your help and guidance. It took a lot of the stress out of the process.
- Thanks for all you do.
- Well done except was sent the same forms twice to fill out.
- Thank you for your prompt service and professionalism.
- The staff made the process understandable with a pleasant attitude to boot!
- Great job of helping me get everything done in a prompt manner to receive my first check in time! Thanks!!!
- Everything went very smoothly.

PRE-RETIREMENT SEMINAR FOR TFFR MEMBERS
ANNUAL EVALUATION FORM
2014-15

	Minot	Fargo
Members	46	48
Spouses	12	19
Evaluation Forms Returned	36	36

1. TFFR PENSION BENEFITS

Excellent	Above Average	Average	Poor	No Answer
53	16	3		

- Very knowledgeable on info - overwhelming but presented well.
- Very helpful - great speaker - easy to understand.
- Quality information.
- Hard to hear.
- Good job presenting information and answering questions.
- You handle questions so professionally and so calmly. You are a genuine person so suitable for your job.
- Very useful learning!
- Great info on options!
- Very well explained - answered questions well.
- Very informative. Easy to understand. Useful info.
- Great handouts to help us remember the presentation and help us stay organized as we prepare for retirement.
- Very open to questions. Explained well.
- Very interesting info.
- Thank you!
- Thanks for all the good information.
- You are so knowledgeable about all areas!!! Can you explain that which cannot be read on overhead? Great info - helpful.
- Good overview. Gave us lots to think about.
- Good information and easy to follow along.
- Can spend more time on (lump sum benefits), choices with it, and also can some of it be utilized and some returned to account value? Presenter does a nice job at keeping things simple and understandable without a whole lot of jargon.

2. HEALTH INSURANCE

Excellent	Above Average	Average	Poor	No Answer
10	19	13	3	27

- It would have been better to skip this and let us read it ourselves since the presenter wasn't here.
- PERS didn't show. TFFR did the best she could to cover!
- PERS didn't show. Rate TFFR above average. Rate PERS poor.
- TFFR did a good job covering.
- TFFR did a super job!!
- TFFR did a good job covering.
- TFFR did a great job explaining what she could.
- No need to quote each insurance rate on slides. People can read rate that applies.
- Good job covering.
- Poor taste not to show up. There must've been someone in office willing!
- No show presenter. Thanks TFFR for helping out. ☺
- You did a good job of filling in!
- Confusing information on PERS.

- Knowledgeable on topics. Could have used a stronger voice but with more experience on presentations in the future will improve.
- New info is very helpful.
- I thought the PERS woman was confusing. She didn't even know the difference between formulary/non-formulary on a question. She didn't know other insurance coverage has to take your pre-existing conditions now. Have more insurance companies here.
- Difficult to hear. Did a nice job-just too soft. Give examples or scenarios. Don't read to us. Most of us miss the July 1, 2015 deadline.
- A microphone or sound system would have been nice for this presentation--hard to hear with equipment moving in hallway and with the air exchange running. Good to hear what is available once we turn 65 but most of us miss the July 1, 2015.
- Confused, if PERS is discontinuing…why so much time spent on it. It didn't pertain to us.
- More great info.
- Very soft spoken. You are selling product but don't sound convincing.
- Will not be retired by July 2015 so the info wasn't helpful to me.
- Maybe the problem is that it's the end of the day☺ - however, it seems like much of this we could just read ourselves (premiums, etc.) and the majority of those present seem not to qualify for the PERS before 65 anyway.
- Good practical information, and insurance is still the reason most of us are still working so long. Both had fine presentations. Nice to hear other options.
- Quiet voice.

3. GOVERNMENT HEALTH CARE CHANGES

Excellent	Above Average	Average	Poor	No Answer
27	27	5		13

- Couldn't hear the person sometimes when he discussed questions during this session.
- Presenter had an excellent presentation.
- Representative was very informed and educated.
- Very knowledgeable. Explained very well. Very informed.
- Excellent presentation. Very informative. Handout will be beneficial.
- More great info.
- Gal was good and very informative.
- Much of this info was new to me. I learned many things - Thanks!
- The information on Medicare & supplemental insurance provided "stress relief".
- Moved quickly, covered what was necessary.
- Presenter was great.
- Valuable information on ACA!

4. SOCIAL SECURITY AND MEDICARE

Excellent	Above Average	Average	Poor	No Answer
41	21	9	1	

- Very helpful - great speaker - easy to understand.
- Very good info & presentation.
- Very informative.
- Excellent on info - above average on presenting. Repeat the questions asked before answering--we cannot hear what the person is asking.
- Was knowledgeable and presented information so it was easy to understand.
- Good information, just too long.
- Very knowledgeable but bounced around with his presentation - a thought entered his mind & he dwelled on it then came back to original. He did have some "light humor" that kept us awake.
- Very useful learning!
- My head's spinning - good info.
- Very informative. Good examples of options. Entertaining personality - easy to listen to. Great

website information. Confused on when to apply for Medicare Part B. Now? Answered OK.
- Excellent overview of SSA website, I will be checking out the retirement calculator/planner when I get home? Very energetic presentation!
- Very clear and easily understood.
- Enjoyable! I like his humor. Great info provided.
- Great, fun speaker. Lots of good information.
- Difficult to follow. You are too fast in giving important information. SS should not be a secret.
- Really like the info on figuring retirement amount.
- The information on Medicare & supplemental insurance provided "STRESS RELIEF".
- Presenter gives the facts in a very entertaining fashion. Ton of info in a short period of time.
- Great website info.

5. FINANCIAL PLANNING

Excellent	Above Average	Average	Poor	No Answer
45	21	6		

- Wonderful.
- Lots of useful information to think about - very knowledgeable presenter!
- Wow! What a great job! He informed us just the way it is-not sugar coating it but presenting facts as a part of life. He is a good financial planner/advisor.
- Very useful learning.
- Great info - great reading materials. Excellent speaker!
- Excellent! I learned a lot! (Knew **nothing** before.) Logical, well-informed. Wow!!!
- Well prepared and very knowledgeable, great handouts for us to refer to when we go home.
- Good information given--really like that it was general information.
- Interesting.
- Loved the handouts & good examples and articles to read.
- Good basic information.
- Appreciated that he gave us a lot of information without promoting Horace Mann.
- Good handouts.
- He might want to include more examples on benefits of 403b and keeping money in there or moving things to the Roth after retirement. Taxed and non-taxed annuity situations.

6. ESTATE PLANNING

Excellent	Above Average	Average	Poor	No Answer
59	10	3		

- Well spoken.
- Lots of information worth thinking about.
- Very informative about legal aspects that you haven't thought about.
- Awesome information for something that we generally don't think/plan for much.
- Super job. Very informed presentation. It made us think how much we have to do within a short period of time. She did learn from her presentation how careful she must use her fingers when addressing choices!! ☺
- Clear & coherent as promised!
- Fabulous!
- Very informative. Easy to understand. She told me a lot I wasn't aware of.
- Super estate tips. I have work to do to protect our assets. Thank you!
- Detailed information to help us prepare for the future & to help us with our parents & their estates/life directives.
- Explained very well, very good examples, great lawyer.
- Wonderful job by presenter! Great info.
- This was fantastic! I learned so much!
- Useful and explained in down to earth terms. Thank you!
- Much of this information was new to me.

- Informative.
- Stimulus overload!!!

7. PLEASE RATE THE OVERALL SEMINAR

Excellent	Above Average	Average	Poor	No Answer
49	21	2		

- Very helpful! Nice to get all this info in one place at one time.
- Every teacher should be attending this within the first 10 years of their career.
- Very informative and valuable!
- Info is helpful.
- I learned a lot from the speakers. Great choice of topics presented. I'm glad to receive the information in the binder.
- An excellent seminar that everyone needs to hear 3 to 5 years **before** retiring.
- Excellent! Very useful - new updated info.
- Lots of valuable information!
- Great variety of topics & interesting issues.

8. DO YOU FEEL THAT ATTENDANCE AT THIS SEMINAR WAS TIME WELL SPENT?

Yes	No	No answer
72		

9. WOULD YOU RECOMMEND THIS SEMINAR TO OTHERS?

Yes	No	No answer
72		

10. WILL ATTENDANCE TODAY MOTIVATE YOU TO TAKE ACTION RELATIVE TO YOUR RETIREMENT PLANNING?

Yes	No	No answer
72		

If yes, what action will you take?

- I will use the timeline that was handed out to get the ball rolling towards my retiring.
- Look into options and start paperwork.
- Redo will.
- Check into health insurance prior.
- Make individual appointment with you! Get my finances in order.
- Insurance and financial and estate planning.
- My husband and I will have to start discussions!
- Update will/Check TFFR info on printout end of year/Check Social Security online/Need to make living will and medical power of attorney.
- Make an individual appointment to make informed decisions.
- Get an individual appointment to find out specific info.
- 1. Start getting papers organized. 2. Contact lawyer for will.
- Estate planning.
- Check to see that we have the things we need, update our will, designate power of attorney.
- Organize applications/documents etc., take care of updating will and look into estate planning.
- P-L-A-N-N-I-N-G!
- Update info.
- Initiate better financial planning.
- For the most part, but still have huge concerns about insurance.
- Estate planning.
- Change beneficiaries, check on insurance.
- Check on school district's policy - re: retirement policy

- Get the paperwork started.
- Seek more info.
- Schedule a meeting with our insurance agent & financial planner, look at our deed, will, etc.
- We need to get our estate planning set up!
- Begin developing a plan!
- Collect financials together and organize.
- Estate planning.
- I would like to retire as soon as possible as an instructor, but to continue working part-time in the areas I like to stay in with education. Part-time is for me - now.
- Get information together on financial planning, try to live on retirement income **prior** to retirement, get to a lawyer.
- Estate planning.
- Review all accounts, check for "joint tenant status" & beneficiaries - get paperwork & info organized - find a lawyer for estate planning - fill out health directives, etc.
- Crunch numbers - Can I afford to retire? Visit our attorney and fill out forms to avoid probate.
- Complete medical directive and will. Check out Medicare coverage.
- Power of attorney. Transfer beneficiary.
- Review info. Make budget.
- Get our estate in order. Look at our finances & see when we can retire.
- Check all accounts for beneficiaries. Discuss wills, POA's, trusts, etc.
- Review documents.
- Make sure deed titles read accurately, designate alternates, add contingency beneficiaries, take care of non-real estate issues (pay on death & transfer on death).
- Most notably with the estate planning documents.
- Estate planning.
- We will be contacting our lawyer to update our forms.
- A pre-retirement meeting with our financial planner and get the wills done.
- *Decide which pension option. *Get estate planning in order.
- Updating deeds - adding contingent beneficiaries - go online & make Social Security account - get a Power of Attorney, health care directive, & will. Make a life estate deed.
- Estate planning.
- Finish will updates, lots of conversations with spouse.
- Get organized.
- Invest more.
- Make a decision very soon. Helpful information especially for estate planning after retirement.

11. WAS THE LENGTH OF THE PROGRAM APPROPRIATE?

Yes	No	No answer
71		2

If not, how long should the program be?

- I like the way you stayed on schedule.
- Very long /so much info!
- Packed -- but better than 2 days!
- Perfect for one day 8:30 a.m. - 4:00 p.m.

12. WAS THE TIME OF THE PROGRAM CONVENIENT (FULL DAY - SUMMER)?

Yes	No	No answer
72		

If not, what would be a better time?

- Summer is a great time or a Saturday from October through April.
- Perhaps move it up earlier in the year (April-May) when negotiations are in place or contracts are out for consideration.

13. DO YOU HAVE ANY SUGGESTIONS FOR FUTURE PROGRAMS?

- Great job!
- Well done! Thank you! ☺
- Very good - thank you.
- Very well organized! Terrific binder! PowerPoint was excellent! Great job!
- All sessions: use a microphone. 1st session: Presenters could sit towards back rather than up front to assist with those that have questions and make more room up front for attendees.
- Tylenol available for when our heads explode!
- Social Security needs to cut info down - a lot of repeat & individual info presented.
- Snacks were great. 75 minute presentations are acceptable but long if speaker is only average. Also consider 3 sites each year for seminars across ND - perhaps 3 sites for even years and 3 new sites during odd years in ND (Fargo-Minot-Bismarck Group 1) (Grand Forks-Dickinson-Williston or Jamestown Group 2) or any other combination.
- Thank you!
- Binder with info is great. Difficult to hear some questions from audience.
- During the day offer a break (30 minutes). After the presenters give their presentation have a small group breakdown of areas - for even more personal questions concerning insurance, social security benefits. Sample process--step by step of retirement procedure--and people who have gone through it--that can relay on to people--Here is a methodology that works with timelines, processes, and possible pitfalls & conflicts to contend with.
- Healthy snacks - name tags or introductions
- Everything was extremely valuable! Thank you.
- Bring in lunch or longer break since we were so far out.
- Absolutely excellent!
- Charge $10.00. Provide lunch and talk as we eat would be another option.
- Warm up the room a bit!
- Very informative.
- Lunch hour should be off-set from "busy time" when you have to drive a distance to get to a place to eat (or perhaps a listing of eating establishments that are easy to get to and have fast service). I wouldn't mind paying for a meal brought into the seminar.
- Longer lunch time -- or not at 12:00. Give map where fast options - or provide lunch for a charge. Use sound system. **GREAT SESSION!**
- All 5 areas covered were necessary & useful. I would have liked more info time on insurance.
- Great job! I think this was all so relevant! Thanks for letting us bring spouses-very helpful!
- Grand Forks? :-)

Retirement 101
Evaluation
Grand Forks
September 30, 2014

Members Present 25
Evaluations Returned 14

Please rate the overall program.

Excellent	Above Average	Average	Poor	No Answer
7	7			

- Very well organized and easy to follow
- Great info - wish this was offered to my older colleagues
- The speaker was very well prepared and competent about the subject area. She was friendly and willing to answer questions.
- Good, helpful program overall
- Great information & explanations. She was willing to answer any questions.

What did you like best about the program?

- Organized
- Handouts linked to the powerpoint was great.
- Very informative! You explained a very complicated subject in a very clear manner.
- Handouts - Benefit estimate, glossary
- Good & concise info
- Wealth of info
- A folder prepared specifically for me; printed handouts for notes.
- Clear, concise information with examples
- My own numbers provided to compare to the info presented.
- Lots of good information
- All the literature about my plan
- Honest and direct information
- Very informative - makes one look at the future
- The step by step examples to make the confusing parts more understandable

What did you like least about the program?

- A lot of info in short time
- All good.
- I'm just tired at the end of a school day-but I don't know when you'd have the meeting otherwise.
- Time constraint - wish it were longer
- Have more time to ask questions
- Nothing
- Meeting time-middle school gets out at 3:30. I had to have someone cover for me.
- A lot of info - quickly.
- Would have preferred one-on-one help
- Starting time-(contracted) school day ends at 4 pm for teachers; hard to get here on time.
- Nothing. Thank you!

Retirement 101

Was the length of the program appropriate (60 minutes)?

Yes	No	No Answer
13	1	

If not, how long should the program be?

- Could be 1 1/2 hours
- No longer than 1 hour

Do you have any suggestions for future programs?

- A warning about the tax penalties of pay out vs roll over
- Maybe a general invite would be helpful. I have other colleagues who would have been interested in this info session but they are more experienced and weren't invited.
- Offer for all teachers
- Should start after school instead of during last period
- So . . . The rule of 90 doesn't really exist if you hit 90 before age 60. ☹
- This should be offered every fall to new teachers.
- Change the meeting time! More people would be able to come.
- None - Thanks!
- Meet with teachers individually to discuss retirement
- None at this time. Thank you!
- Sometimes it is difficult to get to MSEC by 3:30 when we are teaching until 3 p.m. and trying to get everyting ready for the next day.

Retirement 101
Evaluation
Bismarck
February 4, 18, and 23, 2015

Members Present 130
Evaluations Returned 64

Please rate the overall program.

Excellent	Above Average	Average	Poor	No Answer
48	15	1		

- Presenter was very organized and thorough about explaining retirement benefits.
- You are awesome & explain things extremely **well.**
- Best training/information session I've had yet.
- She was great!
- I would like to get more information as it gets closer.
- It was nice to have this as a refresher! **Thank you!**
- Very informative. I enjoy this kind of thing, although some may not, I find it crucial.
- Very informative!
- Nice job! ☺
- I loved this presentation. It was so informative. I never understood the retirement prior.
- Thank you!
- Thank you. Thanks for the information (personal folder) and the presentation.
- Very clear & concise - covered all my questions.
- I appreciate the preparation of our own individualized sheets for the presentation. It brought meaning to the presentation.
- Great presentation that provided helpful information about TFFR.
- Thank you!
- Thanks for being so detailed in your explanations!
- Very helpful - Thank you.
- Good info!
- Very informative.
- Very good information.
- Presenter was very easy to understand and explained things well!
- Nice job.
- Great information. I liked to see where I sit and my projected retirement date and benefits.
- Very informative.

What did you like best about the program?

- It was an eye-opener.
- My numbers!!☺
- Now I get it . . . Very good PowerPoint.
- She was very easy to follow . . . Organized PowerPoint.
- How you were able to personalize it to me.
- I loved that you clarified TFFR - I have always been confused about it!
- Having numbers to look at.
- The concise overview - very effective presentation of the information. Thank you for the PowerPoint printout.
- Very informative, easy to understand.
- It was good to see where I am.

Retirement 101

- Knowing dates & dollar amounts
- Getting my specific information.
- Found out about retirement programs. I was uninformed on a lot of this.
- Very concise and informative.
- ALL!
- The explanation of all benefits. Very informative.
- I loved having our printouts with our individual information.
- To see **MY** benefits.
- Printout with personal account info.
- Handouts were very helpful. Went through different situations.
- Questions were answered as we went along. Great and organized handouts.
- It's all important info that needs to be given. Thanks for sharing!
- Comprehensive. Don't remember having most of this before today.
- Great information.
- I learned so much about retirement. Very personalized for me!
- Information was very clear.
- The individualized reports -- very helpful in planning!
- Really appreciated the print-out of the slideshow.
- Used words I could understand.
- So beneficial to understand this better. I think it was all great info!
- It explained the process of where my money goes and when I can retire!
- Thoroughness and variety of info covered.
- Looking at my own stats.
- The detailed explanations of everything. I also appreciated the individual printout.
- Personalized for each person. Very thorough information.
- Informative.
- Explanation of years of service and understanding Tier 1 non-grandfathered, and listing a contingent beneficiary.
- The breakdown on all of the info given - easy to follow/understand.
- Printouts of my plans and step-by-step explanation of how TFFR plans work; open communication/questions.
- Personal info, what to expect.
- Having information explained.
- The printouts.
- Information was well laid out.
- Explanation of plans available. Didn't know the last 5 yrs could be most income years.
- Thank you for the printouts and explaining things simply.
- Informative and thorough.
- Good info - clarified it for me.
- The specific numbers.
- The presentation and how my retirement is broken down.
- The handouts about my account.
- Slides & handout - account info.
- The account info and information shared was relevant.
- I like that I understand my retirement more.
- Explaining some of the terms & what they mean & examples of situations.
- Good info.
- Learning my options for the type of payments I can take.
- All good, excellent info.
- Personal folders.
- Great info & well explained.
- Personalized printouts - great description of options.

Retirement 101

- I like that we got our own personal retirement benefit estimate.

What did you like least about the program?

- Reality check.
- I didn't understand how you got some of the numbers and acronyms (ex. PLSO).
- Nothing! (5)
- I wish we would have heard this earlier - 1st year.
- Just nervous of what the future will be like at my retirement time--Ha!
- Is the monthly pension enough? Or do you recommend 401K's as well?
- It is just a "foreign" topic to me and I struggle to follow terms/meaning.
- The jargon-but the glossary was helpful. ☺
- Jargon - break it down.
- A little too fast.
- It was all good.
- Lots of information at once.
- Some words/vocabulary still unclear.
- There were terms used that I didn't completely understand.
- Lots to look at.
- Fast.
- The length of time until I can retire.
- All good.

Retirement 101

Was the length of the program appropriate (60 minutes)?

Yes	No	No Answer
62		2

If not, how long should the program be?

- Maybe more time for questions.
- 40-45 minutes.
- 45 minutes.

Do you have any suggestions for future programs?

- Wonderful!
- **All teachers should get this information!
- Perhaps a list of FAQ. It was all **Very** thorough!
- Very Good!!!
- Great job explaining this to someone that has no clue about retirement benefits. Thank you!
- No. Great!
- Thanks!
- Great info & very relevant.
- Nope. ☺
- I think this is needed to understand TFFR, so thank you!
- Excellent info! Thank you.
- You should give this presentation to all teachers, not just new teachers as this was very great info.
- No, GREAT JOB!
- Opportunities for other retirement info.
- Thank you! I really appreciated this!
- Great - Very well versed.
- More of a question and answer segment.
- Can you include prices to buy years?
- I liked the presentation and how it went.
- Maybe show an account slip on the big screen.
- Having the website available where we can enter our own scenarios would be neat. Glad its coming.
- Great job - well explained. Presenter was available for questions and is very well informed and a great help.
- I like that she is willing to stick around for further questions.

Business Manager Workshops
Annual Evaluation
2014-2015

Attendees 145
Evaluations 119

	Excellent	Above Average	Average	Poor
Was the subject material relevant to your needs and/or interests?	80	32	5	

Comments:

- All good as it's new to me.
- GASB information seemed less overwhelming than December info.
- Went very fast - lots of information.
- Thanks for destressing me about GASB 68. ☺

How knowledgeable, organized, and effective were the speakers?	103	16		

Comments:

- Look forward to you every year!
- Both know their stuff

How would you rate the NDRIO/TFFR website?	49	44	17	

Comments:

- I don't think I have gone out to website.
- I've enjoyed seeing the changes that have occurred.
- Not used yet.

How would you rate the service you receive from TFFR staff?	97	20		

Comments:

- Presenter is EXCELLENT!
- Not used yet.
- Always so helpful and understanding.
- Excellent **+**

	Yes	No
Have you ever referenced the TFFR Employer Guide?	98	18

Business Manager Workshops

Do you read the Briefly newsletter?

Yes	No
111	6

Comments:

- Sometimes.
- Not all at once though.
- Depends if I have time.
- Sometimes.
- Sometimes.
- 50% of the time

How could we serve you better? Other comments?

- Send out to employers better guidelines for TFFR contribution jobs.
- Keep up the good work & patience!!! ☺
- Great customer service -- Thanks!!
- No suggestions.
- More examples of scenarios in FAQ.
- Everyone at TFFR is amazing. Thank you for all the help whenever we call.
- Always helpful.
- THANK YOU FOR ALL YOU DO!!
- Always make boring, complicated info so much better! Thanks. ☺
- GASB 68 - we need "step-by-step cheat sheet" to complete requirements.
- More training for new business managers - seems like you are working on that.

How many years of experience do you have as a business manager?

- 0 - 3 years 27
- 4 - 10 years 25
- 10+ years 55

If less than 3 years, would you attend a 1/2 day TFFR training session at the TFFR office?

Yes	No
36	2

- FOR SURE ☺
- I'm sure my replacement will!
- Definitely!
- My replacement would be interested!
- Not winter driving!
- Maybe if at same time as other training sessions (NDASBM).

ND Retirement and Investment Office

State Investment Board
Teachers' Fund for Retirement

1930 Burnt Boat Drive
P.O. Box 7100
Bismarck, ND 58507-7100
Telephone 701-328-9885
Toll Free 800-952-2970
Fax 701-328-9897
www.nd.gov/rio

North Dakota State Investment Board Customer Satisfaction Survey

Each year the State Investment Board (SIB) conducts a customer satisfaction survey. The purpose of this annual survey is to determine how well the SIB, through the staff of the Retirement and Investment Office (RIO), is meeting the expectations of its clients. This survey is a part of the SIB's ongoing effort to be responsive to the needs of their clients and to continually improve the services that are provided.

Your feedback is very important to us. Please take a few minutes to complete our very brief customer satisfaction survey. Survey responses are due by August 1, 2015.

If you have any questions or concerns regarding the survey please contact Terra Miller Bowley, Supervisor of Audit Services at RIO, at 1.800.952.2970 or tmbowley@nd.gov.

ND Retirement and Investment Office

State Investment Board
Teachers' Fund for Retirement

1930 Burnt Boat Drive
P.O. Box 7100
Bismarck, ND 58507-7100
Telephone 701-328-9885
Toll Free 800-952-2970
Fax 701-328-9897
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North Dakota State Investment Board Customer Satisfaction Survey

1. Please help us measure our performance and identify areas for improvement by rating the service you received during fiscal year 2015 (July 1, 2014 - June 30, 2015). Please check the response which best reflects your experience.

	Excellent	Above Average	Average	Poor	N/A
Telephone Calls Handled Promptly and Professionally	○	○	○	○	○
Clarity and Effectiveness of Letters, Reports, and Presentations	○	○	○	○	○
Detail Provided on Reports	○	○	○	○	○
Delivery of High Quality Service	○	○	○	○	○
Accessibility	○	○	○	○	○
Efficiency	○	○	○	○	○
Knowledge of Investments	○	○	○	○	○

2. How can the State Investment Board (SIB) and/or Retirement and Investment Office staff (RIO) better meet your expectations and improve the services currently being offered?

MEMORANDUM

TO: **TFFR Board**

FROM: **Fay Kopp**

DATE: **July 16, 2015**

SUBJ: **Trustee Education**

Here are some dates and information for upcoming pension trustee educational opportunities. If you are interested in attending any conferences or training programs, please contact Fay or Bonnie.

National Council on Teacher Retirement (NCTR)			Plans to Attend
Trustee Workshop	July 26-29, 2015	Cambridge, MA	Mike Burton
Annual Conference	Oct. 10-15, 2015	LaJolla, CA	Mel Olson

- **Callan College**

Intro to Investments	Oct. 27-28, 2015	Chicago, IL
Annual Conference	Jan. 25-27, 2016	San Francisco, CA

- **International Foundation of Employee Benefit Plans (IFEBP)**

2015 IFEBP Public Employee Programs Schedule.

Enclosures

NASRA Issue Brief:
Public Pension Plan Investment Return Assumptions

Updated May 2015

As of December 31, 2014, state and local government retirement systems held assets of $3.78 trillion.[1] These assets are held in trust and invested to pre-fund the cost of pension benefits. The investment return on these assets matters, as investment earnings account for a majority of public pension financing. A shortfall in long-term expected investment earnings must be made up by higher contributions or reduced benefits.

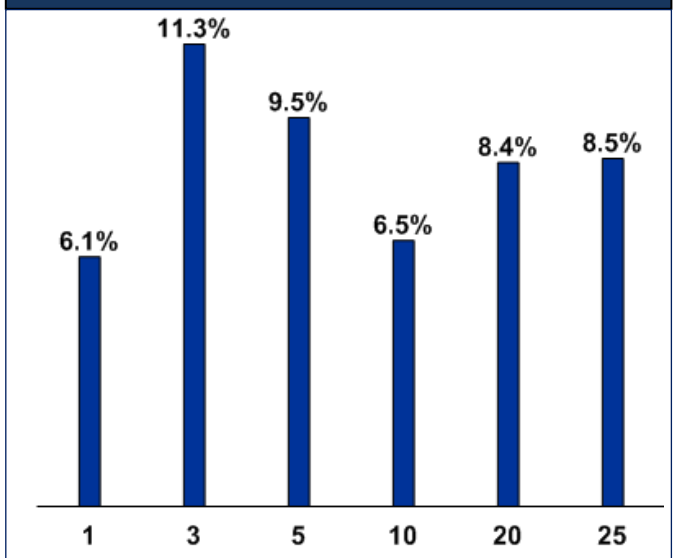
Funding a pension benefit requires the use of projections, known as actuarial assumptions, about future events. Actuarial assumptions fall into one of two broad categories: demographic and economic. Demographic assumptions are those pertaining to a pension plan's membership, such as changes in the number of working and retired plan participants; when participants will retire, and how long they'll live after they retire. Economic assumptions pertain to such factors as the rate of wage growth and the future expected investment return on the fund's assets.

As with other actuarial assumptions, projecting public pension fund investment returns requires a focus on the long-term. This brief discusses how investment return assumptions are established and evaluated, and compares these assumptions with public funds' actual investment experience.

Some critics of current public pension investment return assumption levels say that current low interest rates and volatile investment markets require public pension funds to take on excessive investment risk to achieve their assumption. Because investment earnings account for a majority of revenue for a typical public pension fund, the accuracy of the assumption has a major effect on the plan's finances and actuarial funding level.

An investment return assumption that is set too low will overstate liabilities and costs, causing current taxpayers to be overcharged and future taxpayers to be undercharged. A rate set too high will understate liabilities, undercharging current taxpayers, at the expense of future taxpayers. An assumption that is significantly wrong in either direction will cause a misallocation of resources and unfairly distribute costs among generations of taxpayers.

Figure 1: Median public pension annualized investment returns for period ended 12/31/2014



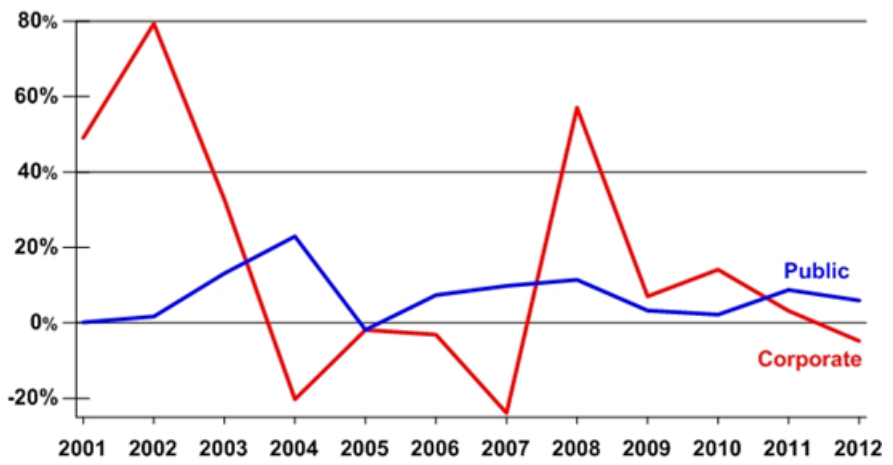
Source: Callan Associates

Although public pension funds, like other investors, experienced sub-par returns in the wake of the 2008-09decline in global equity values, median public pension fund returns over longer periods meet or exceed the assumed rates used by most plans. As shown in Figure 1, the median annualized investment return for the 3-, 5-, 20- and 25-year periods ended December 31, 2014, exceeds the average assumption of 7.68 percent (see Figure 5), while the 10-year return is below this level.

[1] Federal Reserve, *Flow of Funds Accounts of the United States: Flows and Outstandings, Fourth Quarter 2014*, Table L.118

Public retirement systems typically follow guidelines set forth by the Actuarial Standards Board to set and review their actuarial assumptions, including the expected rate of investment return. Most systems review their actuarial assumptions regularly, pursuant to state or local statute or system policy. Actuarial Standards of Practice No. 27 (Selection of Economic Assumptions for Measuring Pension Obligations) (ASOP 27) prescribes the considerations actuaries should make in setting an investment return assumption. As described in ASOP 27, the process for establishing and reviewing the investment return assumption involves consideration of various financial, economic, and market factors, and is based on a very long-term view, typically 30 to 50 years. A primary objective for using a long-term approach in setting public pensions' return assumption is to promote stability and predictability of cost to ensure intergenerational equity among taxpayers.

Figure 2: Annual change in contributions from prior year, corporate vs. public pensions

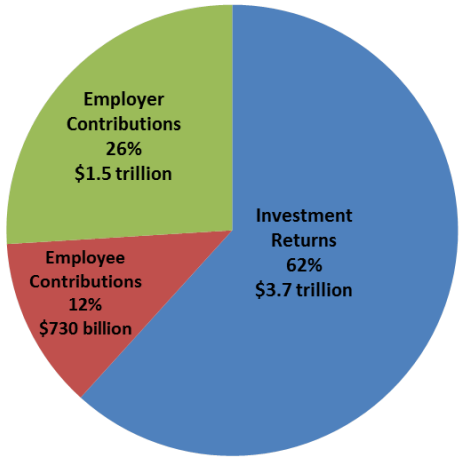


Source: Compiled by NASRA based on U.S. Department of Labor and U.S. Census Bureau data

Unlike public pension plans, corporate plans are required by federal regulations to make contributions on the basis of current interest rates. As Figure 2 shows, this method results in plan costs that are volatile and uncertain, often changing dramatically from one year to the next. This volatility is due in part to fluctuations in interest rates and has been identified as a leading factor in the decision among corporations to abandon their pension plans. By focusing on the long-term and relying on a stable investment return assumption, public plans experience less volatility of costs.

As shown in Figure 3, since 1984, public pension funds have accrued an estimated $5.9 trillion in revenue, of which $3.7 trillion, or 62 percent, is estimated to have come from investment earnings. Employer contributions account for $1.5 trillion, or 26 percent of the total, and employee contributions total $730 billion, or 12 percent.[2]

Figure 3: Public Pension Sources of Revenue, 1984-2013



Source: Compiled by NASRA based on U.S. Census Bureau data

Public retirement systems operate over long timeframes and manage assets for participants whose involvement with the plan can last more than half a century. Consider the case of a newly-hired public school teacher who is 25 years old. If this pension plan participant elects to make a career out of teaching school, he or she may work for 35 years, to age 60, and live another 25 years, to age 85. This teacher's pension plan will receive contributions for the first 35 years and then pay out benefits for another 25 years. During the entire 60-year period, the plan is investing assets on behalf of this participant. To emphasize the long-term nature of the investment return assumption, for a typical career employee, more than one-half of the investment income earned on assets accumulated to pay benefits is received *after* the employee retires.

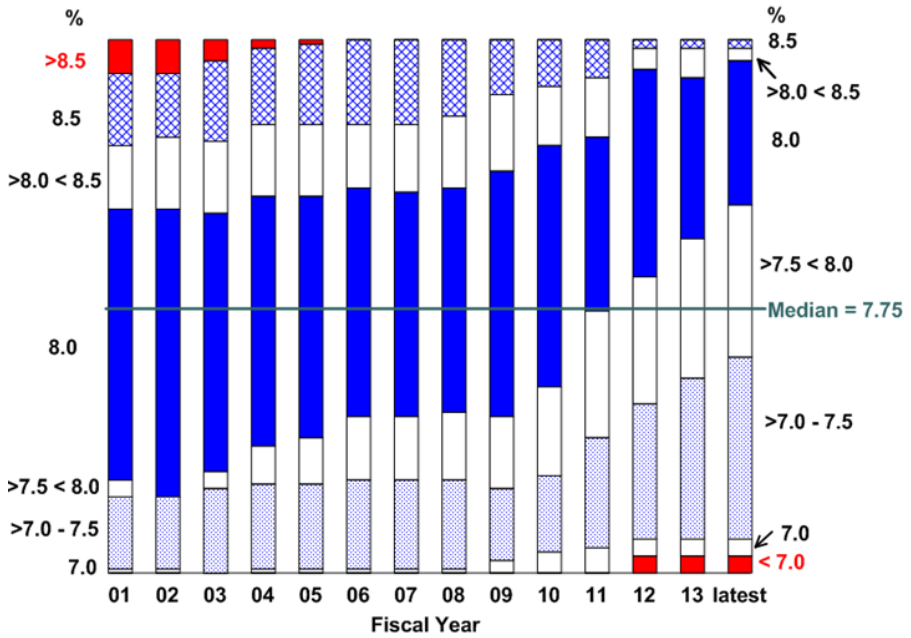
[2] US Census Bureau, Annual Survey of Public Pensions, State & Local Data

The investment return assumption is established through a process that considers factors such as economic and financial criteria; the plan's liabilities; and the plan's asset allocation, which reflects the plan's capital market assumptions, risk tolerance, and projected cash flows.

Standards for setting an investment return assumption, established and maintained by professional actuaries, recommend that actuaries consider a range of specified factors, including current and projected interest rates and rates of inflation; historic and projected returns for individual asset classes; and historic returns of the fund itself. The investment return assumption reflects a value within the projected range.

As shown in Figure 4, many public pension plans have reduced their return assumption in recent years. Among the 126 plans measured in the Public Fund Survey, more than one-half have reduced their investment return assumption since fiscal year 2008. The average return assumption is 7.68 percent. Appendix A details the assumptions in use or adopted by the 126 plans in the Public Fund Survey.

Figure 4: Change in distribution of public pension investment return assumptions, FY 01 through May 2015

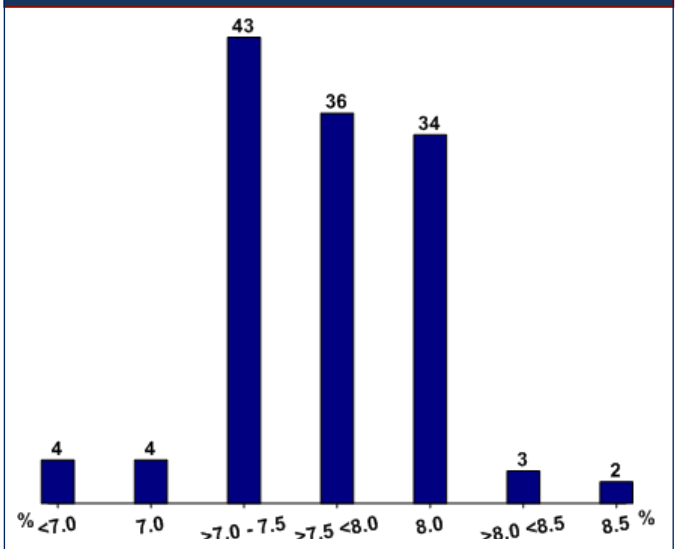


Source: Compiled by NASRA based on Public Fund Survey

Conclusion

Over the last 25 years, a period that has included three economic recessions and four years when median public pension fund investment returns were negative, public pension funds have exceeded their assumed rates of investment return. Changes in economic and financial conditions are causing many public plans to reconsider their investment return assumption. Such a consideration must include a range of financial and economic factors while remaining consistent with the long timeframe under which plans operate.

Figure 5: Distribution of investment return assumptions



Source: Compiled by NASRA based on Public Fund Survey, May 2015

See Also:

- Actuarial Standards of Practice No. 27, Actuarial Standards Board
- The Liability Side of the Equation Revisited, Missouri SERS, September 2006
- The Public Fund Survey is sponsored by the National Association of State Retirement Administrators (registration required).

Contact:

Keith Brainard, Research Director, keith@nasra.org
Alex Brown, Research Manager, alex@nasra.org
National Association of State Retirement Administrators

Appendix A: Investment Return Assumption by Plan

(Figures reflect the nominal assumption in use, or announced for use, as of May 2015)

Plan	Rate (%)
Alaska PERS	8.00
Alaska Teachers	8.00
Alabama ERS	8.00
Alabama Teachers	8.00
Arkansas PERS	7.75
Arkansas Teachers	8.00
Arizona Public Safety Personnel	7.85
Arizona SRS	8.00
Phoenix ERS	7.50
California PERF	7.50
California Teachers	7.50
Contra Costa County	7.25
LA County ERS	7.50
San Diego County	7.75
San Francisco City & County	7.50
Colorado Affiliated Local	7.50
Colorado Fire & Police Statewide	7.50
Colorado Municipal	7.50
Colorado School	7.50
Colorado State	7.50
Denver Employees	8.00
Denver Public Schools	7.50
Connecticut SERS	8.00
Connecticut Teachers	8.50
DC Police & Fire	6.50
DC Teachers	6.50
Delaware State Employees	7.20
Florida RS	7.65
Georgia ERS	7.50
Georgia Teachers	7.50
Hawaii ERS	7.75
Iowa PERS	7.50
Idaho PERS	7.00
Chicago Teachers	7.75
Illinois Municipal	7.50
Illinois SERS	7.25
Illinois Teachers	7.50
Illinois Universities	7.25
Indiana PERF	6.75
Indiana Teachers	6.75
Kansas PERS	8.00
Kentucky County	7.75
Kentucky ERS	7.75
Kentucky Teachers	7.50
Louisiana SERS	7.75
Louisiana Teachers	7.75
Massachusetts SERS	7.75
Massachusetts Teachers	7.75
Maryland PERS[1]	7.65
Maryland Teachers[1]	7.65
Maine Local	7.13
Maine State and Teacher	7.13
Michigan Municipal	8.00
Michigan Public Schools	8.00
Michigan SERS	8.00
Duluth Teachers	8.00
Minnesota PERF	8.00
Minnesota State Employees	8.00
Minnesota Teachers[2]	8.40
St. Paul Teachers	8.00
Missouri DOT and Highway Patrol	7.75
Missouri Local	7.25
Missouri PEERS	8.00
Missouri State Employees	8.00
Missouri Teachers	8.00
St. Louis School Employees	8.00
Mississippi PERS	8.00
Montana PERS	7.75
Montana Teachers	7.75
North Carolina Local Government	7.25
North Carolina Teachers and State Employees	7.25
North Dakota PERS	8.00
North Dakota Teachers	8.00
Nebraska Schools	8.00
New Hampshire Retirement System	7.75
New Jersey PERS	7.90
New Jersey Police & Fire	7.90
New Jersey Teachers	7.90
New Mexico PERF	7.75

New Mexico Teachers	7.75
Nevada Police Officer and Firefighter	8.00
Nevada Regular Employees	8.00
New York City ERS	7.00
New York City Teachers	8.00
New York State Teachers	8.00
NY State & Local ERS	7.50
NY State & Local Police & Fire	7.50
Ohio PERS	8.00
Ohio Police & Fire	8.25
Ohio School Employees	7.75
Ohio Teachers	7.75
Oklahoma PERS	7.50
Oklahoma Teachers	8.00
Oregon PERS	7.75
Pennsylvania School Employees	7.50
Pennsylvania State ERS	7.50
Rhode Island ERS	7.50
Rhode Island Municipal	7.50
South Carolina Police	7.50
South Carolina RS	7.50
South Dakota PERS[3]	7.25
TN Political Subdivisions	7.50
TN State and Teachers	7.50

City of Austin ERS	7.75
Houston Firefighters	8.50
Texas County & District	8.00
Texas ERS	8.00
Texas LECOS	8.00
Texas Municipal	7.00
Texas Teachers	8.00
Utah Noncontributory	7.50
Fairfax County Schools	7.50
Virginia Retirement System	7.00
Vermont State Employees[4]	8.10
Vermont Teachers[4]	7.90
Washington LEOFF Plan 1[5]	7.90
Washington LEOFF Plan 2	7.90
Washington PERS 1[5]	7.90
Washington PERS 2/3[5]	7.90
Washington School Employees Plan 2/3[5]	7.90
Washington Teachers Plan 1[5]	7.90
Washington Teachers Plan 2/3[5]	7.90
Wisconsin Retirement System	7.20
West Virginia PERS	7.50
West Virginia Teachers	7.50
Wyoming Public Employees	7.75

1. The Maryland State Retirement Agency Board of Trustees began, with the actuarial valuation dated June 30, 2013, a phased reduction in the assumption used for its PERS and Teachers plans from 7.75 percent, by .05% each year until reaching 7.55.

2. The Minnesota Legislature is responsible for setting the investment return assumption for plans in the state. Legislation approved in 2015 established a rate of 8.0 percent for all plans except the TRA, which is using a select and ultimate rate pending completion of an actuarial experience study. For more information on select-and-ultimate rates, please see Actuarial Standards of Practice No. 27: http://www.actuarialstandardsboard.org/pdf/asops/asop027_145.pdf.

3. The SDRS set the rate at 7.25% through FY 2017, after which the rate will rise to 7.50% unless the SDRS board takes action otherwise.

4. The Vermont retirement systems adopted select-and-ultimate rates in 2011; the rates shown reflect the single rates most closely associated with the funding results for the respective plans, based on their projected cash flows.

5. For all Washington State plans except LEOFF Plan 2, the assumed rate of return will be reduced to 7.8% on July 1, 2015, and to 7.7% on July 1, 2017.

Center for State & Local Government Excellence

Issue Brief

The Funding of State and Local Pensions: 2014–2018

June 2015

Most public pension plans have improved their funded status in 2014 with the ratio of assets to liabilities for the 150 plans in publicplansdata.org increasing from 72 percent in 2013 to 74 percent in 2014. If the stock market continues to perform well, most plans will be over 80 percent funded in 2018, authors Alicia H. Munnell and Jean-Pierre Aubry estimate.

There are two reasons for the 2014 improvements, according to their analysis:

- Positive stock market performance for the last five years, allowing the year of negative equity returns in 2009 to be replaced in plans that smooth their market gains and losses over five years; and
- Higher payments of the required annual contribution by state and local governments increasing to 88 percent in 2014 compared to 82 percent in 2013

While plan sponsors continue to use traditional actuarial calculations to determine their annual funding requirements, all plans also are reporting the market valuation of assets as required by the Governmental Accounting Standards Board Statement 67. Because 2014 had strong stock market performance, plans show higher asset values with year-end market valuations than with the traditionally smoothed actuarial valuations.

Seven plans in the 150 plan sample adopted the GASB 67 blended rate in 2014. As none of the seven plans had been 100 percent funded, the new accounting calculations resulted in an overall ratio of assets to liabilities that is lower than would have been reported under GASB 25 accounting standards.

For state and local governments and their employees, the most important measure of progress is the trend in plan funding according to actuarial valuations. For a short summary of the differences in pension calculations used for accounting purposes, bond ratings, and budgets, see Understanding New Public Pension Funding Guidelines and Calculations.

The Center for State and Local Government Excellence gratefully acknowledges the financial support from ICMA-RC to undertake this research project.

Elizabeth K. Kellar

Elizabeth K. Kellar
President and CEO
Center for State and Local Government Excellence

The Funding of State and Local Pensions: 2014-2018

By Alicia H. Munnell, Jean-Pierre Aubry*

Introduction

The year 2014 was always going to be a pivotal one for the funded status of public pension plans because, under the old GASB 25 accounting standards, the disastrous stock market performance of 2009 rotates out of the smoothing calculations for the majority of plans that use a five-year averaging period. But 2014 also became pivotal because it was the first year that plan sponsors reported under GASB's new accounting standards for their financial disclosures. The new GASB 67 standards involve two major changes. First, assets are reported at market value rather than actuarially smoothed. Second, in cases when assets are projected to fall short of future benefits, liabilities are valued using a "blended" discount rate.

Although GASB standards apply to financial reporting only, when GASB 25 was in effect, most plans also used the same standards for funding purposes. Under GASB 67, however, plans are now using separate standards for reporting and funding. For reporting in their financial documents, all plans in our sample that have released 2014 data adopted the market valuation of assets as required by GASB 67, but only seven plans determined it necessary to use a significantly lower blended discount rate. For funding purposes (i.e. in plans' actuarial valuations), they maintained the traditional approach used under GASB 25 of using smoothed assets and expected long-run returns for discounting. This *brief* focuses on the data used in plans' actuarial valuations because they provide the basis for historical comparisons and for funding decisions.

The discussion is organized as follows. The first section reports that the ratio of assets to liabilities for the 150 plans in the *Public Plans Database (PPD)* increased from 72 percent in 2013 to 74 percent in 2014. The second section shows that the required contribution increased from 17.8 percent to 18.6 percent of payrolls, while the percentage of required contributions paid increased from 82 percent to 88 percent. The third section revalues liabilities and recalculates funded ratios using the riskless rate, as advocated by most economists for *reporting* – as opposed to funding – purposes. The fourth section projects funded ratios for our sample plans for 2015-18 under two economic scenarios. The fifth section briefly describes the information reported in the financial statements under the new GASB standards. The final section concludes that, if plans achieve their assumed returns, the public pension landscape should continue to improve over the next few years.

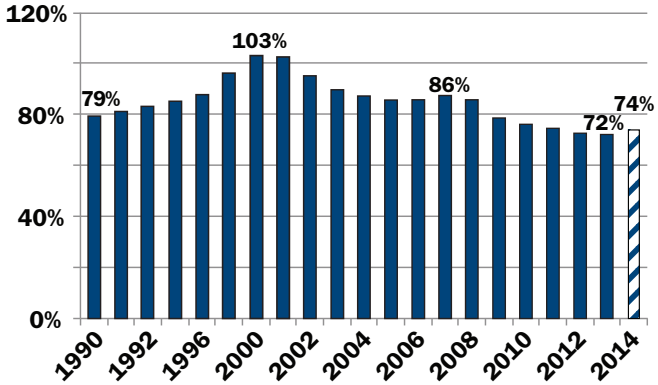
Funded Status in 2014

In fiscal year (FY) 2014, the estimated aggregate ratio of assets to liabilities for our sample of 150 state and local pension plans was 74 percent under GASB's old standards (see Figure 1 on the next page).[1] (The ratio for each individual plan appears in the Appendix).

Because only about two thirds of our sample of 150 plans had reported their funded levels by early June 2015, the 2014 aggregate figure involves some projections. As in previous years, for those plans without 2014 valuations, assets are projected on a plan-by-plan basis using the detailed process described in the valuations.[2] This process resulted in a complete set of plan funded ratios for FY 2014. In the aggregate, the actuarial value of assets amounted to $3.2 trillion and liabilities amounted to $4.3 trillion, producing the funded

* Alicia H. Munnell is director of the Center for Retirement Research at Boston College (CRR) and the Peter F. Drucker Professor of Management Sciences at Boston College's Carroll School of Management. Jean-Pierre Aubry is the assistant director of state and local research at the CRR. The authors thank Christine Manuelo and Joseph Prestine for extraordinary data collection efforts. The authors thank David Blitzstein, Keith Brainard, Steven Kreisberg and Ian Lanoff for helpful comments.

Figure 1. *State and Local Pension Funded Ratios under GASB 25 Standards, FY 1990-2014*

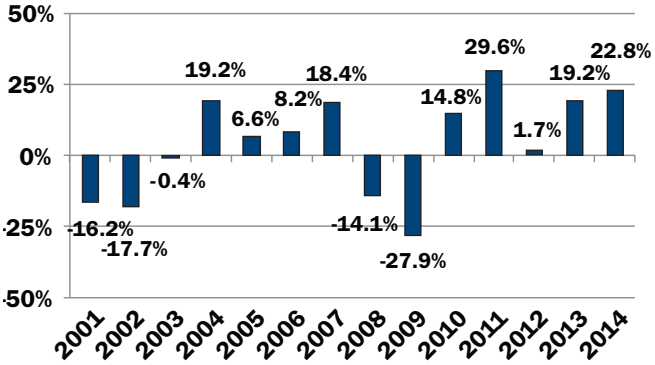


Note: 2014 involves projections for about one third of plans.
Sources: 2014 actuarial valuations; *Public Plans Database* (PPD) (2001-2014); and Zorn (1990-2000).

ratio of 74 percent.

The funded ratio rose because asset values increased faster than liabilities. Not only was 2014 a strong year for the stock market, but the terrible 2009 performance of the market was rotated out of the smoothing calculations (see Figure 2). These two changes boosted smoothed asset values by 7 percent. Since liabilities grew by only 4.5 percent in 2014, below their historical rate of 5.6 percent, funding rose.

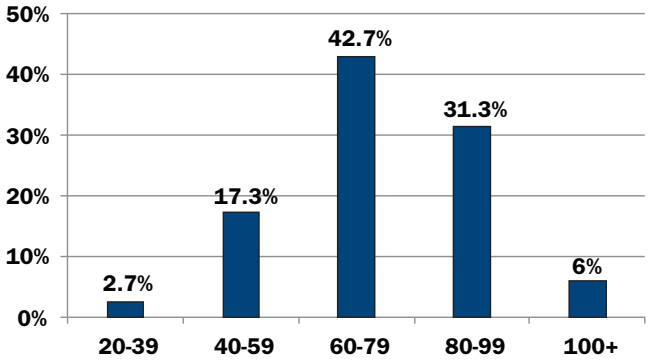
Figure 2. *Percent Change in Wilshire 5000 Index, FY 2001-2014*



Source: Wilshire Associates (2015).

In 2014, as in earlier years, funded levels among plans varied substantially. Figure 3 shows the distribution of funding for the sample of 150 plans. Although

Figure 3. *Distribution of Funded Ratios for Public Plans, FY 2014*



Source: 2014 actuarial valuations; and authors' calculations from the PPD (2014).

many of the poorly funded plans are relatively small, several large plans, such as those in Illinois (SERS, Teachers, and Universities) and Connecticut (SERS), had funded levels below 50 percent.

The ADEC (Formerly the ARC)

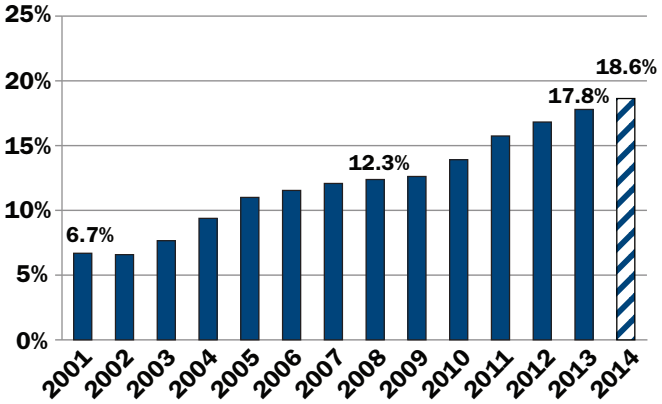
The new GASB standards replaced the Annual Required Contribution (ARC) with the Actuarially Determined Employer Contribution (ADEC). Unlike with assets and liabilities, plans do not seem to be maintaining two sets of required-contribution numbers – one for the actuarial valuation and one for the financial statements – but rather have shifted to using the ADEC for both purposes.

While both the ARC and ADEC are meant to capture the employer's "required contribution" to keep the plan on a steady path toward full funding, the two concepts differ slightly. First, while GASB 25 limited the range of allowable assumptions and methods that could be used to calculate the ARC, GASB 67 places no limitation on the calculation of the ADEC. Second, for the few plans that use a statutory contribution rate, GASB allows for the ADEC to reflect the statutory contribution rather than an actuarially calculated contribution. While conceptually these differences could cause a discontinuity between the ARC and ADEC, in practice they do not appear to be consequential. For the plans in our database, the ARC and ADEC are nearly identical; most plans have continued to use the same methods and assumptions they became accustomed to under the old GASB standards, and the few plans with a statutory rate have continued to report an actuarially determined

contribution rather than the statutory rate. Thus, it is possible to extend our prior ARC series using the ADEC for 2014 forward.

Both the ARC and the ADEC equal the normal cost—the present value of the benefits accrued in a given year—plus a payment to amortize the unfunded liability, generally over 20-30 years. These measures have increased because the financial crisis led to higher unfunded liabilities and thereby a higher amortization component of the calculation. In 2014, the ADEC was 18.6 percent of payroll, up sharply from 2013 (see Figure 4).

Figure 4. *Required Contribution as a Percentage of Payroll, FY 2001-2014*



Note: The measure for 2001-2013 is the ARC; the measure for 2014 is the ADEC. The 2014 value involves projections for about one third of plans.

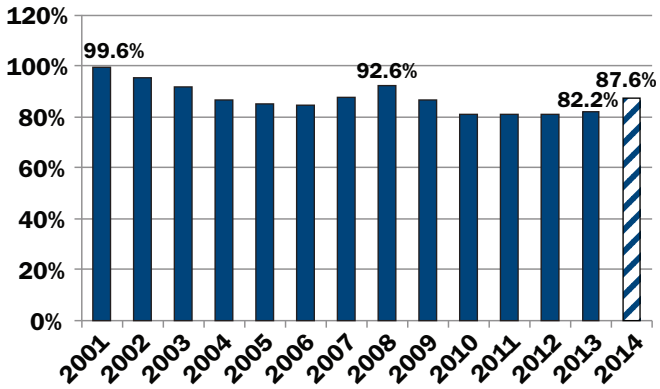
Sources: 2014 actuarial valuations; and PPD (2001-2014).

The increase in required contributions over the past several years began just as the recession eroded state and local government revenues. As a result, states and localities cut back on their pension contributions. As revenues have started to recover, sponsors are paying an increasing share of their required contribution, rising to 88 percent in 2014 (see Figure 5). Hopefully, this trend will continue as the economy improves, mirroring the pattern of decline and recovery evident in the wake of the bursting of the dot.com bubble at the turn of the century.

Liabilities Valued at Riskless Rate

The funded ratios presented above reflect assets reported on an actuarially smoothed basis and a

Figure 5. *Percentage of Required Contribution Paid, FY 2001-2014*

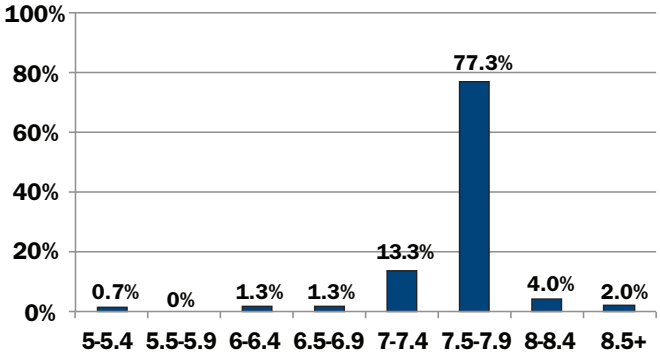


Note: The measure for 2001-2013 is the ARC; the measure for 2014 is the ADEC. The 2014 value is authors' estimate.

Sources: 2014 actuarial valuations; and PPD (2001-2014).

discount rate equal to the long-run expected rate of return, which has moved from around 8.0 percent to 7.6 percent in 2014 (see Figure 6). These ratios have been challenged by financial economists who argue that—*for reporting purposes*—future streams of payment should be discounted at a rate that reflects their risk.[3]

Figure 6. *Distribution of Discount Rates for Public Plans under GASB 25, FY 2014*



Sources: 2014 actuarial valuations; and PPD (2001-2014).

Table 1 (see page 6) shows the value of total liabilities and unfunded liabilities for our sample of 150 plans under different interest rates. As noted, in 2014—calculated under a typical discount rate of 7.6 percent—the aggregate liability was $4.3 trillion and, given assets

Table 1. *Aggregate State and Local Pension Liabilities under Alternative Discount Rates, 2014, Trillions of Dollars*

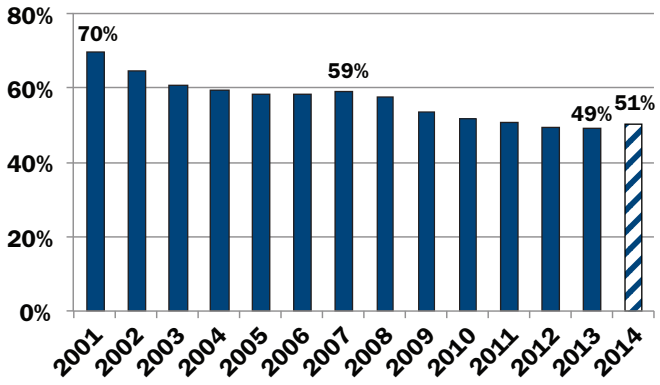
Measure	Discount rate				
	7.6%	7%	6%	5%	4%
Total Liability	$4.3	$4.9	$5.5	$6.3	$7.1
Assets	$3.2	$3.2	$3.2	$3.2	$3.2
Unfunded liability	$1.1	$1.7	$2.3	$3.1	$3.9

Source: Various 2014 actuarial valuations; and authors' calculations from the *Public Plans Database* (2014).

of $3.2 trillion, the unfunded liability was $1.1 trillion. A discount rate of 5 percent—a close approximation to the riskless rate—raises public sector liabilities to $6.3 trillion and the unfunded liability to $3.1 trillion.[4] In the end, required contributions to fund future benefits will depend on actual investment returns, not the discount rate used to calculate liabilities.

Recalculating the liabilities for each plan at 5 percent in 2014 produces a funded ratio of 51 percent: $3.2 trillion in actuarial assets compared to $6.3 trillion in liabilities. The 2014 ratio of 7.6-percent liability to 5-percent liability was applied retroactively to derive funded ratios for earlier years (see Figure 7).

Figure 7. *State and Local Funded Ratios with Liabilities Discounted by Riskless Rate, FY 2001-2014*



Note: Authors' estimates.

Source: 2014 actuarial valuations; and PPD (2001-2014).

Looking Beyond 2014

Future funded levels depend on three factors: cash flows (contributions and benefits), the growth in liabilities, and the performance of the stock market. Both contributions and benefits rise slowly over time, so their average growth for the period 2015-2018 is assumed to equal their average growth over 2001-14.[5] Growth in liabilities, which will likely be restrained by the long-term benefit cutbacks enacted in recent years, is assumed to hold steady at the 2014 level of 4.5 percent.[6]

Public pensions currently hold more than half of their assets in equities and about 70 percent in risky assets. While most plans assume portfolio returns of 7.6 percent nominal (implying nominal stock returns are at least 9.6 percent), many investment firms—such as Bridgewater, Goldman Sachs, and GMO—project nominal returns for a balanced portfolio of between 4 and 5 percent.[7] To address uncertainty about the future performance of plan assets, projections are made under two scenarios. The baseline is designed to yield an overall return on portfolios close to that assumed by most plans. The alternative scenario assumes portfolio returns are 3 percent below plans' assumed return—4.6 percent nominal.

The projected funded ratios are shown in Table 2. After 2014, if plans achieve their assumed return, funded ratios keep climbing, as asset growth continues to exceed assumed liability growth. If, instead, returns are at the lower rates predicted by the investment firms, funding grows for the next year and then levels off.

Table 2. *Projected Funded Ratios for FY 2015-18 under Two Scenarios for Asset Returns*

Year	Baseline	Alternative
2014 (actual)	73.7%	73.7%
2015	77.5%	77.4%
2016	78.6%	77.8%
2017	79.7%	77.9%
2018	80.5%	77.3%

Source: Authors' projections.

GASB 67

The new GASB 67 standards involve two major changes relating to the valuation of assets and liabilities used to measure reported funded ratios. First, assets are reported at market value rather than actuarially smoothed. Second, projected benefit payments are discounted by a combined rate that reflects the expected return for the portion of liabilities that is projected to be covered by plan assets and the return on high-grade municipal bonds for the portion that is to be covered

by other resources.[8] It was always unclear the extent to which discount rates would really change for reporting purposes, and in fact only seven plans in our sample reduced their rates by more than 50 basis points (see Table 3).

Table 3. *Plans Adopting a Significantly Lower GASB 67 Blended Rate, 2014*

	Rate		Funded Status	
Plan	Actuarial	GASB 67	Actuarial	GASB 67
Duluth Teachers	8.0%	5.4%	56.9%	46.8%
Kentucky Teachers	7.5%	5.2%	53.6%	45.6%
New Jersey PERS	7.9%	5.4%	60.9%	42.7%
New Jersey Police & Fire	7.9%	6.3%	72.6%	58.9%
New Jersey Teachers	7.9%	4.7%	54.0%	33.6%
Texas ERS	8.0%	6.1%	77.2%	63.4%
Texas LECOS	8.0%	5.7%	73.2%	56.4%

Note: A number of other plans, such as IL SERS and IL SURS, have reduced their rate by less than 50 basis points.

Sources: 2014 actuarial valuations; and PPD (2014).

Even though market assets were greater than actuarially smoothed assets for some of these plans in FY 2014, lowering the discount rate reduced the funded status for all the plans. Until more is understood about the adoption of GASB 67, our updates will continue to focus on assets and liabilities reported in the actuarial valuations.

Conclusion

The year 2014 was a year of big change. A strong stock market and the elimination of 2009 from the smoothing process led to a sharp increase in actuarial assets and to the first improvement in the funded status of public sector plans since the financial crisis. What happens from here on out depends very much on the performance of the stock market. In 2018, assuming plans achieve their expected return, they should be 81 percent funded. If returns are lower, as predicted by many investment firms, funding will stabilize at about 77 percent.

2014 was also the first year that GASB's new provisions took effect for financial reporting. Under these provisions, funded ratios were based on market values, and seven plan—those with assets projected to be insufficient to cover future benefits—adopted a significantly lower blended rate to calculate liabilities. As a result, the overall ratio of assets to liabilities for these plans was lower under the new standards.

For understanding the long-term trends in plan funding, however, we believe that it makes more sense to continue to focus on the numbers calculated for funding purposes.

Endnotes

1 The sample represents about 90 percent of the assets in state-administered plans and 30 percent of those in plans administered at the local level.

2 For plans without published 2014 actuarial valuations, we estimated the percent change in actuarial assets between 2013 and 2014, calculated according to the plan's own methodology, and applied that change to its published 2013 GASB level of actuarial assets. Liabilities are projected based on the average rate of growth for plans already reporting. The initial estimates of assets and liabilities were then sent to the plan administrators, and any suggested alterations were incorporated.

3 The analysis of choice under uncertainty in economics and finance identifies the discount rate for riskless payoffs with the riskless rate of interest. See Gollier (2001) and Luenberger (1997). This correspondence underlies much of the current theory and practice for the pricing of risky assets and the setting of risk premiums. See Sharpe, Alexander, and Bailey (2003); Bodie, Merton, and Cheeton (2008); and Benninga (2008).

4 Just what constitutes the riskless rate is a subject of debate. See Munnell et al. (2010) for the rationale for our choice of 5 percent.

5 The focus here is on contributions, where growth remains fairly steady, rather than on the percentage of required contributions paid, which is more variable.

6 See Munnell et al. (2013). From 2001-2013, liabilities have grown an average of 5.6 percent annually. In 2013, liabilities grew by 4.1 percent in aggregate. For the 90 or so plans that did report in 2014, liabilities grew by 5.0 percent. For the remaining plans, we assume a 4-percent growth rate, resulting in aggregate liability growth of 4.5 percent for 2014.

7 GMO (2015); Goldman Sachs (2014).

8 In addition, the entry age normal/level percentage of payroll would be the sole allocation method used for reporting purposes (roughly three-quarters of plans already use this method).

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Appendix

Ratio of Assets to Liabilities for State/Local Plans 2001, 2004, 2007-2013, and 2014 Estimates[A]

Plan name	2001	2004	2007	2008	2009	2010	2011	2012	2013	2014
Alabama ERS	100.2	89.7	79.0	75.7	72.2	68.2	65.8	65.7	65.7	69.5*
Alabama Teachers	101.4	89.6	79.5	77.6	74.7	71.1	67.5	66.5	66.2	70.1*
Alameda County Employee's Retirement Association	105.8	82.1	89.2	83.9	81.2	77.5	76.6	73.9	75.9	79.2*
Alaska PERS	100.9	70.2	77.8	78.8	63.0	62.4	61.9	57.1	54.5	57.1*
Alaska Teachers	95.0	62.8	68.2	70.2	57.0	54.3	54.0	49.9	48.1	50.2*
Arizona Public Safety Personnel	126.9	92.4	66.4	68.8	70.0	67.7	63.7	60.2	58.7	49.2
Arizona SRS	115.1	92.5	83.3	82.1	79.0	76.4	75.5	75.3	75.4	76.3
Arizona State Corrections Officers	140.0	104.8	84.6	90.3	86.4	83.8	76.6	70.7	66.9	57.3
Arkansas PERS	105.6	88.7	89.1	89.7	78.0	74.1	70.7	68.9	74.3	77.8
Arkansas Teachers	95.4	83.8	85.3	84.9	75.7	73.8	71.8	71.2	73.3	77.3
Boston Retirement Board[B]	70.3	63.3	67.6	59.3	60.2	63.1	61.4	61.9	59.5	60.9*
California PERF	111.9	87.3	87.2	86.9	83.3	83.4	82.6	83.1	75.2	75.8*
California Teachers	98.0	82.5	88.8	87.3	78.2	71.5	69.3	67.2	66.9	68.5
Chicago Municipal Employees	93.3	72.0	69.1	64.2	58.1	50.8	45.2	37.6	37.0	40.9
Chicago Police	70.5	55.9	51.5	48.3	44.5	40.4	36.2	31.3	29.7	29.2*
Chicago Teachers	100.0	85.8	80.1	79.4	73.3	66.9	59.7	53.9	49.5	51.5
City of Austin ERS	96.4	80.8	78.3	65.9	71.8	69.6	65.8	63.9	70.4	70.9
Colorado Municipal	104.3	77.2	81.2	76.4	76.2	73.0	69.3	74.5	73.1	77.2*
Colorado School	98.2	70.1	75.5	70.1	69.2	64.8	60.2	62.1	60.3	63.6*
Colorado State	98.2	70.1	73.3	67.9	67.0	62.8	57.7	59.2	57.5	60.6*
Connecticut Municipal	109.3	102.9	103.7	103.3	88.9	88.4	88.3	85.0	87.5	92.3*
Connecticut SERS	63.1	54.5	53.6	51.9	N/A	44.4	47.9	42.3	41.2	41.5
Connecticut Teachers	N/A	65.3	N/A	70.0	N/A	61.4	N/A	55.2	N/A	59.0
Contra Costa County	87.6	82.0	89.9	88.4	83.8	80.3	78.5	70.6	76.4	79.7*
Cook County Employees	88.9	70.9	77.3	72.6	63.2	60.7	57.5	53.5	56.6	57.5*
Dallas Police and Fire	84.5	80.8	89.4	78.4	81.9	79.5	74.0	78.1	75.6	74.2*
DC Police & Fire	N/A	N/A	101.0	99.8	100.7	108.0	108.6	110.1	110.1	107.3
DC Teachers	N/A	N/A	111.6	108.2	110.8	118.3	101.9	94.4	90.1	88.6
Delaware State Employees	112.4	103.0	103.7	103.1	98.8	96.0	94.0	91.5	91.1	92.3
Denver Employees	99.5	99.1	98.2	91.8	88.4	85.0	81.6	76.4	76.4	75.5**
Denver Schools	96.5	88.2	87.7	84.3	88.3	88.9	81.5	84.0	81.2	85.7*
Duluth Teachers	107.6	91.8	86.8	82.1	76.5	81.7	73.2	63.4	54.0	56.9
Fairfax County Schools	103.0	N/A	86.4	88.0	76.9	75.6	76.4	75.6	75.4	77.1*
Florida RS	117.9	112.1	105.6	105.3	87.9	88.0	86.9	86.4	85.4	86.6
Georgia ERS	101.7	97.6	93.0	89.4	85.7	80.1	76.0	73.1	71.4	72.8**
Georgia Teachers	103.9	100.9	94.7	91.9	89.9	85.7	84.0	82.3	81.1	81.9
Hawaii ERS	90.6	71.7	67.5	68.8	64.6	61.4	59.4	59.2	60.0	61.4
Houston Firefighters	112.9	88.2	91.1	95.6	95.4	93.4	90.6	87.0	86.6	90.4*
Idaho PERS	96.2	91.0	104.9	92.8	73.7	78.6	89.9	84.4	85.0	92.7
Illinois Municipal	106.4	94.3	96.1	84.3	83.2	83.3	83.0	84.3	87.6	92.4*
Illinois SERS	65.8	54.2	54.2	46.1	43.5	37.4	35.5	34.7	34.2	33.7
Illinois Teachers[C]	59.5	61.9	63.8	56.0	52.1	48.4	46.5	42.1	40.6	40.6

continued

Plan name	2001	2004	2007	2008	2009	2010	2011	2012	2013	2014
Illinois Universities	72.1	66.0	68.4	58.5	54.3	46.4	44.3	42.1	41.5	42.3
Indiana PERF	105.0	100.1	98.2	97.5	93.1	85.2	80.5	76.6	80.2	82.4
Indiana Teachers[D]	43.0	44.8	45.1	48.2	41.9	44.3	43.8	42.7	45.7	48.1
Iowa Municipal Fire and Police	N/A	84.2	87.2	89.7	85.6	81.1	78.2	73.7	73.9	77.8
Iowa PERS	97.2	88.6	90.2	89.1	81.2	81.4	79.9	79.9	81.0	82.7
Kansas PERS	88.3	75.2	69.4	70.8	58.8	63.7	62.2	59.2	59.9	63.6*
Kentucky County	141.0	101.0	80.1	77.1	70.6	65.5	62.9	60.0	59.5	61.9
Kentucky ERS	125.8	85.8	58.4	54.2	46.7	40.3	35.6	29.7	25.8	23.9
Kentucky Teachers	90.8	80.9	71.9	68.2	63.6	61.0	57.4	54.5	51.9	53.6
Kern County Employees Retirement Association	103.3	93.6	75.7	72.3	66.1	62.7	60.8	60.5	61.1	60.8
LA County ERS	100.0	82.8	93.8	94.5	88.9	83.3	80.6	76.1	75.0	79.5
Los Angeles City Employees' Retirement System	108.1	82.5	81.7	84.4	79.5	75.9	72.4	69.0	68.7	67.4
Los Angeles Fire and Police	118.9	103.0	99.2	99.1	96.2	91.6	86.3	83.7	83.1	86.6
Los Angeles Water and Power	109.9	97.3	91.9	95.1	90.0	81.5	80.3	78.1	78.8	80.9
Louisiana Municipal Police	101.1	72.9	89.1	86.9	65.2	59.9	58.1	59.8	64.2	68.1
Louisiana Schools	103.0	75.8	80.0	76.6	65.5	61.0	59.9	61.6	62.1	66.9
Louisiana SERS	74.2	59.6	67.2	67.6	60.8	57.7	57.6	55.9	60.2	59.3
Louisiana State Parochial Employees	N/A	93.5	96.9	96.0	96.9	97.2	97.6	86.8	92.5	99.1*
Louisiana Teachers	78.4	63.1	71.3	70.2	59.1	54.4	55.1	55.4	56.4	57.4
Maine Local	108.2	112.1	113.6	112.7	102.5	96.3	93.5	88.8	88.4	91.2
Maine State and Teacher	73.1	68.5	74.1	74.1	67.7	66.0	77.6	77.0	77.7	81.4
Maryland PERS	102.2	91.2	79.5	77.2	63.9	62.8	62.8	62.5	63.3	65.9
Maryland Teachers	95.3	92.8	81.1	79.6	66.1	65.4	66.3	65.8	67.1	70.7
Massachusetts SRS	91.8	83.9	85.1	89.4	71.6	76.5	81.0	73.8	69.1	70.3
Massachusetts Teachers	79.2	69.6	71.0	73.9	58.2	63.0	66.3	60.7	55.7	56.3
Michigan Municipal	84.3	76.7	77.3	75.1	75.5	74.5	72.6	71.4	71.7	71.4*
Michigan Public Schools	96.5	83.7	88.7	83.6	78.9	71.1	64.7	61.3	59.6	59.9
Michigan SERS	107.6	84.5	86.2	82.8	78.0	72.6	65.5	60.3	60.3	61.6
Milwaukee City ERS	137.2	116.7	131.2	99.1	112.8	104.4	96.0	90.8	94.8	100.8*
Minneapolis ERF	93.3	92.1	85.9	77.0	56.7	65.6	73.5	69.1	74.4	82.0
Minnesota GERF	87.0	76.7	73.3	73.6	70.0	76.4	75.2	73.5	72.8	73.5
Minnesota Police and Fire Retirement Fund	120.5	101.2	91.7	88.4	83.2	87.0	82.9	78.3	81.2	80.0
Minnesota State Employees	112.1	100.1	92.5	90.2	85.9	87.3	86.3	82.7	82.0	83.0
Minnesota Teachers	105.8	100.0	87.5	82.0	77.4	78.5	77.3	73.0	71.6	74.1
Mississippi PERS	87.5	74.9	73.7	72.9	67.3	64.2	62.2	58.0	57.7	61.0
Missouri DOT and Highway Patrol	66.1	53.4	58.2	59.1	47.3	42.2	43.3	46.3	46.2	49.2
Missouri Local	104.0	95.9	96.1	97.5	80.0	81.0	81.6	83.5	86.5	91.7
Missouri PEERS	103.1	82.7	83.2	82.5	80.7	79.1	85.3	82.5	81.6	85.1
Missouri State Employees	97.0	84.6	86.8	85.9	83.0	80.4	79.2	73.2	72.7	75.1
Missouri Teachers	99.4	82.0	83.5	83.4	79.9	77.7	85.5	81.5	80.1	82.8
Montana PERS	N/A	86.7	91.0	90.2	83.5	74.2	70.2	67.4	80.2	74.4
Montana Teachers	N/A	77.4	80.4	80.7	67.4	65.4	61.5	59.2	66.8	65.4
Nebraska Schools	87.2	87.2	90.5	90.6	86.6	82.4	80.4	76.6	77.1	82.7

Plan name	2001	2004	2007	2008	2009	2010	2011	2012	2013	2014
Nevada Police Officer and Firefighter	78.9	71.7	71.1	70.8	68.9	67.8	68.4	70.1	71.1	74.9*
Nevada Regular Employees	85.5	80.5	78.8	77.7	73.4	71.2	70.6	71.2	68.9	71.2*
New Hampshire Retirement System[E]	85.0	71.1	67.0	67.8	58.3	58.5	57.4	56.1	56.7	60.7
New Jersey PERS	117.1	91.3	76.0	73.1	64.9	69.5	66.8	63.6	62.1	60.9
New Jersey Police & Fire	100.8	84.0	77.6	74.3	70.8	77.1	75.0	74.3	73.1	72.6
New Jersey Teachers	108.0	85.6	74.7	70.8	63.8	67.1	62.8	59.5	57.1	54.0
New Mexico Educational	91.9	75.4	70.5	71.5	67.5	65.7	63.0	60.7	60.1	63.1
New Mexico PERA	105.4	93.1	92.8	93.3	84.2	78.5	70.5	65.3	72.9	75.8
New York City ERS	117.4	94.5	79.0	79.7	78.6	64.2	65.0	66.3	68.4	70.6*
New York City Fire	84.7	63.9	55.1	56.4	56.8	48.2	50.3	52.3	54.3	56.6*
New York City Police	104.5	80.1	68.9	70.8	71.3	60.1	61.1	63.7	66.8	70.5*
New York City Teachers	98.0	81.1	69.6	65.2	64.1	58.9	58.2	57.6	57.7	60.3*
New York State Teachers	125.0	99.2	104.2	106.6	103.2	100.3	96.7	89.8	87.5	89.6*
North Carolina Local Government[F]	99.3	99.3	99.5	99.5	99.6	99.5	99.6	99.8	99.8	99.8
North Carolina Teachers and State Employees[F]	112.8	108.1	106.1	104.7	99.3	95.9	95.4	94.0	94.2	94.8
North Dakota PERS	110.6	94.0	93.3	92.6	85.1	73.4	70.5	65.1	62.0	64.5
North Dakota Teachers	96.4	80.3	79.2	81.9	77.7	69.8	66.3	60.9	58.8	61.8
NY State & Local ERS	120.1	100.5	105.8	107.3	101.0	93.9	90.2	87.2	88.5	94.2*
NY State & Local Police & Fire	132.6	104.1	106.5	108.0	103.8	96.7	91.9	87.9	89.5	95.1*
Ohio PERS	102.6	87.6	96.3	75.3	75.3	79.1	77.4	80.9	82.4	83.8*
Ohio Police & Fire	92.7	80.9	81.7	65.1	72.8	69.4	63.1	64.2	66.7	66.2*
Ohio School Employees	95.0	78.1	80.8	82.0	68.4	72.6	65.2	62.8	65.3	68.1
Ohio Teachers	91.2	74.8	82.2	79.1	60.0	59.1	58.8	56.0	66.3	69.3
Oklahoma PERS	82.6	76.1	72.6	73.0	66.8	66.0	80.7	80.2	81.6	88.6
Oklahoma Police Pension and Retirement System	91.4	81.1	79.9	82.2	76.2	74.9	93.0	90.2	89.3	94.6
Oklahoma Teachers	51.4	47.3	52.6	50.5	49.8	47.9	56.7	54.8	57.2	63.2
Orange County ERS	94.7	70.9	74.1	71.3	68.8	69.8	67.0	62.5	66.0	69.2*
Oregon PERS	97.6	97.0	110.5	112.2	80.2	85.8	86.9	82.0	90.7	95.9
Pennsylvania Municipal Retirement System	N/A	105.6	105.9	106.1	103.8	102.4	103.8	99.1	98.4	99.3*
Pennsylvania School Employees	114.4	91.2	85.8	86.0	79.2	75.1	69.1	66.3	63.8	62.0
Pennsylvania State ERS	116.3	96.1	97.1	89.0	84.4	75.2	65.3	58.8	59.2	61.3*
Philadelphia Municipal Retirement System	77.5	59.8	53.9	55.0	45.0	45.4	47.3	45.8	47.4	45.8
Phoenix ERS	102.5	84.2	83.9	79.1	75.3	69.3	66.6	62.2	64.2	58.7
Rhode Island ERS	77.6	59.4	56.2	61.5	58.5	48.4	58.8	57.8	57.3	58.7
Rhode Island Municipal	118.1	93.2	90.3	92.8	88.3	73.6	84.3	82.5	82.1	84.1
Sacramento County ERS	107.7	93.3	93.4	93.2	86.0	87.7	87.0	83.3	82.8	85.2
San Diego City ERS	89.9	65.8	78.8	78.1	66.5	67.1	68.5	68.6	70.4	74.2
San Diego County	106.8	81.1	89.7	94.4	91.5	84.3	81.5	78.7	79.0	80.9
San Francisco City & County	129.0	103.8	110.2	103.8	97.0	91.1	87.7	82.6	80.6	85.3
South Carolina Police[G]	94.6	87.7	84.7	77.9	76.3	74.5	72.8	71.1	69.2	69.5**
South Carolina RS[G]	87.4	80.3	69.7	69.3	67.8	65.5	67.4	64.7	62.5	62.7**
South Dakota RS	96.4	97.7	97.1	97.2	91.8	96.3	96.4	92.6	100.0	100.0
St. Louis School Employees[H]	80.5	86.3	87.6	87.6	88.4	88.6	84.9	84.3	84.4	N/A

continued

Plan name	2001	2004	2007	2008	2009	2010	2011	2012	2013	2014
St. Paul Teachers	81.9	71.8	73.0	75.1	72.2	68.0	70.0	62.0	60.4	61.8
Texas County & District	89.3	91.0	94.3	88.6	89.8	89.4	88.8	88.2	89.4	95.3*
Texas ERS	104.9	97.3	95.6	92.6	89.8	85.4	84.5	82.6	79.6	77.2
Texas LECOS	131.6	109.3	98.0	92.0	89.7	86.3	86.4	82.0	73.3	73.2
Texas Municipal	85.0	82.8	73.7	74.4	75.8	82.9	85.1	87.2	84.1	85.8
Texas Teachers	102.5	91.8	89.2	90.5	83.1	82.9	82.7	81.9	80.8	80.2
TN Political Subdivisions	90.4	N/A	89.5	N/A	86.3	N/A	89.1	N/A	95.0	94.5*
TN State and Teachers	99.6	N/A	96.2	N/A	90.6	N/A	92.1	N/A	93.3	92.9*
University of California	147.7	117.9	104.8	103.0	94.8	86.7	82.5	78.7	75.9	80.0
Utah Noncontributory	102.8	92.3	95.1	86.5	85.7	83.8	80.1	77.4	82.0	83.0*
Utah Public Safety	100.8	88.3	90.7	81.6	80.6	77.1	75.4	73.0	79.3	80.4*
Vermont State Employees	93.0	97.6	100.8	94.1	78.9	81.2	79.6	77.7	76.7	77.9
Vermont Teachers	89.0	90.2	84.9	80.9	65.4	66.5	63.8	61.6	60.5	59.9
Virginia Retirement System[I]	107.3	90.3	82.3	84.0	80.2	72.4	69.9	65.8	65.9	69.6
Washington LEOFF Plan 2	154.4	116.9	128.8	133.5	127.9	119.0	118.7	119.0	114.6	117.4*
Washington PERS 2/3	179.1	134.4	119.9	118.7	116.3	112.7	111.6	111.3	102.3	103.0*
Washington School Employees Plan 2/3	197.0	136.9	126.1	120.8	115.7	112.5	110.2	109.9	101.9	102.8*
Washington Teachers Plan 2/3	197.4	152.6	130.4	125.4	118.2	115.5	113.4	114.1	104.9	107.2*
West Virginia PERS	84.4	80.0	97.0	84.2	79.7	74.6	78.4	77.6	79.7	83.1
West Virginia Teachers	21.0	22.2	51.3	50.0	41.3	46.5	53.7	53.0	57.9	66.2
Wisconsin Retirement System	96.5	99.4	99.6	99.7	99.8	99.8	99.9	99.9	99.9	104.7*
Wyoming Public Employees	103.2	96.0	94.0	78.6	87.5	84.6	81.9	78.6	77.6	81.0*

Note: Municipal agency plans such as Michigan Municipal and Illinois Municipal do not have a single funded ratio, as they are made up of individual retirement systems that each maintain their own liabilities and funded ratio. For these types of plans, the funded ratios reported above represent an aggregate of assets and liabilities of the individual systems.

* Numbers are authors' estimates.

** Received from plan administrator.

[A] Funded ratios may vary across plans because of the discount rate used to value liabilities. While the median discount rate is 7.75 percent, the rates range from 8.5 percent for Connecticut Teachers and 8.25 percent for Ohio Police and Fire, to 7.0 percent in Virginia, 6.75 percent for Indiana, and 5.5 percent in Pennsylvania Municipal.

[B] If you include the Commonwealth's share of the Boston Retirement System's actuarial liability, the plan was 59.5 percent funded in fiscal year 2014 (without the Commonwealth's share the plan was 70.2 percent funded).

[C] Through 2008, Illinois TRS funded ratio was based on the market value of assets. Beginning in 2009, the funded ratio was calculated using five-year smoothed actuarial assets.

[D] The reported funded ratios of the Indiana TRF are made up of two separately funded accounts: the pre-1996 account and the 1996 account. The pre-1996 account is for employees hired prior to 1996 and is funded under a pay-go schedule. The 1996 account is for employees hired afterwards and is pre-funded. The funded ratio for the pre-funded account is currently 96.1 percent. As expected, the pay-go account has a much lower funded ratio of 32.8 percent.

[E] Prior to 2007, the New Hampshire Retirement System used the Open Group Aggregate to calculate its funded ratio. Beginning in 2007, the entry age normal (EAN) was used.

[F] For North Carolina Local Government and North Carolina Teachers and State Employees, data are as of December 31st of the previous year. For example, the funded ratio reported for 2014 is the funded ratio as of December 31, 2013.

[G] The 2011 funded ratios for South Carolina Police and RS are calculated based on the plan design features and actuarial methods in place prior to the passing of Act 278.

[H] For St. Louis School Employees, data are as of the Jan. 1 actuarial valuation of the following calendar year. For example, the funded ratio reported for 2014 is the funded ratio as of Jan. 1, 2015.

[I] The funded ratios presented represent the "VRS" plan only for the state employees, teachers and political subdivisions. They do not reflect the information in the other plans – SPORS, JRS and VaLORS.

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DOES MORTALITY DIFFER BETWEEN PUBLIC AND PRIVATE SECTOR WORKERS?

*By Alicia H. Munnell, Jean-Pierre Aubry, and Geoffrey T. Sanzenbacher**

Introduction

Defined benefit plans pay pension benefits from retirement until death. Thus, the longer workers live, the higher the expense for the plan. On average, states and localities *assume* their workers will live slightly than longer private sector workers.[1] This *brief* asks a simple question: do state and local workers *actually* live longer on average than their private sector counterparts? If so, why?

The discussion proceeds as follows. The first section explains the nature and limitations of the available data – the *National Longitudinal Mortality Study*. The second section presents the percentage of public and private sector workers ages 55-64 who died within either an 11-year period or a separate 6-year period after being interviewed. The third section uses regression analysis to assess how various factors impact the likelihood of dying. The final section concludes that public sector workers – especially women – do live longer than their private sector counterparts and that most of the difference can be explained by the higher education levels of public sector workers.

The National Longitudinal Mortality Study

The analysis uses the *National Longitudinal Mortality Study* (NLMS) to analyze public versus private sector mortality. This study is sponsored by the National Institute on Aging, the Center for Health Statistics, and the Census Bureau. The NLMS links demographic data from the *Current Population Survey* (CPS) to death certificates, providing a way to study how a person's characteristics may relate to his death.

More specifically, the data in this *brief* come from a publicly available version of the NLMS – the *NLMS Public Use Microdata Sample* (NLMS PUMS) – which

**Alicia H. Munnell is director of the Center for Retirement Research at Boston College (CRR) and the Peter F. Drucker Professor of Management Sciences at Boston College's Carroll School of Management. Jean-Pierre Aubry is assistant director of state and local research at the CRR. Geoffrey T. Sanzenbacher is a research economist at the CRR.*

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is designed to protect respondents' confidentiality. Each observation in the NLMS PUMS has a subset of the demographic variables that are collected through the CPS when an individual enters the sample. If the individual dies, each observation contains a subset of information from the person's death certificate (including age of death). The death certificate data are collected at the end of the individual's "follow-up period" – either 11 years or 6 years after the CPS data were collected depending on the NLMS PUMS data year.

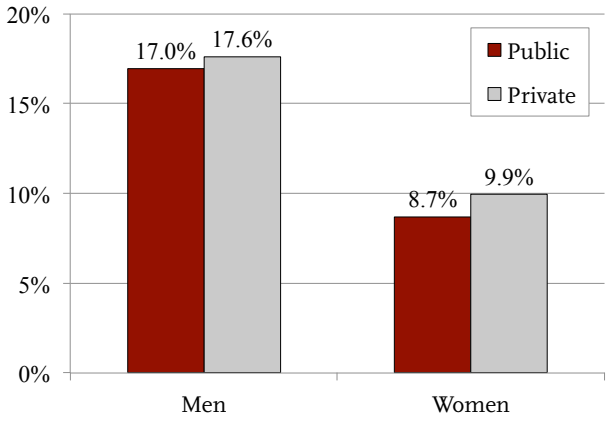
The NLMS PUMS differs from the full NLMS in two main ways that affect our analysis. First, the NLMS PUMS does not include the CPS survey year in which the individual was first observed. Instead, the NLMS PUMS creates three separate samples of CPS respondents that are representative of the U.S. population at particular times. The first two samples are from the early 1980s and are constructed to be representative of the U.S. population as of April 1, 1983. One of these samples has an 11-year follow-up period and the other just a 6-year follow-up. The third sample is from the early 1990s and is constructed to represent the U.S. population as of April 1, 1993. This 1993 sample has a 6-year follow-up period.

The second difference between the full NLMS and the NLMS PUMS is that the latter includes only a subset of CPS variables. Importantly, the NLMS PUMS does not differentiate between state and local workers and federal workers. The analysis below reflects both these restrictions – that is, the analysis is performed only for 1983 and 1993 and combines federal and state and local workers.[2]

Do Public Sector Workers Have Lower Mortality?

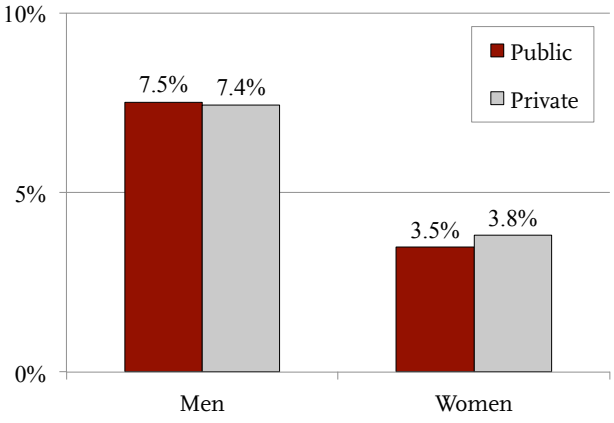
To compare the mortality of public and private sector workers, the NLMS PUMS samples described above were restricted to 55-64 year olds working at the time the CPS data were collected. It is necessary to restrict the sample to working individuals in order to determine whether the individual was a public or private sector employee. Once these samples are constructed, it is simple to tabulate mortality rates by gender and examine the percentage of individuals who died in the survey follow-up periods. Figure 1A shows the results for the 1983 sample with an 11-year follow-up period and Figure 1B shows the results combining the 1983 and 1993 samples with 6-year follow-up periods.

Figure 1A. 11-year Mortality Rates for 55-64 Year Old Workers, 1983 NLMS PUMS



Source: Authors' calculations from the NLMS PUMS, 1983 Sample (11-year follow-up).

Figure 1B. 6-year Mortality Rates for 55-64 Year Old Workers, 1983 and 1993 NLMS PUMS



Sources: Authors' calculations from the NLMS PUMS, 1983 Sample (6-year follow-up) and 1993 Sample.

Figure 1A supports the notion that public sector workers live longer. Public sector men ages 55-64 were 0.6 percentage points less likely to die within 11 years (i.e., by the time they were ages 66-75) than private sector men. For women, the gap was larger – 1.2 percentage points.[3] Figure 1B has smaller differences overall and is less conclusive, perhaps because the follow-up period is shorter and differences have less time to develop. In any case, public sector men are slightly *more* likely to die during the 6-year follow up than private sector men, a reversal from the earlier pattern. For women, the earlier pattern is preserved.[4]

Why Do Public Sector Employees Have Lower Mortality?

The generally lower mortality rates shown in Figures 1A and 1B suggest an obvious question – why? It is tempting to develop a story around the nature of public sector work – perhaps it is somehow easier, less stressful, or more stable than private sector work or perhaps public sector workers have better health benefits and these factors lead to lower mortality.[5] The reality is somewhat more mundane: 1) public sector workers, on average, are more educated than private sector workers; and 2) more educated people have lower mortality. Table 1 illustrates the first fact by combining the three NLMS PUMS samples and tabulating rates of education by gender.

As Table 1 shows, public sector men are nearly twice as likely as private sector men to be college graduates and less likely to be high school dropouts. This pattern is even more pronounced for public sector women, who are four times more likely to be college graduates and much less likely to be high school dropouts than their private sector counterparts.[6]

Given these stark differences in educational attainment, it is important to determine how the mortality gap changes when controlling for educational differences between the two sectors. This exercise involves estimating six probit regressions – one set of three for men and one set of three for women – on the probability of dying for the 1983 11-year follow-up sample.[7] The 11-year sample was chosen for this analysis because of its lengthier follow-up time, which allows differences between the two sectors to develop. The first probit regression run for each gender included no controls, the second controlled for education only, and the third controlled for education and other factors (e.g., age, race/ethnicity, urban/rural residence, and occupation in police or fire).

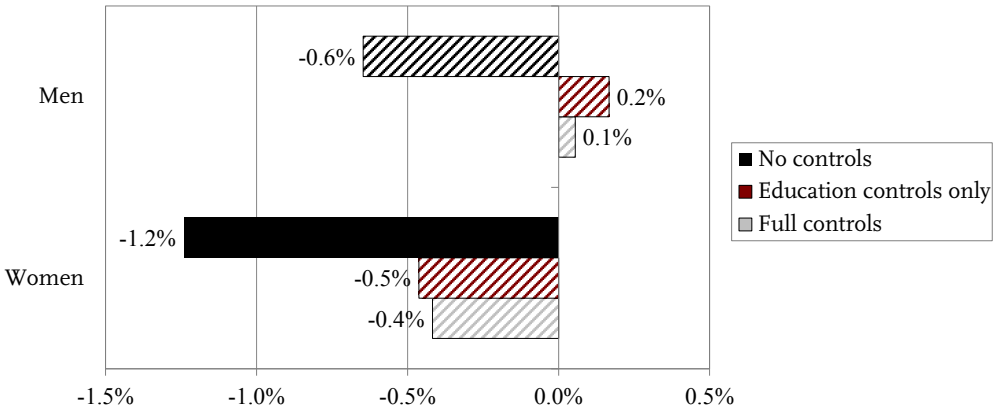
Figure 2 on the next page shows that, in the case of men, the 11-year mortality gap between public and private workers of 0.6 percentage point is not statistically significant, and introducing education controls turns the negative gap positive, albeit still not statistically significant. This positive difference is reduced when controls are introduced for those working in police and fire. In the case of women, 1.2 percent fewer public sector workers died over the 11-year period

Table 1. Public and Private Sector Workers Ages 55-64 by Educational Attainment, 1983 & 1993 NLMS PUMS

Level of education	Men		Women	
	Public sector	Private sector	Public sector	Private sector
Less than high school	23.6%	34.0%	15.0%	29.6%
High school only	31.8	35.6	40.0	48.3
Some college	13.3	13.7	16.7	14.5
4-year college degree	31.3	16.7	28.3	7.6
Observations	12,579	48,582	12,241	37,090

Source: Authors' calculations from the NLMS PUMS, 1983 Sample (11-year follow up), 1983 Sample (6-year follow-up), and 1993 Sample.

Figure 2. Percentage-Point Difference in 11-year Mortality between Public and Private Sector Workers, Ages 55-64



Note: Striped bars are not statistically significant.
Source: Authors' calculations from the NLMS PUMS, 1983 Sample (11-year follow-up).

than private sector workers, and the mortality gap was statistically significant. The second bar shows that controlling for differences in women's education dramatically reduces the 11-year mortality gap, and it is no longer statistically significant. Introducing further controls has a minimal effect on the difference for women. Figure 2 suggests that whether an individual is a public or private sector worker has little impact on their mortality; instead other individual characteristics drive the differences seen in Figures 1a and 1b.

Conclusion

The public sector takes care to align its mortality assumptions to the mortality experience of its members. In practice, this alignment results in assumptions that public sector workers live slightly longer than private sector workers. The data in the NLMS PUMS seem to support this idea – especially for women. The explanation for this lower mortality turns out to be relatively simple: the public sector tends to employ more educated workers on average than the private sector, and these workers are less likely to die over a given period. After controlling for education, the rates of mortality between public and private sector workers are comparable.

Endnotes

1 The average life expectancy at age 65 for men and women in the *Public Plans Database* (PPD) sample of 150 state and local pension plans is higher than that calculated under the IRS's most recently published tables for private plans. For more information on the mortality assumptions used by state and local plans, see Munnell, Aubry, and Cafarelli (2015).

2 About 80 percent of public sector workers are in state and local government.

3 For men, the difference is not statistically significant. For women, it is statistically significant at the 1-percent level.

4 Neither difference is statistically significant.

5 For information on the relative stability of public sector workers, see Munnell and Fraenkel (2013). For information on the quality of health benefits, see Munnell et al. (2011).

6 Although the share of high school dropouts may seem high and of college graduates low, it is worth remembering that the 1983 and 1993 samples of 55-64 year old workers were born from 1918-1928 and 1928-1938, respectively. These birth cohorts have low rates of educational attainment compared to more recent birth cohorts.

7 The full regression results are in the Appendix.

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APPENDIX

Appendix

Three probit regressions were run for each gender. The first probit regression included no controls, the second controlled for education only, and the third controlled for education and other factors (e.g., age, race/ethnicity, urban/rural residence, and occupation in police or fire). Table A1 includes summary statistics for the variables in these regressions.

Table A1. Summary Statistics for Variables in 11-year Mortality Probit Regressions

	Males	Females
Age	58.7	58.7
Education		
Less than high school	33.2%	27.3%
High school only	35.0	46.5
Some college	12.9	14.0
4-year college degree	19.0	12.1
Race		
White, not Hispanic	85.9	84.4
Black, not Hispanic	6.9	9.4
Other race, not Hispanic	2.0	2.2
Hispanic	5.2	4.1
Rural	27.1	25.6
Fire/police worker	2.7	0.3
Observations	27,452	21,740

Source: Authors' calculations from the NLMS PUMS, 1983 Sample (11-year follow-up).

The results from the probit regressions are in Table A2 (on the next page). The results are reported as marginal effects. The reported coefficient can be interpreted as the percentage-point-change in 11-year mortality given the person either has the indicated characteristic (e.g., the person is in the public sector) or given a one-year change in age.

Table A2. Marginal Effects of Select Variables on 11-year Mortality Probit Regressions, 55-64 Year Old Workers

Variable	Men			Women		
	(1)	(2)	(3)	(1)	(2)	(3)
Government worker	-0.0065	0.0017	0.0006	-0.0124***	-0.0046	-0.0042
	(0.0056)	(0.0058)	(0.0058)	(0.0045)	(0.0048)	(0.0048)
Education						
(Base=dropout)						
High school, no college		-0.0231***	-0.0233***		-0.0198***	-0.0162***
		(0.0053)	(0.0054)		(0.0046)	(0.0047)
Some college		-0.0288***	-0.0285***		-0.0274***	-0.0253***
		(0.0069)	(0.0070)		(0.0056)	(0.0057)
4-year college degree		-0.0630***	-0.0621***		-0.0393***	-0.0372***
		(0.0058)	(0.0059)		(0.0057)	(0.0058)
Age			0.0117***			0.0074***
			(0.0008)			(0.0007)
Race/Ethnicity						
(Base=White, not Hispanic)						
Black, not Hispanic			0.0299***			0.0270***
			(0.0095)			(0.0076)
Other race, not Hispanic			-0.0334**			-0.0120
			(0.0149)			(0.0128)
Hispanic			-0.0619***			-0.0266***
			(0.0087)			(0.0087)
Rural			-0.0074			-0.0113**
			(0.0052)			(0.0045)
Fire/police worker			0.0272*			
			(0.0147)			
Pseudo R-squared	0.0001	0.0041	0.0144	0.0005	0.0039	0.0141
Observations	27,452	27,452	27,452	21,740	21,740	21,740

Note: Coefficients are significant at the 10-percent (*), 5-percent (**), or 1-percent (***) level.
Source: Authors' calculations from the NLMS PUMS, 1983 Sample (11-year follow-up).

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Contact Information

Center for Retirement Research
Boston College
Hovey House
140 Commonwealth Avenue
Chestnut Hill, MA 02467-3808
Phone: (617) 552-1762
Fax: (617) 552-0191
E-mail: crr@bc.edu
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CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

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TRENDS IN SOCIAL SECURITY CLAIMING

By Alicia H. Munnell and Anqi Chen*

Introduction

With lower Social Security replacement rates, vanishing traditional pensions, and longer lifespans, many people will need to work longer to ensure a secure retirement. Working longer directly increases current income; it avoids the actuarial reduction in Social Security benefits; it allows people to contribute more to their 401(k) plans; and it shortens the period of retirement. The good news is that people have begun to respond; the average retirement age has increased by about two years over the last 25 years.

The challenge is to reconcile this increase in work effort with the benefit claiming data published by the Social Security Administration (SSA). These data, which are released annually, show, *of all workers claiming benefits in a given year*, the percentage who are age 62, 63, 64, etc. These data suggest that the proportion of older men who claim benefits as early as possible did not change at all over the 1985-2005 period and has only begun to decline in the last decade. This pattern is not consistent with the rise in the average retirement age. The problem is that when the size of the group turning age 62 is increasing, as it has over the last two decades, the data will show that 62-year-old claimants make up a larger portion of total new claimants in a given year even if a smaller percentage of 62-year-old workers claim immediately. To accurately follow claiming behavior over time, one must look at cohort data. Such data show, *of the potential claimants turning 62 in a given year*, the percentage who claim benefits as soon as possible. This *brief* presents cohort patterns based on unpublished SSA data on people eligible to claim retired-worker benefits by birth year.

The discussion proceeds as follows. The first section describes the claim-year data published annually by SSA. The second section shows the change in the number of people turning 62 and discusses the impact of this "cohort effect" on claiming patterns. The third section presents claiming age by cohort. The final section concludes that the cohort (or birth-year) data, unlike the claim-year data, show that the share of people claiming Social Security retired-worker benefits when they attain age 62 has been falling since the mid-1990s. This decline in people claiming early benefits is fully consistent with the increase in the average retirement age.

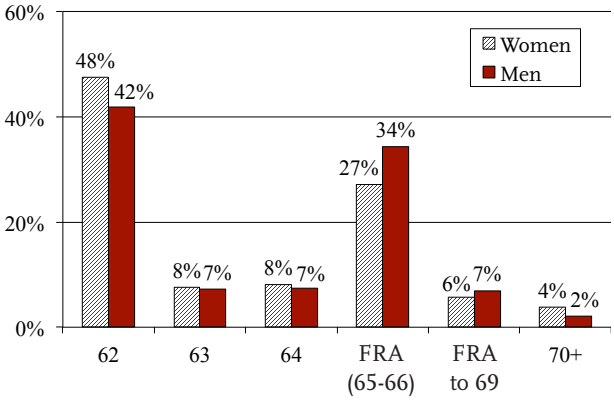
Data by Claim Year

According to Social Security's *Annual Statistical Supplement*, 48 percent of women and 42 percent of men who claimed retired-worker benefits in 2013 were age 62, after excluding beneficiaries who switched from disability benefits to retired-worker benefits at age 66

* Alicia H. Munnell is director of the Center for Retirement Research at Boston College (CRR) and the Peter F. Drucker Professor of Management Sciences at Boston College's Carroll School of Management. Anqi Chen is a research associate at the CRR. The authors thank Stephen Goss and Beth Hima of the Social Security Administration for providing data and helpful comments.

(see Figure 1). The next most popular claiming age was the Full Retirement Age (FRA), which was 65 until 2003 and gradually increased to 66 for workers turning 65 in 2008. Twenty-seven percent of women and 34 percent of men claimed benefits at the FRA.[1] The other age groups individually account for a much smaller percentage of initial benefit awards.

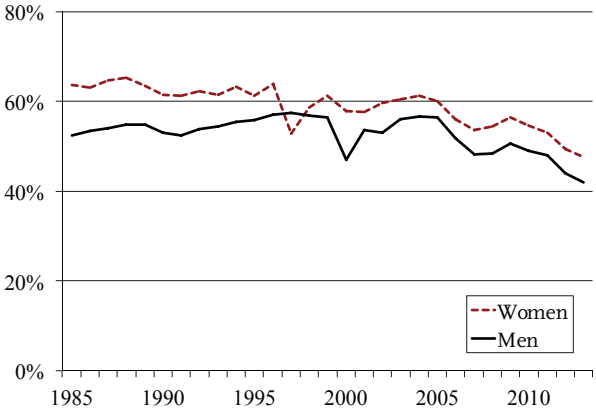
Figure 1. Age Distribution of Individuals Claiming Retired-Worker Benefits, 2013



Source: Authors' calculations from U.S. Social Security Administration (2015a).

Figure 2 shows the percentage of retirees claiming retired-worker benefits at age 62 from 1985-2013. The proportion of women claiming benefits at age 62 hovers around 60 percent until 2005 and then drops gradually to 48 percent by 2013.[2] The fraction of men claiming retired-worker benefits at age 62 hovers around 55 percent, and then drops gradually to 42 percent by 2013.[3] This way of measuring claiming behavior suggests little movement during the years 1990-2005, a period during which the average retirement age was rising.

Figure 2. Percentage of Individuals Claiming Retired-Worker Benefits At Age 62, 1985-2013



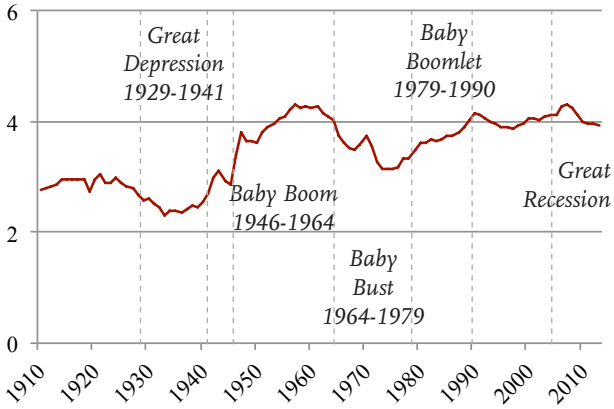
Source: Authors' calculations from U.S. Social Security Administration (2015a).

The "Cohort" Effect

The problem with the SSA claim-year data is that the number of eligible participants turning 62 began to increase around 1997. The increase is significant, with the annual number of men turning 62 rising from 829,000 in 1997 to around 1.4 million in 2013.

For readers who are surprised, like we were, that the increase in numbers began before the retirement of the baby boomers, we include Figure 3. As the Figure shows, births declined sharply from the 1920s through the trough of the Great Depression, and then started to increase in 1935. This reversal shows up 62 years later with the number of people eligible for benefits beginning to rise in 1997. This increase in the number of participants turning 62 – or "cohort effect" – distorts the trend in claiming patterns.

Figure 3. Births in Millions, 1910-2013



Source: Centers for Disease Control and Prevention, National Center for Health Statistics (2015).

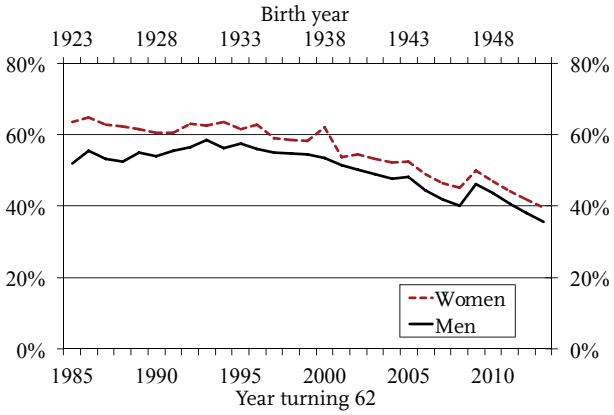
The intuition behind the cohort effect is somewhat complicated, so an example might help. Suppose that beneficiaries can only claim at age 62 or 63 and that 55 percent of all people born in any given year will claim at age 62 and the other 45 percent will claim the following year when they turn 63. If the number of people who attain ages 62 and 63 remains constant from one year to the next, then the SSA published data on claim year and the cohort data will

tell the same story. If the number of people attaining age 62 grows by 10 percent in a given year, then the SSA published data will show that 57 percent of people who claim benefits each year are 62 (.5735 = (1.1*.55)/(1.1*.55+1.0*.45)), and that 43 percent are 63. In this case, the SSA published data will exceed the unchanged claiming rate for each cohort.

Data by Birth Year

The way to get at the underlying trend in claiming behavior is to determine the percentage of all individuals born in a given year who claim retired-worker benefits at each age.[4] This calculation is possible because SSA provided unpublished data on the number of people eligible for retired-worker benefits by birth year.[5] The task is then to allocate cohort totals among claiming ages based on SSA's published data. For example, the unpublished data show that 863,753 men born in 1923 turned 62 and became eligible for benefits in 1985.[6] The published data show 448,630 men claimed benefits at 62 in 1985, all of whom by definition must be 1923-cohort men. Similarly, the published data show that 82,900 men claimed benefits at 63 in 1986, 110,580 claimed at 64 in 1987, etc., so the published data allow one to follow the claiming activity of the 1923 birth cohort over time. When the process is complete, it is possible to calculate the percentage of each cohort claiming at each age. Figure 4 shows the percentage of men and women in each cohort who claimed retired-worker benefits at age 62.

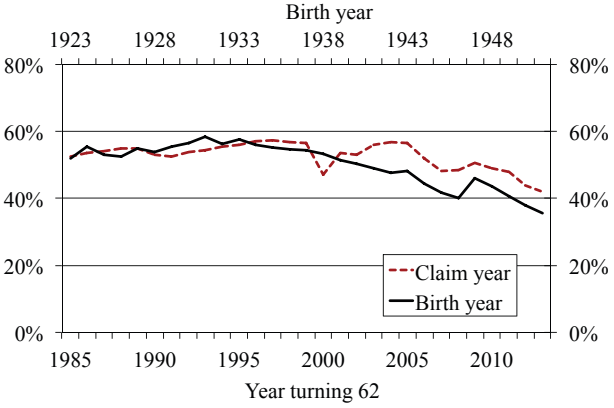
Figure 4. Percentage of Insured Individuals Turning 62 Who Claimed at 62, by Birth Year



Source: Authors' calculations from U.S. Social Security Administration (2015a and 2015b).

As evident in Figure 5, which compares the percentage of men claiming at 62 on a claim-year and cohort (or birth-year) basis, the two approaches provide very similar results until 1997; afterward the two series start to diverge. The cohort data show a much greater decline over the 29-year period than the claim-age data published annually.

Figure 5. Percentage of Male Claimants Claiming at 62 (Claim Year) and Percentage of Insured Males Turning 62 Who Claimed at 62 (Birth Year)



Source: Authors' calculations from U.S. Social Security Administration (2015a and 2015b).

Table 1 below tells the same story in numbers. As shown above, the claim-year data and birth-year data are virtually identical through 1996. Since that time, the claim-year data understate the decline in early

Table 1. Percentage Claiming at 62 by Claim Year and Birth Year, 1985, 1996, and 2013

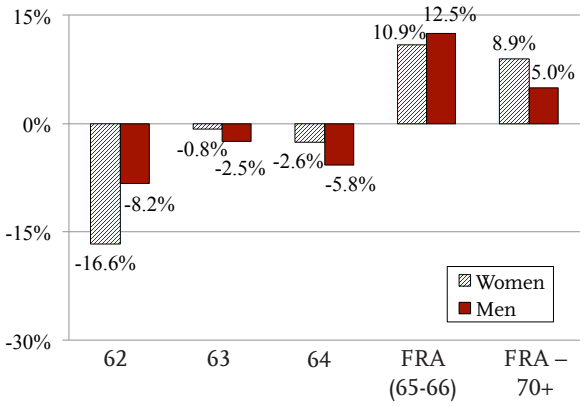
Year	Men		Women	
	Claim year	Birth year	Claim year	Birth year
1985	52.4 %	51.9 %	63.7 %	63.6 %
1996	57.1	56.0	63.9	62.8
2013	41.9	35.6	47.5	39.5
Percentage-point change in claiming at 62				
1985-1996	4.7	4.1	0.2	-0.8
1996-2013	-15.2	-20.5	-16.4	-23.2

Source: Authors' calculations from U.S. Social Security Administration (2014a).

claiming, a decline that *is* picked up by the cohort data. As predicted by the decline in the average retirement age, the cohort data reveal that the claiming picture has really changed. No longer do the majority of people reaching 62 claim benefits. By 2013, the claiming rate at 62 had declined to 36 percent for men and 40 percent for women.[7]

One final chart underscores the message that overall shifts in cohort claiming behavior – not just claiming at age 62 – have led to a higher average retirement age. Figure 6 shows the change in the percentage of individuals claiming at any given age between the cohort that turned 62 in 1985 and the cohort that turned 62 in 2010.[8] For both women and men, claiming before the FRA has dropped, while claiming at or above the FRA has increased.

Figure 6. Percentage-Point Change in Claiming by Age Between Cohorts Turning 62 in 1985 and 2010



Source: Authors' calculations from U.S. Social Security Administration (2015a and 2015b).

Conclusion

In the past, both claim-year and cohort data provided reasonable estimates of the proportion of beneficiaries who claim retired-worker benefits at any given age, because the birth cohorts approaching retirement were similar in size and the patterns between cohorts remained relatively static. Recently, however, growing cohorts and changes among cohorts have caused claim-year analysis to overstate the proportion of retirees claiming benefits at 62, masking the trend away from early claiming evident in cohort data.

The good news is that more people are claiming retired-worker benefits at later ages, and this pattern is consistent with increased labor force participation at older ages and the rise in the average retirement age. Nevertheless, in 2013 more than a third of insured workers still claimed Social Security benefits as soon as they became eligible.[9] The question is whether this decision appropriately reflects the individual and family circumstances of these individuals or whether they are making a mistake.

Endnotes

1 The FRA increased by 2 months for workers turning 65 in 2003 and continued to rise at this pace each year until reaching 66. As a result of the shift in the FRA, Table 6.B5 in the *Annual Statistical Supplement* reports distributions from age 65 to the FRA and at the FRA. Figure 1 combines these two claiming groups into one group: FRA (65-66).

2 The dip in 1997 occurred because Social Security examined the earnings and benefit records of women and men receiving widow(er)'s benefits to determine if these beneficiaries would be better off receiving retired-worker benefits. This assessment resulted in retired-worker benefit awards for a large number of women over age 65, and particularly over age 70, which caused the one-year decline in the percentage of women claiming benefits at age 62. This explanation was provided through a personal communication (U.S. Social Security Administration, 2008).

3 For men, the drop in 2000 was caused by the elimination of the retirement earnings test between ages 65 (which was the FRA at the time) and 69. The elimination of the test led to a large number of retired-worker benefit awards for men age 65 and older in 2000, which in turn lowered the percentage claiming at age 62. This change was most pronounced in 2000 and the percentage of men claiming benefits at age 62 in 2001 readjusted towards the 1999 level. This explanation was provided through a personal communication (U.S. Social Security Administration, 2008).

4 The approach taken in the analysis follows Muldoon and Kopcke (2008).

5 U.S. Social Security Administration (2015b, 2015c).

6 These data exclude individuals receving Social Security disability or survivor benefits.

7 A portion of this decline – as much as 13 percent for men and 25 percent for women during the 1985-2013 period – may be due to the rising percentage of individuals receiving Social Security disability benefits.

8 The underlying data used in this calculation – the percentage of individuals in each cohort who claim at each age – do not add to 100 percent primarily because some people die during the period.

9 Authors' calculations from U.S. Social Security Administration (2015a and 2015b).

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Massachusetts Institute of Technology
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Contact Information

Center for Retirement Research
Boston College
Hovey House
140 Commonwealth Avenue
Chestnut Hill, MA 02467-3808
Phone: (617) 552-1762
Fax: (617) 552-0191
E-mail: crr@bc.edu
Website: http://crr.bc.edu

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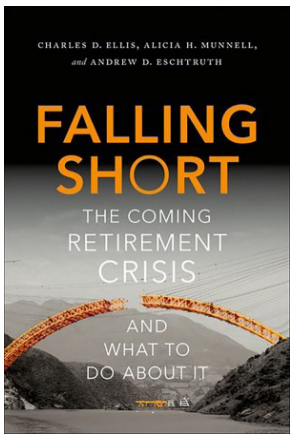
CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

April 2015, Number 15-7

FALLING SHORT: THE COMING RETIREMENT CRISIS AND WHAT TO DO ABOUT IT

By Alicia H. Munnell*

Introduction



Today's workers face a brewing retirement income crisis. Economic and demographic changes have transformed the retirement landscape, systematically shifting risk and responsibility away from government and employers to individuals. As a result, about half of working-age households are "at risk" of being unable to maintain their pre-retirement standard of living in retirement. Fortunately, the tools to fix the problem are at hand. And the sooner action is taken, the easier it will be to shore up the nation's retirement security.

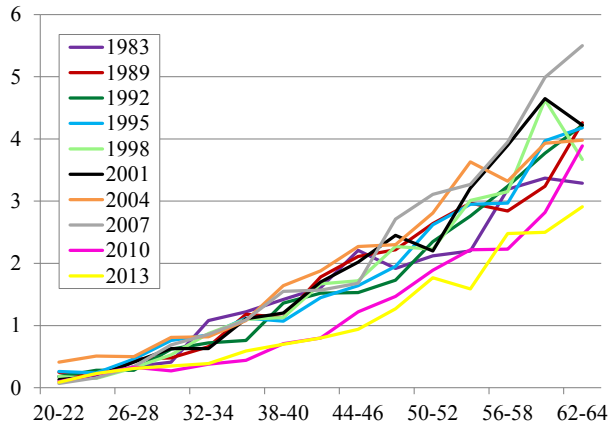
This *brief,* adapted from a new book, proceeds as follows.[1] The first section assesses the trend in retirement preparedness over the past three decades and reports the percentage of today's working-age households that are unprepared. The second section details the reasons underlying the problem. The third section discusses specific solutions to head off a crisis. The final section concludes that longer worklives, more saving, and more effective use of households' assets are essential to restoring retirement security to our nation, and policymakers have a critical role to play in achieving this goal.

What We Know About Retirement Preparedness

One potential sign of trouble is the trend in the amount of wealth that working-age households have relative to their income. Figure 1 on the next page shows these wealth-to-income ratios from 1983-2013 using data directly from the Federal Reserve's *Survey of Consumer Finances* (SCF). The striking fact about this figure is that the lines are bunched very closely together. This pattern may seem comforting as it appears that households in each year of the survey have accumulated similar amounts of wealth relative to their incomes. However, many things have changed since 1983, each of which should have caused people to save more.

* Alicia H. Munnell is the director of the Center for Retirement Research at Boston College and the Peter F. Drucker Professor of Management Sciences in Boston College's Carroll School of Management.

Figure 1. Ratio of Wealth to Income by Age from the *Survey of Consumer Finances*, 1983-2013



Source: Author's calculations based on U.S. Board of Governors of the Federal Reserve System, *Survey of Consumer Finances* (1983-2013).

- Life expectancy has increased, so workers should be accumulating more assets to cover a longer period in retirement.
- Social Security replacement rates – benefits as a share of pre-retirement income – are declining, which increases the need for retirement saving.
- Employer retirement plans have shifted from defined benefit, where accruals of future benefits are not included in the SCF wealth measure, to 401(k)s, where assets *are* included. This shift from unreported to reported assets should have increased the wealth-to-income ratio.
- Retiree out-of-pocket health costs have been rising, again increasing the need for more wealth at retirement.
- Real interest rates have fallen substantially since 1983, so more wealth is needed to generate a given stream of income.

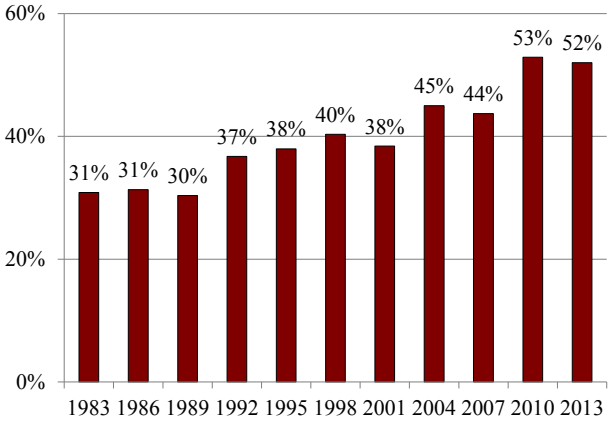
As a result of these factors, the stability of wealth-to-income ratios over the 1983-2013 period clearly indicates that people are less well prepared than in the past. If they were over-prepared in the past, they could be fine today. But if they were not over-prepared in 1983, then they are falling short today.

To address the adequacy of retirement preparedness, the Center for Retirement Research at Boston College has developed a National Retirement Risk Index (NRRI), which relies on data from the SCF.[2]

The NRRI compares projected replacement rates for working-age households ages 30-59 to target replacement rates that permit them to enjoy the same consumption before and after retirement. The Index measures the percentage of all households that fall more than 10 percent below their target.

The most recent NRRI results show that about half of all households are at risk, up from about one third in 1983 (see Figure 2). So the problem is widespread and, consistent with the earlier data on wealth-to-income ratios, it is getting worse over time.

Figure 2. The National Retirement Risk Index, 1983-2013



Source: Munnell, Hou, and Webb (2014).

Why Are So Many Households Unprepared?

Why do Americans face such a serious retirement income problem today when recent generations have retired in relative comfort? The reason is that baby boomers – and those who follow – will need more retirement income, but will receive less support from the traditional sources of Social Security and employer defined benefit plans.

Retirement Income Needs Are Growing

Today's workers will need more income because lifespans (and retirement periods) are getting longer, health care costs are rising, and interest rates are very low.

First, the length of retirement depends both on when people retire and on how long they live in retirement. After declining for many decades, in the mid-1980s the average retirement age stabilized and then gradually increased from 62 to 64 for men. However, the latest evidence shows little change in average retirement ages over the past several years, suggesting the trend toward later retirement may be running out of steam.[3] Meanwhile, life expectancy at 65 is continuing to rise steadily (see Table 1). On balance, the retirement period has been getting longer over time, from 13 years in 1960 to about 20 years today for men.

Table 1. Life Expectancy at Age 65 for Men and Women, 1960, 1980, 2000, and 2020

Year	Men	Women
1960	13.2	17.4
1980	14.7	18.8
2000	17.6	20.3
2020	19.7	22.0

Source: U.S. Social Security Administration (2014).

Second, while retirees have health insurance coverage through Medicare, they still face substantial out-of-pocket costs for premiums (Parts B and D), deductibles, and co-payments. These costs have grown rapidly over time and equal about one-fifth of retirees' income.[4] For individuals who require more than a brief stay in a nursing home, long-term care costs represent an additional expense.

Third, real interest rates have fallen dramatically since the record highs of the late 1970s and early 1980s. Today's rates continue to hover around historic lows of 1 percent. Therefore, retirees need a much bigger nest egg than in the past to generate a given amount of income.

Traditional Sources of Retirement Income Are Shrinking

Both Social Security and employer-sponsored retirement plans will provide less support than in the past. This trend is especially worrisome because people save virtually nothing outside of these two vehicles. The one bright spot is home equity, which could be tapped for day-to-day retirement consumption, but generally is not.

Social Security. Social Security benefits are the foundation of the retirement income system. But, under current law, these benefits are already shrinking in their ability to replace pre-retirement income.

First, the gradual rise in the program's "Full Retirement Age" from 65 to 67 is cutting benefits across the board. For those who continue to retire at 65, this cut takes the form of lower monthly benefits; for those who choose to work longer, it takes the form of fewer years of benefits. For the typical earner who retires at 65, the replacement rate will drop from about 40 percent today to 36 percent once the transition is complete.

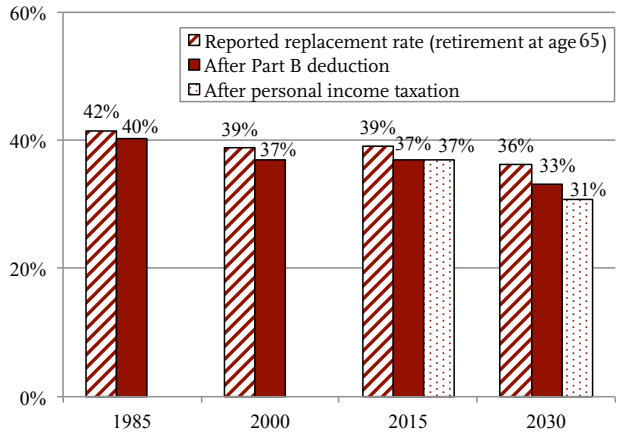
Second, Medicare premiums, which are automatically deducted from Social Security benefits, are rising faster than benefit levels. As a result, Part B premiums alone are estimated to increase from 5.4 percent of the average Social Security benefit for someone retiring in 1990 to 10.4 percent for someone retiring in 2030.

Third, more benefits will be subject to taxation under the personal income tax. Individuals with more than $25,000 and married couples with more than $32,000 of "combined income" pay taxes on up to 85 percent of their Social Security benefits. In 1985, only about 10 percent of beneficiaries had to pay taxes on their benefits, but the percentage of people subject to tax has been increasing over time because these thresholds are not indexed for growth in average wages or even inflation. Today, almost 40 percent of households pay taxes on their benefits, and by 2030 more than half of households are expected to be subject to this tax.

The combined impact of these factors will reduce Social Security replacement rates for the average worker retiring at 65 by nearly a quarter – from a net 40 percent in 1985 to 31 percent by 2030 (see Figure 3 on the next page).

And these reductions are happening without any changes in current law. If benefits are cut back further to address Social Security's long-term financial shortfall, replacement rates will drop even more.

Figure 3. Social Security Replacement Rates for Average Earner Retiring at Age 65, 1985, 2000, 2015, and 2030



Source: Author's calculations from Centers for Medicare and Medicaid Services (2013); and U.S. Social Security Administration (2013).

Employer-Sponsored Retirement Plans. With declining replacement rates from Social Security, employer-sponsored retirement plans become much more important. Unfortunately, at any given time, only about half of private sector workers are participating in any employer-sponsored plan, and this share has remained relatively constant over the past 30 years. The lack of universal coverage means that many American workers move in and out of plan participation and a significant percentage will end up with nothing but Social Security.

For those lucky enough to work for an employer providing a retirement plan, the nature of these plans has changed dramatically from defined benefit plans to 401(k)s. This shift means that the employee rather than the employer makes all the decisions *and* bears all the risks. Not long after the advent of 401(k) plans, it became clear that participants were accumulating only modest balances in these accounts.

As a result, in 2006 policymakers tried to make 401(k)s function more effectively through reforms included in the Pension Protection Act (PPA). The PPA encouraged 401(k) plan sponsors to adopt automatic mechanisms that have proven effective at boosting participation (auto-enrollment) and contribution rates (auto-escalation). However, the effects of the PPA appear to have played themselves out, and today less than half of plans have auto-enrollment and a much smaller fraction have auto-escalation.

As a result, 401(k)s are still far short of being a broadly effective retirement savings vehicle.[5]

- About 20 percent of those eligible *still* do not participate in their employer's plan.
- Contribution rates fall short of what most workers will need in retirement, and only about 10 percent of participants make the maximum contribution allowed.
- Many individuals invest in mutual funds with high fees, which can substantially shrink their assets over time. For example, an additional 100 basis points in fees over a 40-year period reduces final assets by about one fifth.
- About 1.5 percent of assets each year leaks out of 401(k) plans when participants cash out as they change jobs, take hardship withdrawals, withdraw funds after age 59½, or default on loans.

As a result, in 2013, the typical working household approaching retirement with a 401(k) had only $111,000 in combined 401(k) and IRA balances (see Table 2). This amount translates into less than $400 per month, adjusted for inflation, which will not provide a sufficient supplement to Social Security benefits.

Table 2. 401(k)/IRA Balances for Median Working Household with a 401(k), Age 55-64, by Income Quintile, 2013

Income range (quintiles)	Median 401(k)/IRA balance	Percent with 401(k)
Less than $39,000	$13,000	22%
$39,000-$60,999	53,000	48
$61,000-$90,999	100,000	60
$91,000-$137,999	132,000	65
$138,000 or more	452,000	68
Total	111,000	52

Source: Author's calculations from U.S. Board of Governors of the Federal Reserve System, *Survey of Consumer Finances* (2013).

What Can Policymakers Do?

While the retirement challenge is enormous, the tools to head off a crisis are available. And changes can be made within the existing retirement system, so they are both easier to explain to the public and to implement. The way forward is to convince households to work longer, help them save more, and encourage them to consider tapping their home equity. Policymakers could take several actions to help solve the problem.

Work Longer

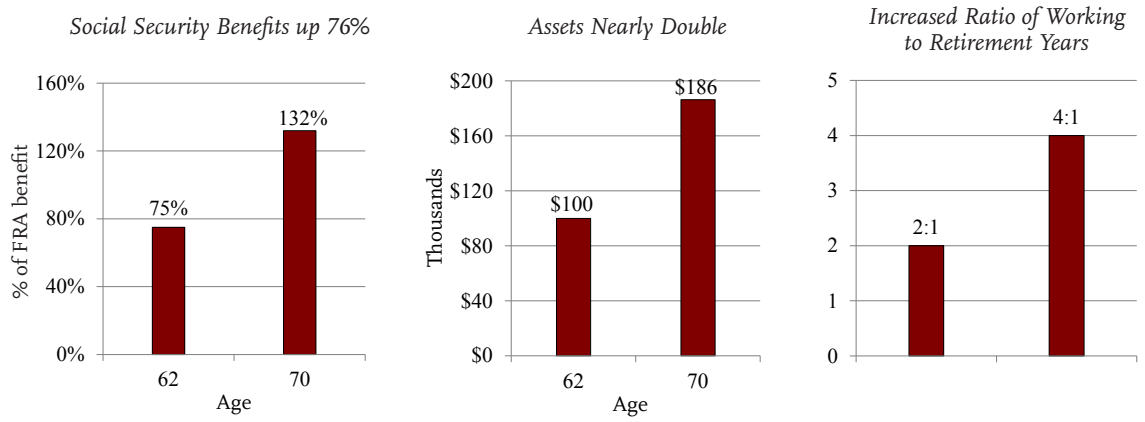
The working longer prescription is not about working forever. It is about delaying retirement in order to ensure financial security once work ends. Working longer makes an enormous difference (see Figure 4). First, it increases the size of an individual's monthly Social Security check by 7-8 percent for each year of delay. The difference between claiming at age 62 and age 70 is an eye-popping 76 percent. And maximizing Social Security benefits is particularly important because they last a lifetime, include spousal protection, and are inflation-indexed. Second, working longer allows people to contribute more to their 401(k) and provides more time for assets to grow; between ages 62 and 70, a typical individual's 401(k)/IRA assets are estimated to nearly double. And, third, working longer substantially shrinks the number of years over which an individual needs to stretch his retirement nest egg.

The working longer message will require a concerted educational campaign. In terms of current guidance to the public, the Social Security Administration (SSA) still tends to focus attention on the traditional statutory "Full Retirement Age (FRA)," which is now 66 (gradually rising to 67). But, with the phase-in of an actuarially fair Delayed Retirement Credit in 2008, the FRA concept has become outdated. The simple fact is that monthly Social Security benefits are highest at age 70 and are reduced actuarially for each year they are claimed before age 70.

To help Americans make well-informed decisions about when to retire, the SSA could emphasize in its public communications that age 70 is the most appropriate age to target. Such a shift in the agency's educational efforts – away from the emphasis on the statutory FRA – along with a clear explanation of the benefits of working longer could have a significant impact over time on the way Americans think about their retirement.

It is important to recognize that not everyone will be able to work longer. Some workers are not physically capable of delaying retirement. But the majority of American workers who can delay retirement should do it. And while it is not realistic to think that everyone will work until 70 – recall that the current average retirement age for men is only 64 – even working a few additional years will go a long way to boosting retirement security.

Figure 4. Impact of Working Longer on Social Security, 401(k)/IRAs, and the Retirement Span



Source: Author's calculations.

Save More

The prescription to save more has three components: 1) maintain Social Security by increasing revenue to solve the long-term shortfall; 2) make 401(k)s more effective by requiring all plans to be fully automatic and curtailing leakages; and 3) ensure that *all* workers have access to an employer-based savings plan.

Maintain Social Security. Social Security currently faces a 75-year shortfall equal to 2.9 percent of payroll. Given that Social Security replacement rates are already shrinking under current law, it is important to maintain benefit levels rather than cutting them further to close the shortfall. Any such cuts would only increase the need for individuals to save on their own to avoid falling short in retirement. Instead of cuts, the system needs more revenue.

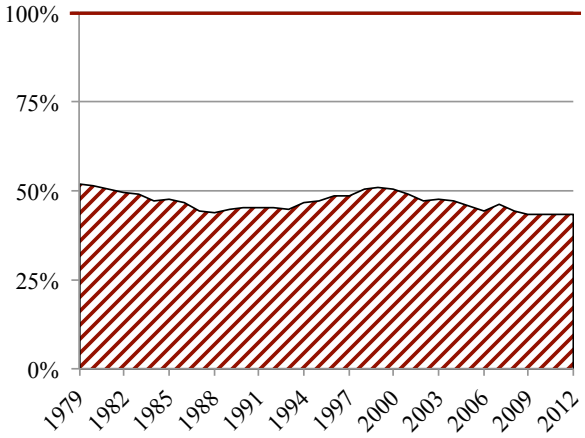
Social Security revenue can be increased in several different ways. Traditional options are raising payroll tax rates and/or raising the cap on taxable payroll above today's ceiling of $118,500. Both these options should be considered. In terms of the payroll tax, eliminating the program's 2.9 percent deficit would require increasing the tax rate by 1.45 percent of wages for employees and 1.45 percent for employers. It is worth pointing out that Congress temporarily cut payroll taxes by 2 percentage points in 2011 and 2012 and then restored the cut in 2013, and no one noticed. Other alternatives for increasing revenue include shifting the burden of financing Social Security's start-up costs to general income tax revenues and investing a portion of the trust fund in equities. These ideas are more complicated and controversial, but could be part of the mix if policymakers would like to take part of the burden off payroll tax increases.

Make 401(k)s Fully Automatic. 401(k)s are not currently an effective savings vehicle for many workers. But their shortcomings can largely be addressed. The most important policy change would be requiring all 401(k)s to be fully automatic, while continuing to allow workers to opt out if they choose. Plans should automatically enroll *all* of their workers – not just new hires – and the default employee contribution rate should be set at a meaningful level and then increased until the combined employee contribution and employer match reach 12 percent of wages. The default investment option should be a target-date fund comprised of a portfolio of low-cost index funds.

Separately, the problem of 401(k) leakages needs to be addressed. Possible changes on this front include tightening the criteria for hardship withdrawals so that these withdrawals are limited to unpredictable emergencies; raising the age for penalty-free withdrawals from 59½ to at least 62; and prohibiting cash-outs when switching jobs. These changes would go a long way to making 401(k)s a more robust mechanism for retirement saving. Participants could retain access to their funds through loans.

Cover Those Without a Plan. The half of private sector workers who are not currently participating in an employer-sponsored retirement plan (see Figure 5) need an arrangement that makes saving easy and automatic. State and federal policymakers have proposed a variety of ways to achieve this goal. At the state level, eight states – Illinois, Massachusetts, Oregon, Maryland, California, Minnesota, Connecticut, and Vermont – are in various stages of exploring ways to expand access to retirement plans. At the federal level, several proposals have been suggested, including auto-IRAs. The best bet would be to adopt an approach that covers everyone without a plan, uses automatic enrollment, and relies on low-cost investment options.

Figure 5. Percentage of Private Sector Workers Ages 25-64 Participating in an Employer-Sponsored Pension, 1979-2012



Source: U.S. Census Bureau, *Current Population Survey* (1979-2012).

Consider Home Equity

Many households have a little-recognized asset that they could turn to for income in retirement – the equity in their home. Generally, retirees think of their home equity more as an emergency reserve rather than a potential source of retirement income. However, given the challenge of ensuring retirement security, this view may be a luxury that many can no longer afford. If households do not have enough from Social Security and their 401(k) assets, they should consider tapping their home equity by either downsizing or taking a reverse mortgage.

Downsizing provides extra funds that can be used to generate retirement income and also cuts expenses for utilities, maintenance, and property taxes. A reverse mortgage allows retirees to stay in their home while accessing their equity; and the loan does not have to be paid back until the homeowner moves, sells the house, or dies. Recent policy changes by the Department of Housing and Urban Development have strengthened the agency's HECM program, which is the dominant vehicle for reverse mortgages.

As with working longer, policymakers could help educate consumers about the downsizing and reverse mortgage options. Americans need to recognize that their home equity can make a big difference to their retirement security.

Conclusion

The retirement income landscape has been changing in a way that systematically threatens the retirement security of millions of Americans. It is past time for our nation to fully recognize and adapt to the new environment. Federal policymakers could take the lead in ushering in the necessary changes that will promote longer worklives, more saving, and the use of home equity. The changes outlined in this *brief* are all doable adjustments that build on our existing retirement systems. There is no time to waste, so let's get started.

Endnotes

1 Ellis, Munnell, and Eschtruth (2014).

2 For details on the NRRI methodology, see Munnell, Hou, and Webb (2014).

3 Munnell (2015).

4 Kaiser Family Foundation (2011).

5 Munnell (2014).

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Contact Information

Center for Retirement Research
Boston College
Hovey House
140 Commonwealth Avenue
Chestnut Hill, MA 02467-3808
Phone: (617) 552-1762
Fax: (617) 552-0191
E-mail: crr@bc.edu
Website: http://crr.bc.edu

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