



# TRS Board of Trustees Meeting

December 12 – 13, 2013

**TEACHER RETIREMENT SYSTEM OF TEXAS MEETING  
BOARD OF TRUSTEES**

**AGENDA**

**December 12, 2013 – 12:30 p.m.**

**December 13, 2013 – 10:00 a.m.**

**TRS East Building, 5<sup>th</sup> Floor, Boardroom**

*NOTE: The Board may take up any item posted on the agenda during its meeting on Thursday, December 12, 2013, or the following day beginning at the time and place specified on this agenda.*

*The open portions of the December 12-13, 2013 Board meetings are being broadcast over the Internet. Access to the Internet broadcast of the Board meeting is provided on TRS' Web site at [www.trs.state.tx.us](http://www.trs.state.tx.us).*

1. Call roll of Board members.
2. Consider the approval of the October 18, 2013 Board meeting minutes – David Kelly. *[Estimated time 12:30 – 12:30]*
3. Receive public comment – David Kelly. *[Estimated time 12:30 – 12:45]*
4. Review and discuss the Executive Director's report on the following matters – Brian Guthrie: *[Estimated time 12:45 – 1:30]*
  - A. Board operational matters, including a review of draft agendas for upcoming meetings.
  - B. Additional updates, including administrative operations, financial, audit, legal, staff services, board administration activities, and strategic initiatives.
  - C. Discussion of TRS being named one of the Austin-American Statesman's top workplaces and a screening of the associated TRS video.
5. Review and discuss the Deputy Director's Report, including matters related to administrative, financial, and staff services operations – Ken Welch *[Estimated time 1:30 – 1:45]*
6. Discuss and consider investment matters, including the following items:
  - A. Receive presentation from Dr. Keith Brown on investment risk management and asset allocation – Dr. Keith Brown *[Estimated time 1:45 – 2:45]*
  - B. Performance Review: Third Quarter 2013 – Brady O'Connell and Steve Voss, Hewitt EnnisKnupp. *[Estimated time 2:45 – 3:30]*
  - C. Review Quarterly Portfolio Performance and market update – Britt Harris. *[Estimated time 3:30 – 4:00]*
  - D. Receive an update on the Strategic Partnership Network – David Veal *[Estimated time 4:00 – 4:15]*

- E. Review the report of the Investment Management Committee on its December 12, 2013 meeting, and consider related matters – Todd Barth. *[Estimated time 4:15 – 4:15]*
7. Receive the report of the Policy Committee on its December 12, 2013 meeting, and consider related matters – Joe Colonna: *[Estimated time 4:15 – 4:30]*
    - A. Consider proposed changes to the TRS Mission Statement, if necessary;
    - B. Consider adoption of the four-year statutory rule review of Chapter 53 of TRS’ rules in Title 34, Part 3, of the Texas Administrative Code, including the re-adoption of the Chapter 53 rules with or without changes;
    - C. Consider proposed changes to the Proxy Voting Policy;
    - D. Consider proposed changes to the Soft Dollar / Commission Sharing Arrangement Policy and the Securities Lending Policy, if necessary.
    - E. Consider proposed changes to the Trustee Ethics Policy and Position Description; and
    - F. Consider proposed changes to the Employees Ethics Policy and related materials, the proposed resolution adopting revised determination of Key Employees, and the proposed new Key Employee Enhanced Disclosure Form.
  8. Review the report of the Risk Committee on its December 12, 2013 meeting, and consider related matters – Karen Charleston. *[Estimated time 4:30 – 4:30]*
  9. Discuss possible co-investment opportunities involving a foreign pension fund, including potential investments in private investment funds or the purchase, holding, or disposal of restricted securities or a private investment fund’s investment in restricted securities – David Kelly *[Estimated time 4:30 – Recess]*
  10. Consider personnel matters, including the appointment, employment, evaluation, compensation, performance, duties, discipline, or dismissal of the Executive Director, Chief Investment Officer, or Chief Audit Executive – David Kelly. *[Estimated time 4:30 – Recess]*

**NOTE:** *The Board meeting likely will recess after the last item above and resume Friday morning to take up items listed below.*

11. Receive public comment – David Kelly. *[Estimated time 10:00 – 10:15]*
12. Receive the Chief Financial Officer’s report under § 825.314(b), Government Code, of expenditures that exceed the amount of operating expenses appropriated from the general revenue fund and are required to perform the fiduciary duties of the Board – Don Green. *[Estimated time 10:15 – 10:30]*
13. Review the Comprehensive Annual Financial Report for fiscal year 2013 – Jamie Michels and Cindy Haley. *[Estimated time 10:30 – 11:00]*
14. Review the TRS Pension Trust Fund Actuarial Valuation as of August 31, 2013 – Joseph Newton, Gabriel, Roeder, Smith & Company. *[Estimated time 11:00 – 11:45]*

15. Review the TRS-Care Actuarial Valuation and Other Post Employment Benefit (OPEB) reports as of August 31, 2013, and receive an overview and update on TRS-ActiveCare – Joseph Newton; William Hickman; and Amy Cohen, Gabriel, Roeder, Smith & Company. *[Estimated time 11:45 – 12:30]*
16. Receive an update on the procurement of the TRS-ActiveCare Health Plan Administrator (HPA) and Pharmacy Benefit Manager (PBM) contracts, including potentially receiving information from staff in closed session after considering a finding that deliberating or conferring on the selection in open meeting would have a detrimental effect on the position of the retirement system in negotiations with a third person – Betsey Jones. *[Estimated time 12:30 – 12:45]*
17. Review the report of the Benefits Committee on its December 13, 2013 meeting, and consider appointments to the Retirees Advisory Committee – Anita Palmer. *[Estimated time 12:45 – 12:45]*
18. Review the reports on the Historically Underutilized Businesses (HUB) and consider related goals for fiscal year 2014 – John Dobrich. *[Estimated time 12:45 – 1:00]*
19. Receive the report of the Audit Committee on its December 13, 2013 meeting, and discuss and consider related matters – Chris Moss. *[Estimated time 1:00 – 1:00]*
20. Receive a presentation from the TEAM Program Independent Program Assessment (IPA) Vendor – Michael Johnson, Bridgepoint Consulting. *[Estimated time 1:00 – 1:45]*
21. Receive a presentation on the progress of the TEAM Program, including a discussion on project interdependencies and the pension line of business project entitled TRUST (Teacher Retirement Unified System for Technology) – Jay Masci, Barbie Pearson, and Adam Fambrough. *[Estimated time 1:45 – 2:15]*
22. Review the report of the Chief Benefit Officer, and consider the following related matters – Marianne Woods Wiley. *[For agenda item nos. 22 & 23 Estimated time 2:15 – 2:45]*
  - A. Approve members qualified for retirement.
  - B. Approve minutes of Medical Board meetings.
23. Consider concurring in the Medical Board's certification regarding a disability retiree under § 824.307 of the Government Code, discontinuing annuity payments, and restoring the individual to membership – Marianne Woods Wiley.
24. Review the report of the General Counsel on pending or contemplated litigation, including updates on litigation involving benefit-program contributions, retirement benefits, health-benefit programs, securities, and open records – Carolina de Onís. *[Estimated time 2:45 – 2:45. Only if questions on report. No planned presentation]*
25. Consult with the Board's attorney(s) in Executive Session on any item listed above on this meeting agenda as authorized by § 551.071 of the Texas Open Meetings Act (Chapter 551 of the Texas Government Code) – David Kelly.

## **Tab 2**

Minutes of the Board of Trustees  
October 18, 2013

The Board of Trustees of the Teacher Retirement System of Texas met on October 18, 2013, in the boardroom located on the fifth floor of the TRS East Building offices at 1000 Red River Street, Austin, Texas. The following board members were present:

David Kelly, Chair  
Todd Barth  
Karen Charleston  
Joe Colonna  
David Corpus  
Chris Moss  
Anita Palmer  
Dolores Ramirez  
Nanette Sissney

Others present:

Brian Guthrie, TRS	Noel Sherman, TRS
Ken Welch, TRS	Steve Huff, Reinhart Boerner Van Deuren
Amy Barrett, TRS	Steve Voss, Hewitt EnnisKnupp
Carolina de Onís, TRS	Karla Corpus
Howard Goldman, TRS	Philip Mullins, Austin Retired Teachers Association
Don Green, TRS	Ann Fickel, Texas Classroom Teachers Association
T. Britton Harris IV, TRS	Josh Sanderson, Association of Texas Professional Educators
Marianne Woods Wiley, TRS	Victor Farrera, Hewlett-Packard
Jerry Albright, TRS	Ernie Sanders, Hewlett-Packard
Thomas Albright, TRS	Rogier Slingerland, CEM
Michelle Bertram, TRS	Gunjan Kedia, State Street
Ronnie Bounds, TRS	Rick Young, State Street
Cindy Collins, TRS	Joseph Barry, State Street
Dennis Gold, TRS	Jessica Donohue, State Street
Rich Hall, TRS	Jack Eckenrode, State Street
Dan Herron, TRS	Chris Holzwarth, State Street
Dan Junell, TRS	Jeff Lambert, State Street
Lynn Lau, TRS	John Powell, State Street
Scot Leith, TRS	Derly Rivera, Austin Retired Teachers Association
Rebecca Merrill, TRS	Ted Melina Raab, Texas American Federation of Teachers
Melinda Nink, TRS	Marie Drummond, Retired Education Austin
Hugh Ohn, TRS	Tom Rogers, Austin Retired Teachers Association and Texas Retired Teachers Association

Mr. Kelly called the meeting to order at 10:00 a.m.

**1. Call roll of Board members.**

Ms. Lau called the roll. A quorum was present. Ms. Charleston arrived at 10:25 a.m.

**2. Consider administrative matters, including the following – David Kelly:**

**A. Approval of the September 12-13, 2013 Board meeting minutes.**

On a motion by Ms. Palmer, seconded by Mr. Colonna, the board unanimously approved the minutes for the September 12-13, 2013 meeting.

**B. Excuse Board member absences from the September 12-13, 2013 Board meeting.**

On a motion by Ms. Sissney, seconded by Mr. Barth, the board unanimously excused the absences of Ms. Charlotte Clifton and Mr. Eric McDonald from the September 12-13, 2013 board meeting.

**C. Consider the election of the Board Vice-Chair.**

On a motion by Mr. Kelly, seconded by Ms. Palmer, the board unanimously elected Ms. Sissney to be the board vice-chair.

Mr. Kelly introduced new trustees, Ms. Dolores Ramirez and Mr. David Corpus. The new trustees briefly introduced themselves. Mr. Colonna also noted his reappointment for a new term.

**D. Consider consenting to the Board Chair's appointment of committee members, and receive the Board Chair's announcement of committee chairs.**

On a motion by Mr. Corpus, seconded by Mr. Barth, the board unanimously approved the following appointment of committee members:

**Audit Committee**

Chris Moss, Chair  
Karen Charleston  
David Corpus  
Anita Palmer  
Nanette Sissney

**Benefits Committee**

Anita Palmer, Chair  
Karen Charleston  
Chris Moss  
Dolores Ramirez  
Nanette Sissney

**Budget Committee**

Nanette Sissney, Chair  
Todd Barth  
Karen Charleston  
Chris Moss  
Dolores Ramirez

**Policy Committee**

Joe Colonna, Chair  
Todd Barth  
David Corpus  
David Kelly  
Dolores Ramirez

**Investment Management Committee**

Todd Barth, Chair  
Joe Colonna  
David Corpus  
David Kelly  
Nanette Sissney

**Risk Management Committee**

Karen Charleston, Chair  
Todd Barth  
David Corpus  
David Kelly  
Chris Moss

**Ethics Committee**

Nanette Sissney

**Board Vice-Chair**

Nanette Sissney

**Compensation Committee**

Nanette Sissney, Chair

Joe Colonna

David Kelly

Anita Palmer

Dolores Ramirez

**E. Consider Board and committee meeting dates for calendar year 2014, including any off-site meeting locations.**

On a motion by Ms. Sissney, seconded by Ms. Palmer, the board unanimously approved the following board and committee meeting dates for calendar year 2014:

February 12 – 14, 2014

March 27-28, 2014 (Quarterly Meeting)

June 5 – 6, 2014 (Quarterly Meeting)

July 11, 2014

September 18 – 19, 2014 (Quarterly Meeting)

October 17, 2014

November 20-21, 2014 (Quarterly Meeting)

**3. Receive public comment**

Mr. Kelly called for public comment. No comment was received.

**4. Review and discuss the Executive Director's report on the following matters – Brian Guthrie:**

**A. Review of draft agendas for upcoming meetings.**

Mr. Guthrie reviewed the draft agendas for the December 2013 and February 2014 meetings. He also briefly discussed the options to deal with office space issues.

**B. Administrative operations, including financial, audit, legal, staff services, board administration activities, and special projects.**

Mr. Guthrie provided an update on the Transformative Leadership Training Program and the National Council on Teacher Retirement (NCTR) meetings he attended.

Mr. Guthrie introduced the new online *My TRS Rewards Program*, a membership discount program, which would be available November 1, 2013 via *MyTRS*. He responded to Ms. Sissney that about 30 to 35 percent of TRS members have registered for *MyTRS*. He stated that the implementation of TEAM would facilitate more online transactions by members.

**5. Receive the Deputy Director's report – Ken Welch.**

Mr. Welch reported that the annual state contribution rate would increase from 6.4% to 6.8% because there were sufficient funds from the settle-up process with the State of Texas over the health care fund. Mr. Kelly asked what the settle-up meant for TRS in dollar amounts, and Mr.

Welch replied that it meant an additional \$90 million, with \$36 million going into the health care fund.

Mr. Welch updated the board on the process of paying the Cost of Living Adjustments (COLA) to the retirees. He confirmed for Ms. Sissney that it would be reflected in the retirees' September annuity check, which was paid on October 1, 2013.

Mr. Welch also reported on the answering time in the Telephone Counseling Center and the community programs in which TRS staff participated. Finally, Mr. Welch announced that the contract for the Line of Business (LOB) vendor for the TEAM program had been awarded to Hewlett-Packard.

**6. Receive a presentation from CEM on pension administration benchmarking – Rogier Slingerland, CEM**

Mr. Slingerland of CEM summarized the results of TRS pension administration benchmarking study. Mr. Kelly asked why larger plans were not included in the study sample. Mr. Slingerland responded that the study did not include larger plans in TRS' peer group to limit the effects of economies of scale and to compare TRS with plans of similar size. He noted that CEM benchmarked TRS against CEM's entire universe of benchmarking participants.

Discussing the calculation of the total costs, Mr. Slingerland explained that the study weighted transactions per member based on how labor-intensive the type of transaction was. He described factors of productivity and pension administration costs, excluding investment management costs. Mr. Kelly asked if the study could include data on efficiency. Mr. Slingerland stated that CEM had not found a correlation between service levels and costs.

Mr. Slingerland explained why TRS' administrative costs were \$57 lower than their peer group's average of \$86. He stated that TRS had fewer higher-weighted transactions, such as member presentations and one-on-one counseling. He responded to Ms. Sissney that the average number of attendees attending each presentation was about 75. Ms. Woods Wiley noted that counselors would provide one-on-one counseling after each presentation. Mr. Slingerland confirmed for Ms. Sissney that the average cost of living in Travis County was above those in the counties where other plans were located, despite the fact that TRS had lower costs on salaries and benefits.

Presenting the service scores, Mr. Slingerland noted that only quantifiable items were included in the calculation. He noted that the call center performance weighed heavily in the service scoring. He confirmed for Mr. Guthrie that a call back would be considered as an undesirable outcome of a phone call. Mr. Slingerland pointed out for Ms. Sissney that the trend lines for both services and costs were included in the complete report. Further discussion followed relating to possible mitigations to improve the service score in the future. At Mr. Kelly's request, staff would post the report on the board meeting site.

After a recess 11:55 a.m., the board reconvened at 12:22 p.m.

**7. Receive an overview of custody services – Sylvia Bell and Scot Leith.**

Ms. Bell introduced Ms. Gunjan Kedia, Mr. Rick Young, Mr. Joseph Barry, Mr. Chris Holzwarth, Ms. Jessica Donohue, and Mr. Jack Eckenrode of State Street Bank and Trust Co. Ms. Bell reviewed the current TRS financial process involving services provided by State Street. Responding to Mr. Colonna's questions about derivatives transactions, she explained how derivatives were cleared. She said that Goldman Sachs acting as a futures commission merchant, not State Street, cleared derivatives for TRS. She noted that State Street kept the records on derivatives transactions and ensured their accuracy. She noted that the investment operations and accounting functions were connected with State Street. Mr. Leith provided details on the functions of Investment Accounting and its interaction with State Street.

**8. Receive a presentation on State Street Bank and Trust, Co. – Gunjan Kedia, Rick Young, Joseph Barry, Jessica Donohue, and Nicholas Bonn, State Street Bank and Trust Co.**

Ms. Kedia, Mr. Young, Mr. Barry, Mr. Eckenrode, Ms. Donohue, and Mr. Holzwarth provided a presentation on State Street's values, strategies, services, performance, technological tools, regulatory coordination and reform, data security, research partnership, and the securities lending program. There was a discussion relating to TRS' liquidity control and arrangement and how State Street kept TRS' assets. Responding to a question from Ms. Palmer regarding potential areas for improvement, Mr. Young said that State Street would be providing faster services. Mr. Harris mentioned the importance of cybersecurity and data accuracy. Mr. Albright stated that he preferred automatic rather than manual processing of data.

The meeting recessed at 2:30 p.m. and reconvened at 2:55 p.m.

**9. Receive a presentation on and discuss potential future amendments to the Trustee Ethics Policy and position description and the Employee Ethics Policy and related documents, including the process and next steps for adoption of amendments – Carolina de Onís; Tim Wei; and Steve Huff, Reinhart Boerner Van Deuren, sc.**

Mr. Huff and Mr. Wei provided an overview of the proposed changes to the Trustee Ethics Policy and the Employee Ethics Policy. Mr. Huff explained that the proposed modifications resulted from statutory changes enacted during the last legislative session. Mr. Huff confirmed for Ms. Sissney that the proposed change relating to the prohibition on trustee investment and private investment funds would allow trustees to recuse themselves from voting on an investment that presented an issue and allow TRS to invest in it. Mr. Guthrie noted that staff would present the complete proposed policies for the board's consideration in December.

**10. Receive the Chief Financial Officer's report under § 825.314(b), Government Code, of expenditures that exceed the amount of operating expenses appropriated from the general revenue fund and are required to perform the fiduciary duties of the Board – Don Green.**

Pursuant to section 825.314(b) of the Government Code, Mr. Green presented a report of the expenditures paid during the month of August 2013 that were required to perform the fiduciary

duties of the board. He noted that the expenditures on TEAM in FY 2013 were between \$6 and \$7 million compared to just over \$1.5 million in FY 2012.

- 11. Discuss a principal investment transaction in the financial sector in a foreign jurisdiction, which relates to an investment in a private investment fund or the purchase, holding, or disposal of restricted securities or a private investment fund's investment in restricted securities – Rich Hall, Mike Lazorik, and Tim Wei.**

Mr. Hall introduced the topic relating to a principal investment transaction in the financial sector in a foreign jurisdiction.

Mr. Kelly announced that the board would go into executive session on agenda item 11 under section 825.3011 of the Government Code to confer about confidential investment matters, and under section 551.071 of the Government Code to seek advice from legal counsel. He asked all members of the public and staff not needed for the executive session to leave the meeting room and take their belongings with them.

Whereupon, the board went into executive session at 3:07 p.m.

The meeting was reconvened in open session and then adjourned at 3:55 p.m. The board did not take up further matters under agenda item 12 or 13.

- 12. Consider personnel matters, including the appointment, employment, evaluation, compensation, performance, duties, discipline, or dismissal of the Executive Director, Chief Investment Officer, or Chief Audit Executive – David Kelly.**
- 13. Consult with the Board's attorney(s) in Executive Session on any item listed above on this meeting agenda as authorized by Section 551.071 of the Texas Open Meetings Act (Chapter 551 of the Texas Government Code) – David Kelly.**

# **Tab 4**

# Teacher Retirement System of Texas



## *Executive Director's Report*

Brian Guthrie  
December 12, 2013





# Presentation Overview

- Board operational matters, including a review of draft agendas for upcoming meetings.
- Additional updates, including administrative operations, including financial, audit, legal, staff services, board administration activities, and special projects.
- Discussion of TRS being named one of the Austin-American Statesmen's top workplaces and a screening of the associated TRS video.



# Board Retreat Update

## February 12-14, 2014

### Region 2 Educational Service Center, Corpus Christi

- Wednesday February 12<sup>th</sup>
  - TRS-Care and TRS-ActiveCare;
  - Affordable Care Act;
  - Retiree Advisory Committee (RAC); and
  - Health care “town hall” in the afternoon includes answering written and emailed questions.
  
- Thursday February 13<sup>th</sup>
  - Investments;
  - Space & facilities planning; and
  - Strategic planning
  
- Friday February 14<sup>th</sup>
  - TEAM updates; and
  - Training sessions.



# Notable Events Since October

- State Street visit – November 4<sup>th</sup>-5<sup>th</sup>, Boston, MA
- TRS Golden Apple Awards – November 7<sup>th</sup>, TRS Headquarter
- Annual Legislative Briefing – November 12<sup>th</sup>, TRS Headquarters
- Institutional Investor Forum – November 13<sup>th</sup>, Austin, TX
- AiCIO Annual Dinner – December 9<sup>th</sup>, New York, NY



# AAS Top Workplaces



Of the **542** TRS employees invited to participate in the survey, **442** responded for a response rate of **82%**.

TRS employees provided approximately **570 comments** and improvement ideas about TRS gathered through survey questions.

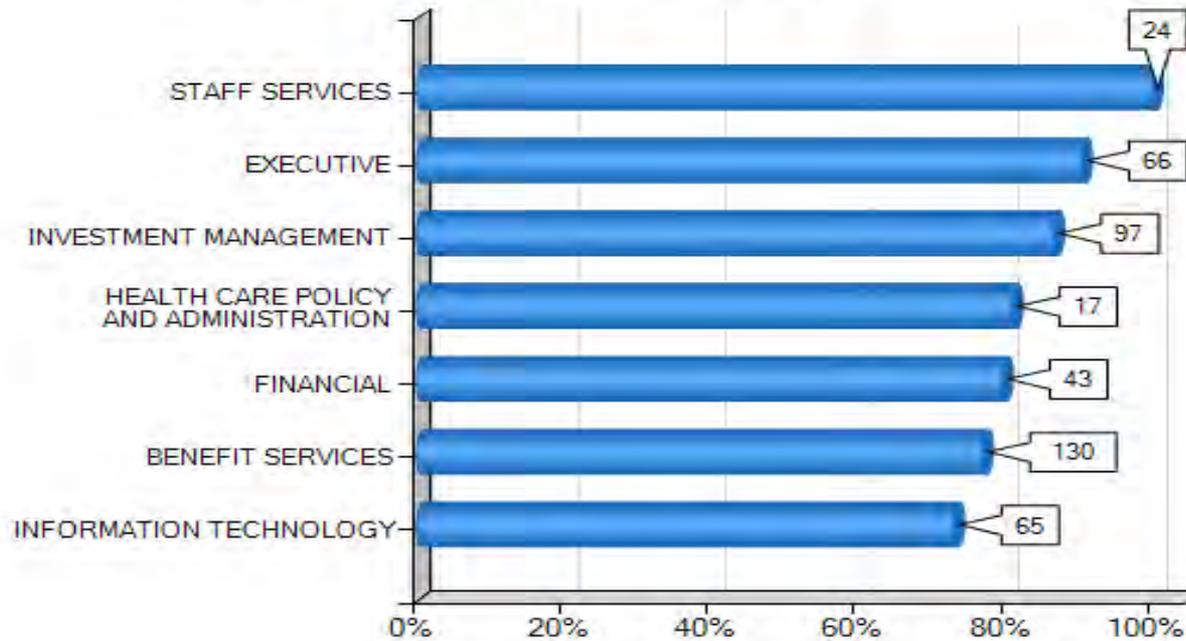
TRS has been recognized as one of the Top Workplaces by the Austin American-Statesman in 2010, 2012 and 2013.



# AAS Top Workplaces



Workplace  
Response Rates of Departments - July 2013



TRS Survey Departments	Responses	Surveyed	Percentage
Staff Services	24	24	100%
Executive	66	73	90%
Investment Management	97	112	87%
Health Care Policy & Administration	17	21	81%
Financial	43	54	80%
Benefit Services	130	169	77%
Information Technology	65	89	73%





# AAS Top Workplaces



Evaluates whether your company or organization is likely to succeed in the long term by having a clear sense of direction, executing brilliantly, innovating and making employees feel valued.



Direction



Execution

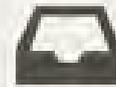


Connection



## My Job

Measures how employees feel about their day-to-day job including their managers, compensation, opportunities for career development and work/life balance.



My Work



My Manager



My Pay & Benefits



# 2013 Top Workplaces



## OrgHealth™



### Direction

- I believe Teacher Retirement System of Texas is going in the right direction
- I have confidence in the leader of Teacher Retirement System of Texas
- Teacher Retirement System of Texas operates by strong values and ethics



### Execution

- Senior managers understand what is really happening at Teacher Retirement System of Texas
- I feel well-informed about important decisions concerning Teacher Retirement System of Texas
- We do things efficiently and well
- New ideas are encouraged



### Connection

- I feel genuinely appreciated
- My job makes me feel like I am part of something meaningful
- I am confident about my future at Teacher Retirement System of Texas



## My Job



### My Work

- This job has met or exceeded the expectations I had when I started
- I get the formal training I want for my career
- I have the flexibility I need to balance my work and personal life
- There is not a lot of frustration at my workplace



### My Manager

- My manager cares about my concerns
- My manager makes it easier to do my job well
- My manager helps me learn and grow



### My Pay & Benefits

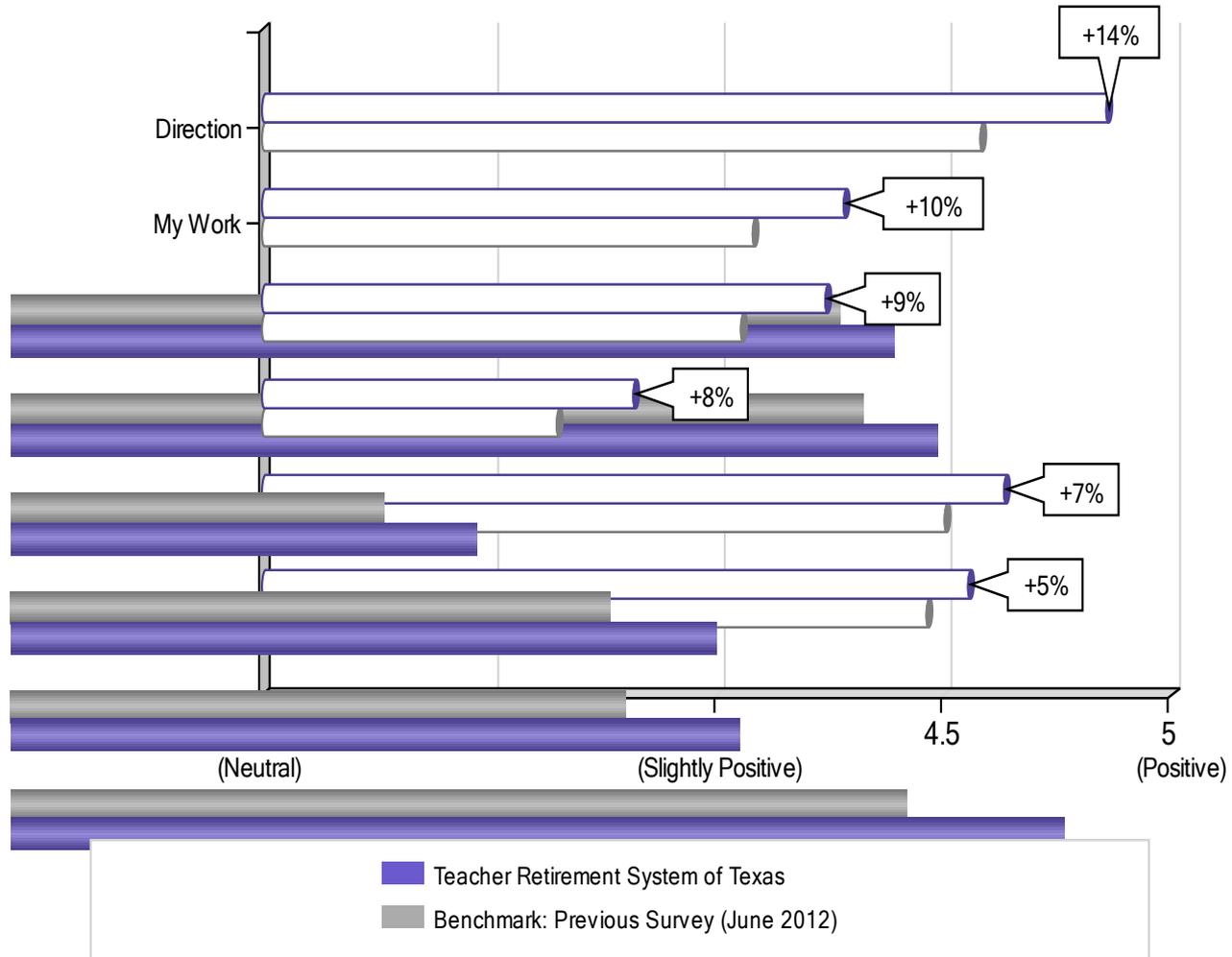
- My pay is fair for the work I do
- My benefits package is good compared with others in this industry



# TRS Results for 2013



Workplace  
Average Scores of Factors - July 2013



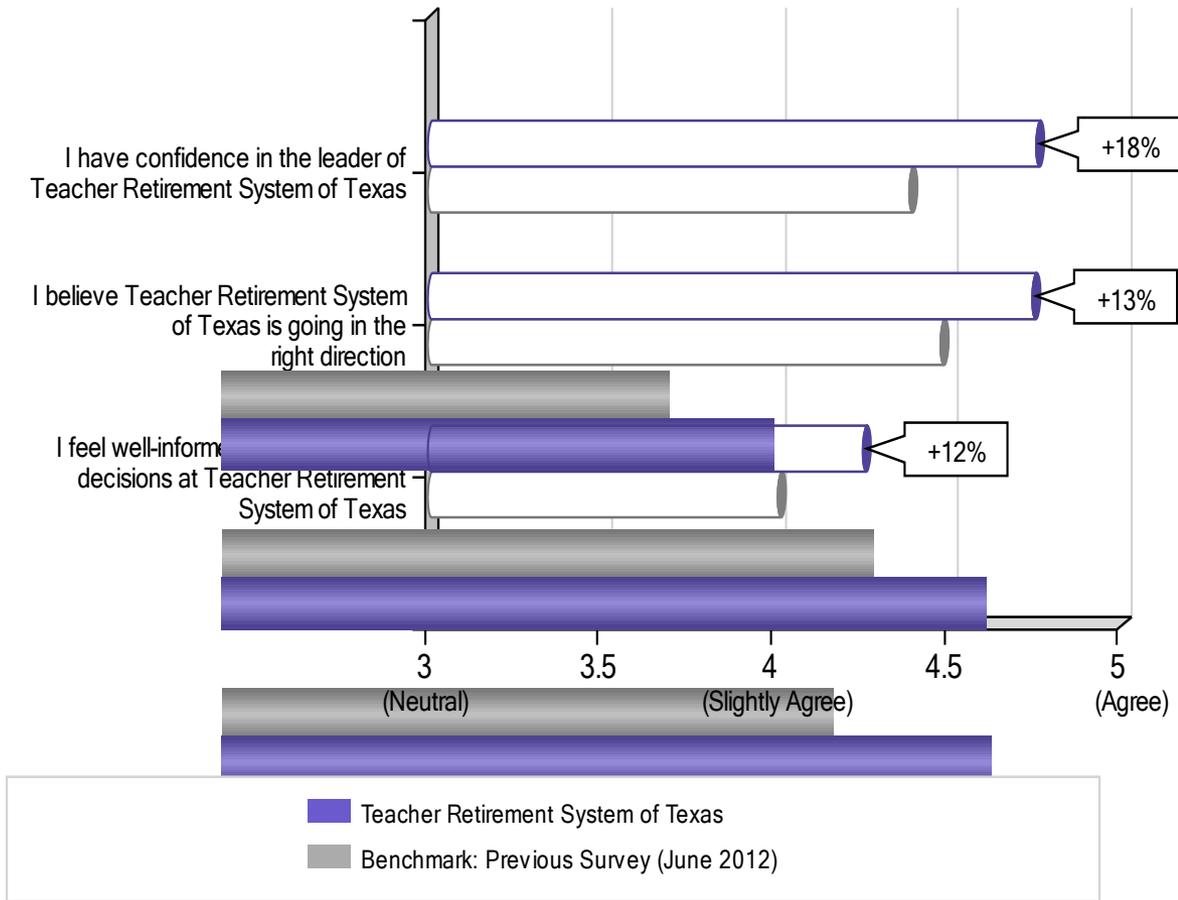


# TRS Results for 2013



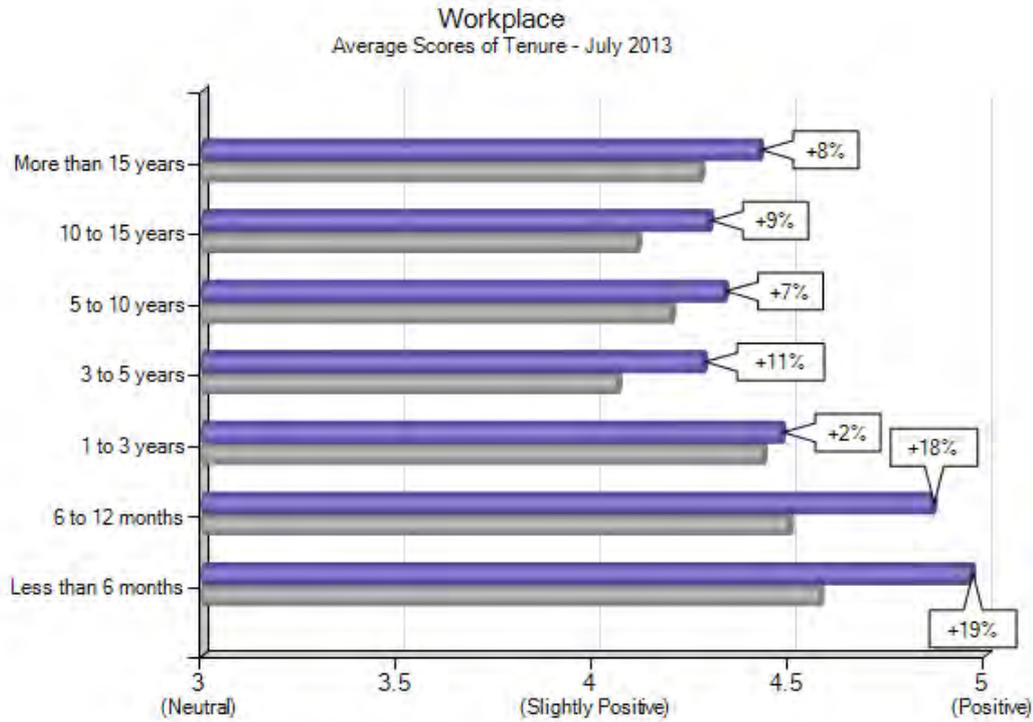
## Workplace

Average Scores of Top Statements - July 2013





# TRS Results for 2013



■ Teacher Retirement System of Texas  
■ Benchmark: Previous Survey (June 2012)

Tenure	% of Responders
5 to 10 years	21%
More than 15 years	21%
10 to 15 years	19%
1 to 3 years	17%
3 to 5 years	12%
6 to 12 months	5%
Less than 6 months	4%

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# TRS Results for 2013



TRS ranked 5<sup>th</sup> out of the top 10 large employers surveyed in the Greater Austin Area.

We were given the option to advertise in the AAS special Sunday insert announcing the awards, or to have a video made.

AAS filmed our Golden Apple Awards and interviewed several TRS professionals that same afternoon. Today we unveil the result....

# **Tab 5**

# Teacher Retirement System of Texas



## *Deputy Director's Report*

Ken Welch

December 13, 2013

- Legislative Update
  - S.B. 200
  - H.B. 1458
- Operational Update



# 2013 Golden Apple Recipients

Thanks a bushel and a peck. • You really got to the core. • You're the apple of my eye. • You're one good apple.

**2013 Golden Apples**

**Larry Abrahamson**  
*Benefit Counseling*

**Grant Birdwell**  
*Investment Management*

**Michael Friedman**  
*Benefit Processing*

**Luis Ramirez**  
*Staff Services*

**Iliana Raup**  
*Benefit Processing*

# **Tab 6 A**



# The Risk Management Foundations of Asset Allocation: A Primer

*Prepared for:*

Board of Trustees  
Teacher Retirement System of Texas

*Prepared by:*

Keith C. Brown  
University of Texas

December 12, 2013

# Agenda for the Discussion

## I. The Connection Between Risk Management and Asset Allocation

- Asset Allocation and the Role of the Board
- Identifying Risks in the Investment Process: Measures and Controls
- Portfolio Diversification and Other Risk Controls
- Monitoring Portfolio Risk at TRS

## II. Some Essential Risk Concepts

- *Concept #1*: Market Risk is Not Really Two-Sided
- *Concept #2*: Value at Risk (VaR) is Downside Risk
- *Concept #3*: Tracking Error (TE) is Risk Relative to a Benchmark
- *Concept #4*: Dollar Allocation and Risk Allocation are Two Different Things
- *Concept #5*: Credit Risk and Liquidity Risk are Also Important Considerations

## III. Risk Parity and Asset Allocation: A Brief Overview

- Traditional Asset Allocation vs. Risk Parity Allocation
- Identifying the Tangency Asset Allocation
- The Role of Leverage in Implementing a Risk Parity Allocation

## IV. Appendix: Technical Issues

- Examples of Portfolio Risk & Expected Return Calculations
- Tracking Error Examples
- Extending VaR: Example and Stress Testing
- Risk Decomposition and Marginal Risk Contribution: Computation and Example

# I. The Connection Between Risk Management and Asset Allocation

- The judgment as to how the System's financial assets should be broadly allocated amongst the permissible set of asset classes (i.e., the **strategic asset allocation**) is arguably the **most important** decision that the Board is responsible for making
  
- Setting an appropriate strategic asset allocation policy is **crucial** for at least **two reasons**:
  - The strategic allocation choice is the **primary factor** in explaining how the System's **wealth will vary over time**
  - It is also a primary market **risk control** device at the Board's disposal by insuring that the overall portfolio has achieved a proper amount of **diversification** in the portfolio
  
- As it currently configured, the System's Investment Policy Statement (IPS) requires the Board to specify **three dimensions** of the asset allocation decision
  - What is the **allowable universe** of asset classes that are permitted for inclusion in the portfolio?
  - What is the **long-term normal percentage** of overall Fund assets that should be invested in each permissible asset class (i.e., the **strategic asset allocation**)?
  - What **range of deviation** from the long-term normal allocation percentage for each asset class is permissible (i.e., the **tactical asset allocation range**)?

## Risk Management and Asset Allocation (cont.)

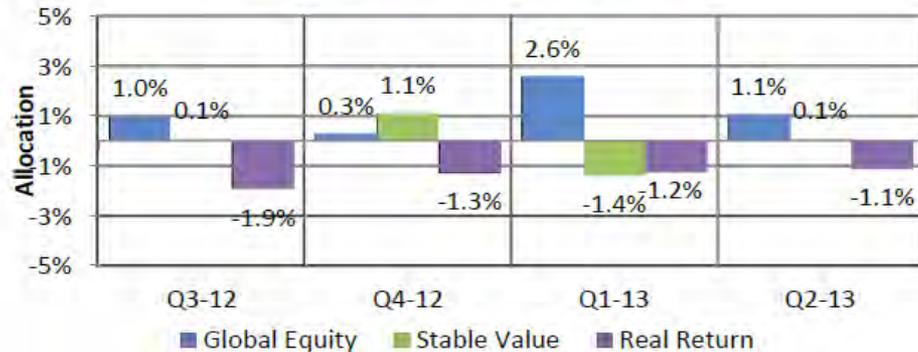
- Also associated with the asset allocation decision is the specification of an appropriate **benchmark** to define the “**opportunity cost**” an investment in each asset class
- The connection between asset allocation policy and risk management is recognized as the **best practice** in the pension fund investment industry. For instance, the Risk Management group at CALPERS has established the following **seven tenets of prudent investment**:
  - *Strategic asset allocation is the dominant determinant of risk and return*
  - *A return premium is required to take on risk*
  - *Premium is required for illiquidity*
  - *Long-term investment horizon is an advantage*
  - *Inefficiencies in the market create investment opportunities*
  - *Costs matter*
  - *Risk is multi-faceted and not fully quantifiable*

# TRS Asset Allocation: October 2013 IPS

Asset Class	Benchmark	Bloomberg Ticker	Minimum Range <sup>1</sup>	Maximum Range <sup>1</sup>	Target
<b>Global Equity:</b>					
US Large Cap	MSCI USA Standard	GDDUUS	13%	23%	18%
US Small Cap	MSCI USA Small Cap	GCUDUS	0%	7%	2%
Non-US Developed	MSCI EAFE and Canada	NDDUEC	10%	20%	15%
Emerging Markets	MSCI EM	NDUEEGF	5%	15%	10%
Directional Hedge Funds	HFRI Fund of Funds Composite	HFRIFOF	0%	10%	5%
<i>Total Public Equity</i>	<i>Target-weighted Blend</i>		45%	55%	50%
Private Equity	Customized State Street Private Equity Index – lagged one quarter <sup>2</sup>		6%	16%	11%
<i>Total Global Equity</i>	<i>Target-weighted Blend</i>		<b>54%</b>	<b>68%</b>	<b>61%</b>
<b>Stable Value:</b>					
US Treasuries	Barclays Capital (BarCap) Long Treasury Index	LUTLTRUU	0%	20%	13%
Absolute Return (Including Credit Sensitive Investments) <sup>3</sup>	3 Month LIBOR + 2%	USC0TR03 (plus 2%)	0%	20%	0%
Stable Value Hedge Funds	HFRI Fund of Funds Conservative	HFRIFOFC	0%	10%	4%
Cash	Citigroup 90-day US Treasury	SBMMTB3	0%	5%	1%
<i>Total Stable Value</i>	<i>Target-weighted Blend</i>		13%	23%	18%
<b>Real Return:</b>					
Global Inflation Linked Bonds	BarCap US Treasury TIPS index	LBUTTRUU	0%	10%	5%
Real Assets	NCREIF ODCE – lagged one quarter		8%	18%	13%
Energy and Natural Resources <sup>4</sup>	75% Cambridge Associates Natural Resources (reweighted <sup>4</sup> ) / 25% quarterly Consumer Price Index – lagged one quarter	CPI (for CPI)	0%	8%	3%
Commodities <sup>4</sup>	Goldman Sachs Commodity Index	SPGCCITR	0%	5%	0%
<i>Total Real Return</i>	<i>Target-weighted Blend</i>		16%	26%	21%
<b>TOTAL PLAN</b>	<b>Target-weighted Blend</b>				<b>100%</b>

# TRS Asset Allocation (as of June 2013)

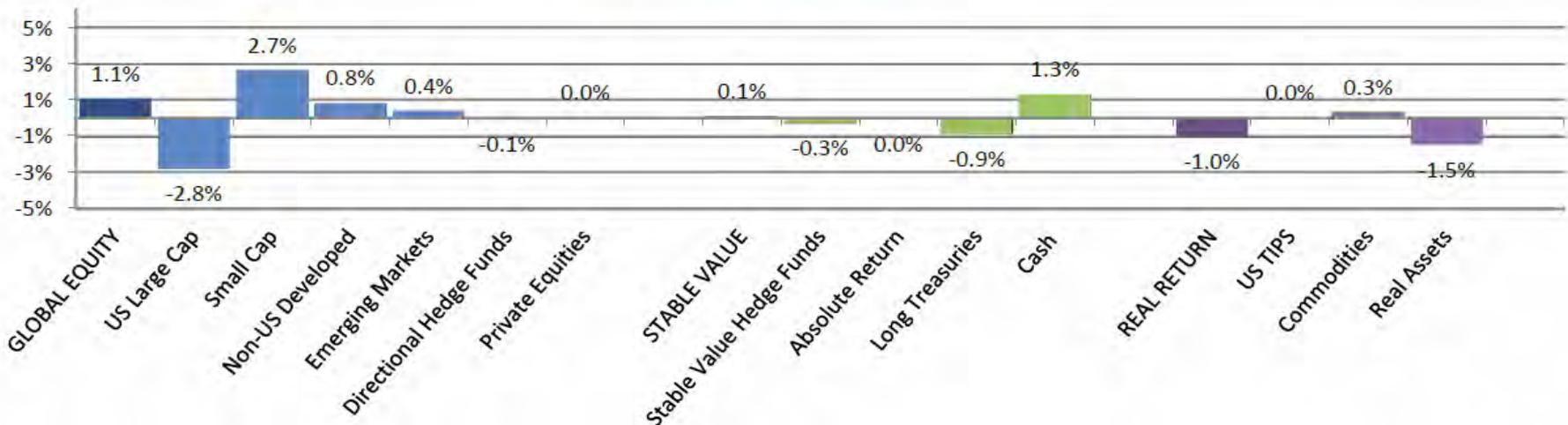
## Group Active Allocation



Top Three Overweights	
Small Cap	2.7%
Cash	1.3%
Non-US Developed	0.8%

Top Three Underweights	
US Large Cap	-2.8%
Real Assets	-1.5%
Long Treasuries	-0.9%

## Asset Group/Class Active Allocation (In Compliance with Policy)



Source: State Street Bank

As of June 30, 2013

## The Importance of the Asset Allocation Decision

- In an influential article published in *Financial Analysts Journal* in 1986, Gary Brinson, Randolph Hood, and Gilbert Beebower examined the issue of **how important the initial strategic allocation decision was to an investor**
  - The implicit idea of the investigation was to evaluate the benefits of **passive** (i.e., strategic allocation) versus **active** (i.e., tactical allocation, security selection) asset management
- They looked at quarterly return data for 91 pension funds over a ten-year period and decomposed the average returns as follows:
  - Actual Overall Return (IV)
  - Return due to **Strategic Allocation** (I)
  - Return due to Strategic Allocation and **Tactical Allocation** (II)
  - Return due to Strategic Allocation and **Security Selection** (III)

# The Importance of the Asset Allocation Decision (cont.)

- Graphically:

		Selection	
		Actual	Passive
Timing	Actual	(IV) Actual Portfolio Return	(II) Policy and Timing Return
	Passive	(III) Policy and Security Selection Return	(I) Policy Return (Passive Portfolio Benchmark)

Active Returns Due to:	
Timing	II - I
Selection	III - I
Other	IV - III - II + I
<u>Total</u>	<u>IV - I</u>

		Selection	
		Actual	Passive
Timing	Actual	(IV) 9.01%	(II) 9.44%
	Passive	(III) 9.75%	(I) 10.11%

Active Returns Due to:	
Timing	-0.66%
Security selection	-0.36
Other	-0.07
<u>Total active return</u>	<u>-1.10%</u>

- In terms of return performance, the authors found that the average pension fund generated a **negative alpha**:

# The Importance of the Asset Allocation Decision (cont.)

- In terms of return variation, they found that more than 90% (i.e., 93.6%) of that variation could be explained by the initial strategic asset allocation decision:

**Table 7. Percentage of Total Return Variation Explained by Investment Activity, Average of 91 Plans, 1973–1985**

		Selection	
		Actual	Passive
Timing	Actual	(IV) 100.0%	(II) 95.3%
	Passive	(III) 97.8%	(I) 93.6%

	Variance Explained			
	Average	Minimum	Maximum	Standard Deviation
Policy	93.6%	75.5%	98.6%	4.4%
Policy and timing	95.3	78.7	98.7	2.9
Policy and selection	97.8	80.6	99.8	3.1

- In a subsequent *FAJ* study in 2000, Ibbotson and Kaplan support this conclusion, but argue that the importance of the strategic allocation decision **does depend** on how you look at return variation (i.e., 40%, 90%, or 100%)
  - They showed that the answer was over 90% for a single fund over time (i.e., a **time series**), but only 40% for a collection of funds at a given point in time (i.e., a **cross section**)

# Which Perspective?: Time-Series vs. Cross-Sectional Evaluation

		<i>Fund:</i>					
		<b>A</b>	<b>B</b>	..	<b>J</b>	..	<b>Z</b>
	<b>1</b>	$R_{A,1}$	$R_{B,1}$	..	$R_{J,1}$	..	$R_{Z,1}$
	<b>2</b>	$R_{A,2}$	$R_{B,2}$	..	$R_{J,2}$	..	$R_{Z,2}$
	<b>3</b>	$R_{A,3}$	$R_{B,3}$	..	$R_{J,3}$	..	$R_{Z,3}$
	:	:	:	..	:	..	:
	:	:	:	..	:	..	:
<i>Period:</i>	<b>t</b>	$R_{A,t}$	$R_{B,t}$	..	$R_{J,t}$	..	$R_{Z,t}$
	:	:	:	..	:	..	:
	:	:	:	..	:	..	:
	:	:	:	..	:	..	:
	:	:	:	..	:	..	:
	:	:	:	..	:	..	:
	<b>N-1</b>	$R_{A,N-1}$	$R_{B,N-1}$	..	$R_{J,N-1}$	..	$R_{Z,N-1}$
	<b>N</b>	$R_{A,N}$	$R_{B,N}$	..	$R_{J,N}$	..	$R_{Z,N}$

- **Time-Series Perspective:**  
Focus on a single fund over several periods in time

- **Cross-Sectional Perspective:**  
Focus on a group of funds at one period in time

# Components of Multi-Asset Class Fund Returns

Year		$R$	$R^B$	$R^T$	$R^S$	$R - R^B$
2005	Mean	9.67	8.70	-0.58	1.55	0.97
	Std	3.19	2.14	1.40	2.52	2.68
2004	Mean	15.63	14.21	-0.43	1.86	1.43
	Std	4.07	2.21	1.49	3.08	3.28
2003	Mean	2.37	1.48	0.41	0.48	0.89
	Std	3.46	1.41	1.11	3.18	3.37
2002	Mean	-6.13	-9.19	0.72	2.33	3.05
	Std	4.15	3.11	2.16	4.05	4.41
2001	Mean	-3.42	-8.19	-0.40	5.18	4.77
	Std	6.23	3.00	2.19	6.05	6.15
2000	Mean	13.02	10.47	0.88	1.67	2.56
	Std	10.60	5.28	3.62	7.29	8.24
1999	Mean	10.85	12.11	0.28	-1.55	-1.27
	Std	4.83	2.04	1.72	4.63	4.91
1998	Mean	18.09	18.01	0.12	-0.04	0.08
	Std	3.82	2.56	2.11	3.76	3.63
1997	Mean	20.14	17.92	1.14	1.08	2.22
	Std	4.42	3.68	3.52	4.21	5.09
1996	Mean	17.35	14.58	0.27	2.50	2.77
	Std	4.13	2.91	3.03	4.23	3.68
1995	Mean	15.26	15.76	-0.65	0.14	-0.51
	Std	4.09	2.06	2.07	3.95	3.82
1994	Mean	3.39	-0.07	0.16	3.30	3.46
	Std	4.54	1.27	0.90	4.26	4.37
1993	Mean	13.46	11.82	0.23	1.41	1.64
	Std	4.01	1.52	1.27	4.05	4.23
1992	Mean	13.00	11.24	0.12	1.64	1.76
	Std	4.08	1.18	1.56	4.07	4.33
1991	Mean	6.77	5.83	0.29	0.65	0.94
	Std	4.31	1.36	2.04	4.41	4.10
Grand Mean		9.96	8.31	0.17	1.48	1.65

- A 2010 study of **university endowment funds** by Brown, Garlappi and Tiu, decomposed total returns ( $R$ ) into benchmark ( $R^B$ ), security selection ( $R^S$ ), and market timing ( $R^T$ ) components
- Notice that over time, university endowment returns ( $R$ ) exceed their benchmark ( $R^B$ ) by 165 basis points.
- Of this 165 basis points of outperformance, 148 is due to security selection ( $R^S$ ) and 17 is due to market timing ( $R^T$ )

# Components of Multi-Asset Class Fund Returns (cont.)

	Mean	Median	p-25	p-75	Std. Dev.
Panel A: Time-series R-squared values					
$R^B$	74.22%	83.27%	68.58%	91.45%	29.05%
$R^T$	3.14%	-4.54%	-9.09%	9.73%	28.97%
$R^S$	7.82%	-1.59%	-8.58%	16.97%	32.53%
Panel B: Cross-sectional R-squared values					
$R^B$	15.26%	8.78%	5.38%	24.61%	14.87%
$R^T$	2.50%	0.70%	0.18%	2.16%	5.99%
$R^S$	72.80%	75.37%	60.33%	86.23%	14.62%

- To see how much of the overall endowment return is explained by the various components, consider several versions of the following regression:  $R = \alpha + \beta R^k + \varepsilon$ , where  $k = B, T, \text{ or } S$
- When this regression is run for a *single fund over several years*, the vast majority (74.2%) of the variation in total returns is explained by the **strategic asset allocation decision**. This is comparable to the Brinson et al result for pension funds
- However, when the evaluating the cross-sectional performance of a *group of funds during a single year*, the **security selection** decision is almost five time more important than the asset allocation decision (72.8% vs. 15.3%).

## Connection Between Risk Management and Asset Allocation (cont.)

- The preceding research shows that Board's **asset allocation** decision is the **main driver** for how the portfolio produces **returns over time**
- However, as noted earlier, the **asset allocation** decision is also intended to help **control the level of risk** in the portfolio
  - By itself, asset allocation policy is, at best, an **indirect risk control** mechanism that works mainly through the concept of **diversification**
  - There is an **important difference** between the Board's **dollar asset allocation** decision and the **implied risk allocation** associated with the dollar allocation choice
- Consequently, the Board must also institute **explicit risk controls** in the investment policy to address the myriad forms of risk that exist in the process of managing a multi-asset class portfolio
  - There are **many important sources of risk** (e.g., market, credit, liquidity, measurement) and **many ways of measuring** these risks

## A Brief Look at the Notion of Portfolio Diversification

- One of the most basic and effective devices for *controlling portfolio risk* is to adopt a *well-diversified asset allocation* strategy.
  - Naïve diversification (i.e., spreading investment capital across multiple asset classes) can remove all of the *unsystematic risk* from the portfolio.
  - Unsystematic risk represents about half of the total volatility in a typical individual security.
  - Diversification is sometimes thought of as the only “free lunch” in portfolio management.
- The important insight that emerges is that the risk characteristics of a portfolio become distinct from those of the portfolio’s underlying assets because of *diversification*. Consequently, investors can only expect compensation for risk that they cannot diversify away by holding a broad-based portfolio of securities (i.e., the *systematic risk*)

- Expected Return of a Portfolio: 
$$E(R_p) = \sum_{i=1}^n w_i * E(R_i)$$

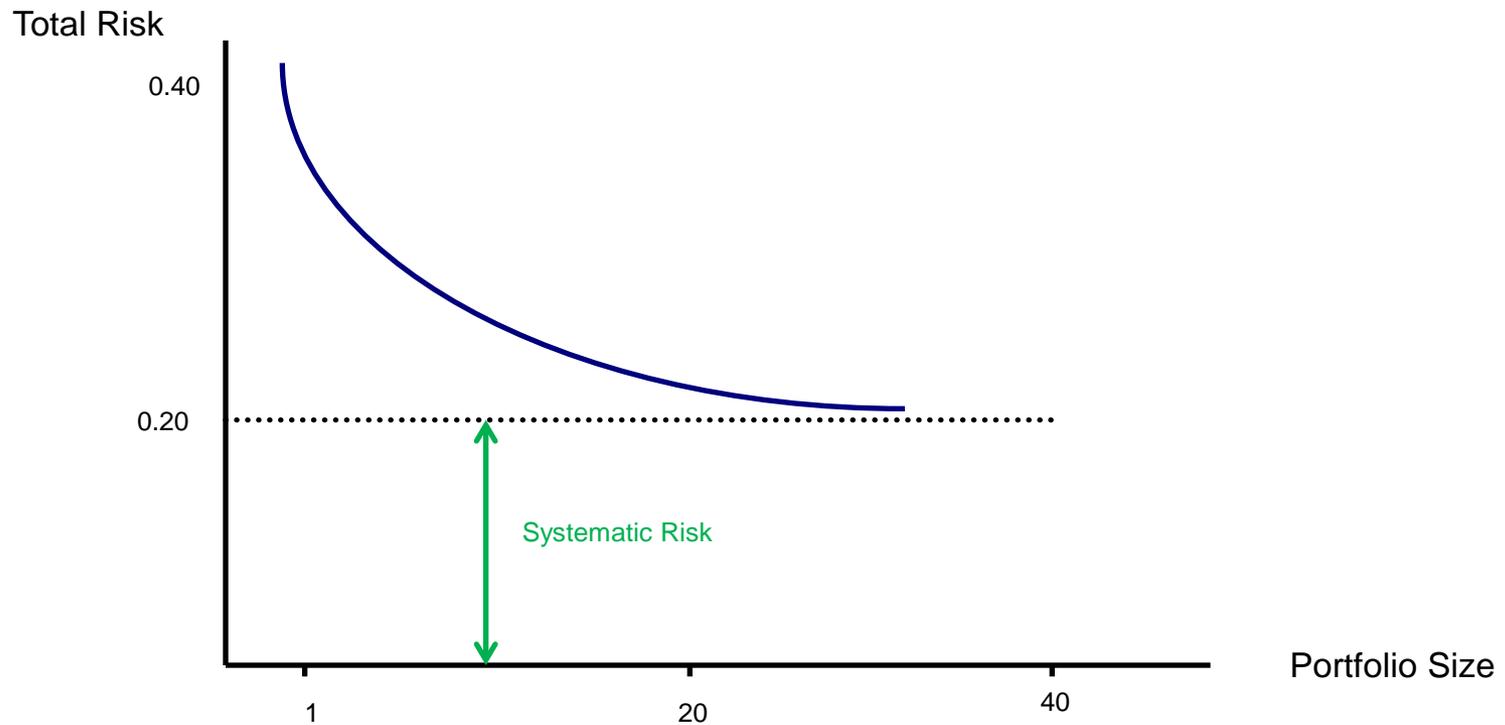
where  $w_i$  is the percentage investment in the  $i$ -th asset class

- Risk (i.e., Volatility) of a Portfolio:

$$\sigma_p^2 = [w_1^2 \sigma_1^2 + \dots + w_n^2 \sigma_n^2] + [2w_1 w_2 \sigma_1 \sigma_2 \rho_{1,2} + \dots + 2w_{n-1} w_n \sigma_{n-1} \sigma_n \rho_{n-1,n}]$$

Total Risk = (Unsystematic Risk) + (Systematic Risk)

# Diversification and Portfolio Size: Graphical Interpretation



## Additional Risk Controls: Extending the Discussion

- Diversifying a portfolio across multiple asset classes is a powerful risk control device, but there is a **limit to how effective** it can be
  - Diversification potential tends to break down when it needed most (i.e., in times of severe economic stress) since during these times asset return correlations tend to go to 1.0
  - Portfolio diversification only addresses the risk associated with broad movements in **financial market prices**
- Investors must also **consider**—and plan for—the adverse effects on a portfolio associated with a number of **other exposures**, such as liquidity, credit, manager selection, model specification, and operational risks
  - The following chart offers a **schematic representation** of many of these additional risks, as well as the tools used to measure and control them

- David Belmont, Chief Risk Officer of the Commonfund, has suggested the following litany of investment risks and risk measurement tools

## Risk Identification and Ownership

Strategic Solutions (OCIO)	Fixed Income & Commodity	Equities	Hedge Funds	Private Capital	Treasury Access	Quant Research	Trading	Operations	Legal	Compliance	Human Resources	Sales and Service
Investment Risk						Counterparty Risk	Operational Risk	Reputation Risk		Regulatory Risk		
Asset Allocation Risk	Manager Selection Risk	Model Risk	Concentration Risk	Best Execution Risk	Liquidity Risk	Counterparty Default Risk (Example)	Business Continuity Risk (Example)	Information Security Risk (Example)	Fraud Risk (Example)	Non-compliance (Example)		

## Risk Measurement/Monitoring

Investment Risk			Market Risk			Credit Risk			Operational Risk		
Tracking Error	Beta	RVaR	VaR/ CVaR	Scenario	Stress	PFE	MTM	Collateral	Commission Analysis	Background Checks	Fund Violations
Up/Down Participation	Max Drawdown	Risk Adj. Returns	Concentration (Asset Class, Region, Factor, Manager)			Credit Quality (CDS, Ratings, Equity Prices)			Error Tracking	News Alerts	Execution Prices

# Risk Controls in the TRS IPS: October 2013

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## 10.1. Market Risk Management

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The Investment Division will establish a framework for measuring enterprise-level risk for both the Total Fund Portfolio and the established benchmark, including any transition benchmarks employed during asset allocation shifts. At a minimum, this framework must include a quantified estimate of downside risk (e.g., value-at-risk (“VaR”), estimated shortfall, or various parametric and non-parametric statistics). The Investment Division will monitor the relative positioning of the Total Fund Portfolio vis-à-vis the benchmark no less frequently than monthly.

- a. **Asset allocation limits** – In addition to the Total Fund Portfolio level risk limits, the portfolio will be constrained to the asset allocation percentages and ranges prescribed by this Policy. Accordingly, the total exposure to each asset class must be based on the individual exposures of each cash security and each outstanding derivative contract.
- b. **Risk limit** – The Investment Division will model and monitor the Total Fund Portfolio and benchmark to ensure that the total estimated risk for the Public Markets portion of the Portfolio is within the upper and lower bounds corresponding to the maximum and minimum downside risk measures that could be achieved through the asset
- c. **Proxy securities and indices** – If necessary and prudent, the Investment Division will employ proxies to approximate the economic characteristics of actual investments if the terms and conditions of the actual investments or the underlying holdings are not readily available or where the complexity of the underlying investment renders a deterministic model impractical.
- d. **Transition portfolio** – During portfolio transitions from or to private investments, a transition benchmark may be employed that either explicitly creates placeholders for unfunded private investments or that treats the allocations to private market assets separately from the allocations to public market assets based on the funded portion of the Private Markets Portfolios. In either case, the risk statistics and limits will be applied relative to this transition benchmark.
- e. **Private market assets holdings** – The Investment Division may include private investments in this analysis either by proxy or by actually modeling the terms and conditions of the underlying exposures; however, if the inclusion of these investments is deemed to distort the true risk characteristics of the portfolio, the Board may approve the use of an alternative methodology for analyzing the risk characteristics of those investments.
- f. **Active risk limits** – In addition to the portfolio-level risk statistics described above, a target tracking error will be imposed on each asset class mandate whether implemented through internal or external managers or commingled funds. Additionally, a target tracking error will be imposed on the entire portfolio that takes into account both internally and externally managed portfolios and commingled funds as well as both asset allocation and security selection decisions. These limits are specified in Appendix A, attached hereto.

## Market Risk Controls in the TRS IPS: October 2013 (cont.)

### APPENDIX A – TRACKING ERROR NEUTRAL

(IN ANNUALIZED BASIS POINTS)<sup>1</sup>

<b>Internal</b>	<b>Neutral</b>
Equity (Global Best)	100
<b>External</b>	
Equity (US; Large-Cap)	300
Equity (US; Small-Cap)	500
Equity (International; Developed, EAFE)	300
Equity (International; Emerging Markets)	300
Equity (World Equity)	300
Stable Value Hedge Funds	400
Directional Hedge Funds	600

	<b>Neutral</b>	<b>Maximum</b>
Total Global Inflation Linked		200
Total Public Fund Tracking Error	100	300

<sup>1</sup> Tracking error will be measured on a realized basis over a three year period.

# Credit Risk Controls in the TRS IPS: October 2013

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## 10.3. Credit Risk Management

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- a. **Counterparty exposures** – The maximum allowable unsecured counterparty exposure for OTC derivative transactions is \$500 million, based on the total net market value of all OTC positions held with each counterparty. The total counterparty exposure for each counterparty, including the collateralized portions of these agreements, may not exceed 5% of the market value of the Total Fund. The minimum credit rating, based on a nationally recognized statistical rating organization (“NRSRO”), must be at least A- or better at the inception of the contract. For any counterparty that experiences deterioration in credit quality that results in a NRSRO rating below the A- level, subsequent to the inception of transaction, additional eligible collateral may be posted, or the transaction may be terminated.
- b. All OTC derivatives must be governed by an ISDA Master Agreement and Credit Support Annex or, if centrally cleared, by clearing agreements, and must include both close-out netting provisions and collateralization provisions.
- c. **Repurchase agreements** – The counterparty limits for repurchase transactions and tri-party repurchase transactions may not exceed 5% of the market value of the Total Fund unless those transactions are covered by a third-party indemnification agreement by an organization that bears a long-term NRSRO credit rating of A- or better and is enhanced by acceptable collateral. Each repurchase agreement will be entered into under the PSA/ISMA Global Master Repurchase Agreement.  
  
Each ISDA Master Agreement must also include a table that delineates the excess purchased securities margin (haircut) required, based on the collateral type, duration, and credit quality.
- d. **Securities lending** – When securities lending activity is performed by an external, third party lending agent, Investment Division will examine the credit underwriting practices of the lending agent, including enforcement of collateral requirements, counterparty analysis, and surveillance. Additionally, Investment Division will periodically review the securities lending lines by counterparty. A securities lending agent must be an organization rated A- or better by a NRSRO. More detailed information about TRS securities lending activities is specified in the separate Securities Lending Policy.

# Liquidity Risk Controls in the TRS IPS: October 2013

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## 10.4. Liquidity Risk Management

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The objective of the Liquidity Risk Management policy is to ensure that the Fund maintains ample liquidity to meet its funding commitments. The two kinds of commitments which necessitate a prudent liquidity policy are:

- a. Disbursements of benefits and related obligations to plan participants, including retirement, death, health, and disability benefits payments.
- b. TRS investment activities: These are mainly associated with risk management and funding of external managers. Some examples include:
  - i. TRS engages in derivatives to efficiently manage and reduce risk of the overall investment portfolio. Use of these instruments requires liquidity for collateral, margin and payment obligations at the time of a reset, call or maturity;
  - ii. TRS funds accounts managed by public markets external managers; and
  - iii. TRS manages unfunded capital commitments that the Fund is legally obligated to fund when called by private markets general partners.

### External Funding Authority

The Investment Division is authorized to establish external funding mechanisms (such as master repurchase agreements with one or more counterparties) and the flexibility to operate in all types of market liquidity environments to allow prudent management of these commitments while achieving a long-term rate of return and adhering to the asset allocation limits outlined in this Policy. In addition to these external funding mechanisms, TRS will maintain adequate funds in its custodial account to cover investment-related obligations. Finally, the Board authorizes the Investment Division to access the cash holdings backing the OTC swaps to manage its commitments.

### Limitations Applicable to External Funding Authority

Liquidity provided from these external funding mechanisms may not exceed 2% of the market value of the Total Fund. The expectation is that the liquidity funded through external funding mechanisms will be short-term (less than 30 days). The Investment Division must seek approval from the CIO for extended use of external funding sources. The Investment Division shall report such approvals for extended use to the Board not later than the next regular quarterly meeting.

# Investment Policy Compliance at TRS – September 2013

Policy Requirements	Description	In compliance?	
<b>1. Asset Allocation</b>	<b>In compliance with policy</b>	✓	
<b>2. Value at Risk</b>	<b>7.9% (49% of the VaR limit Range)</b>	✓	
<b>3. Tracking Error</b>	<b>In compliance with policy</b>	✓	
Total Public Fund	Tracking Error 112	As % of Max 37%	✓
<b>4. Leverage</b>	<b>In compliance with policy</b>	✓	
Total Trust			
Net Leverage	96.3% (Within historical norm)		✓
Gross Leverage	114.3% (Within historical norm)		✓
Securities Lending			
Net Leverage	100.4% (Within historical norm)		✓
Gross Leverage	118.4% (Within historical norm)		✓
Hedge Fund			
Net Leverage	66.5% (Within historical norm)		✓
Gross Leverage	279.7% (Within historical norm)		✓
Strategic Partners			
Net Leverage	73.5% (Within historical norm)		✓
Gross Leverage	139% (Within historical norm)		✓
Real Assets			
Loan to Value	37.9% (Within historical norm)		✓
<b>5. Liquidity</b>	<b>In compliance with policy</b>	✓	
<b>6. Counterparty</b>	<b>In compliance with policy</b>	✓	
Exposure	In compliance with policy		✓
Rating	In compliance with policy		✓
<b>7. Derivative Exposures</b>	<b>In compliance with policy</b>	✓	

## II. Some Essential Risk Concepts

- It may go without saying, but it is impossible in the current environment for the System to achieve the expected return goal in its investment portfolio without taking risk
  - The ultimate goal of an investment policy is to decide which risk exposures are prudent to accept in the pursuit of that return goal and how levels of those exposures are sensible
  - Diversification is an important first step in understanding and controlling portfolio risk, but there are many others that need to be considered as well
  
- We will cover five more concepts of risk management that are particularly relevant for how adverse economic exposures are controlled within the context of the TRS portfolio:
  - Concept #1: Market Risk is Not Really Two-Sided
  - Concept #2: Value at Risk (VaR) is Downside Risk
  - Concept #3: Tracking Error (TE) is Risk Relative to a Benchmark
  - Concept #4: Dollar Allocation and Risk Allocation are Two Different Things
  - Concept #5: Credit Risk and Liquidity Risk are Also Important Considerations

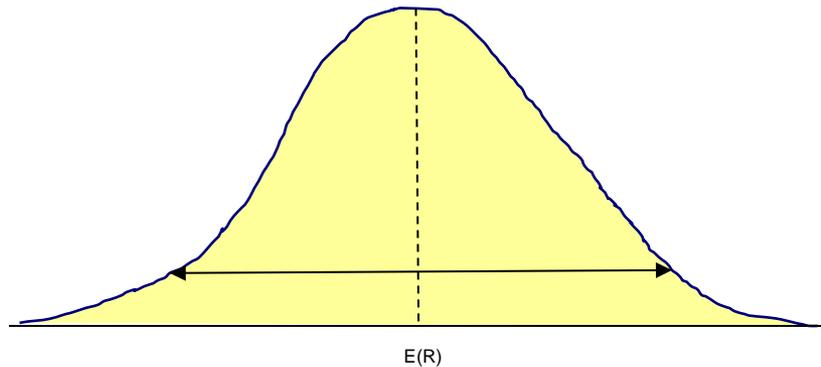
# Concept #1: Market Risk is Not Really Two-Sided

- The most commonly employed measure of market risk is the *variance* (or *standard deviation*) of the potential returns associated with a particular investment.
- Return variance is a *two-sided risk measure* in that it does not discriminate between the possibility of receiving a return that is *higher* than expected versus the possibility of receiving a return that is *lower* than expected
  - This distinction does not matter when return distributions are *symmetric*.
- Investors clearly care most about *receiving less* return than they were promised. That is, they focus on the *downside risk*
  - Variance is a *misleading* risk measure when the downside and upside outcomes in a portfolio are *not symmetric* (e.g., put option protection).
- Two popular measures of downside risk:
  - *Semi-Variance*
  - *Lower Partial Moment*

# Potential Returns Considered Risky: An Illustration

- *Variance:*

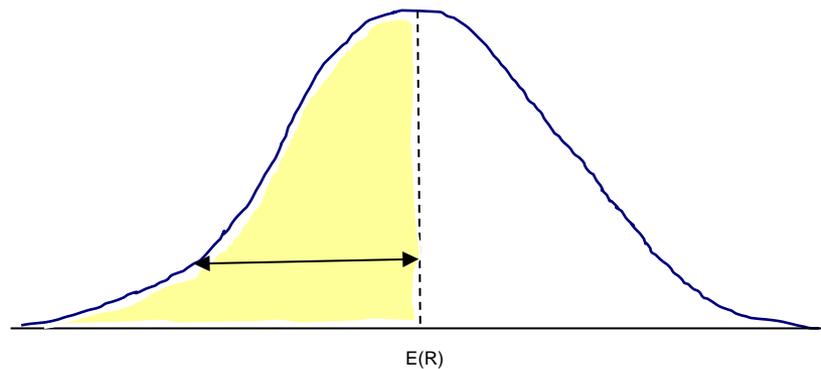
$$\sigma^2 = \sum_{R_i=-\infty}^{\infty} p_i [R_i - E(R)]^2$$



- *Semi-Variance:*

$$\text{Semi} - \sigma^2 =$$

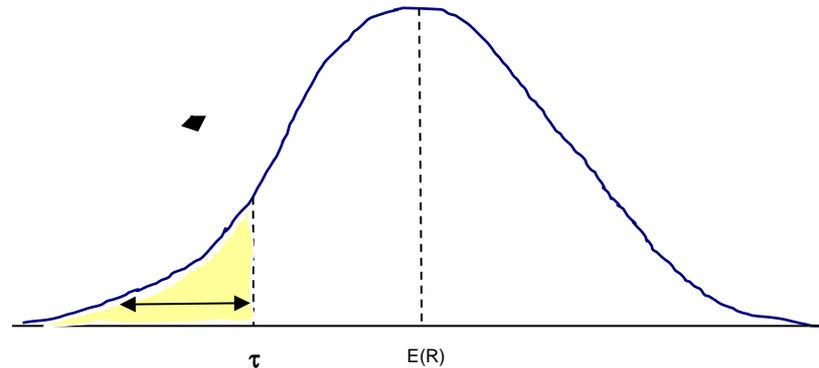
$$\sum_{R_i=-\infty}^{E(R)} p_i [R_i - E(R)]^2$$



## Illustrating Risky Returns (cont.)

- *Lower-Partial Moment:*

$$LPM(n) = \sum_{R_i = -\infty}^{\tau} p_i [\tau - R_i]^n$$



- *Note that:*

- $n = 0$ :  
*Probability of Loss*
- $n = 1$ :  
*Target Shortfall*
- $n = 2$ :  
*Target Semi-Variance*

## Example of Downside Risk Measures:

To see how these alternative risk statistics compare to the variance consider the following probability distributions for two investment portfolios:

<u>Potential Return</u>	<u>Prob. of Return for Portfolio #1</u>	<u>Prob. of Return for Portfolio #2</u>
-15%	5%	0%
-10	8	0
-5	12	25
0	16	35
5	18	10
10	16	7
15	12	9
20	8	5
25	5	3
30	0	3
35	0	3

Notice that the expected return for both of these portfolios is 5%:

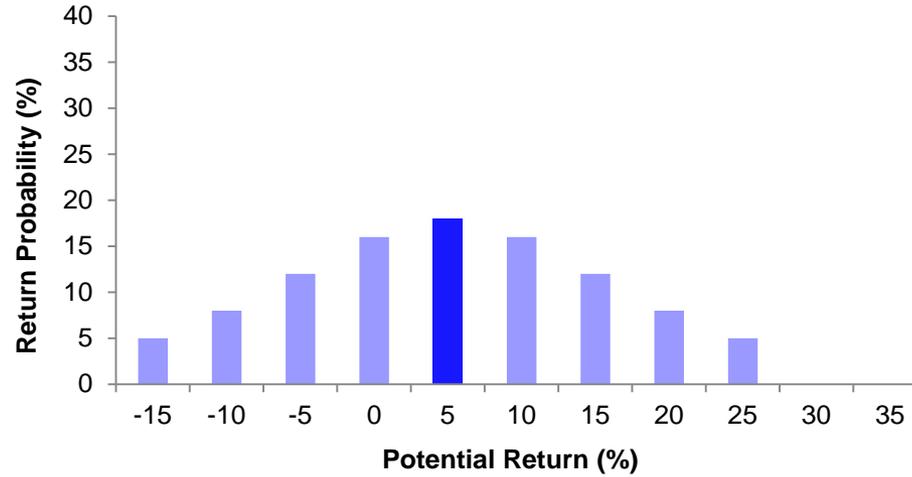
$$E(R)_1 = (.05)(-0.15) + (.08)(-0.10) + \dots + (.05)(0.25) = 0.05$$

and

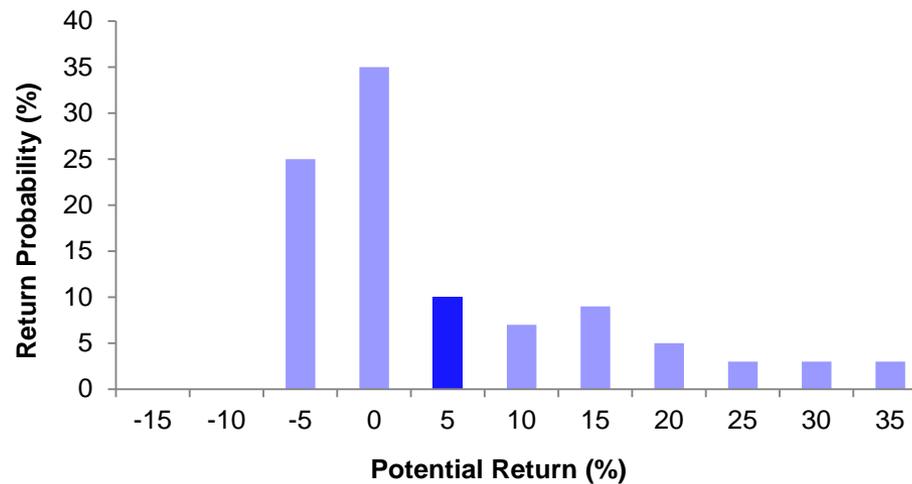
$$E(R)_2 = (.25)(-0.05) + (.35)(0.00) + \dots + (.03)(0.35) = 0.05$$

# Portfolio Return Probability Distributions

Portfolio #1 Return Distribution



Portfolio #2 Return Distribution



## Example of Downside Risk Measures (cont.):

Clearly, however, these portfolios would be viewed differently by different investors. These nuances are best captured by measures of return dispersion (i.e., risk).

### 1. Variance

As seen earlier, this is the traditional measure of risk, calculated the sum of the weighted squared differences of the potential returns from the expected outcome of a probability distribution. For these two portfolios the calculations are:

$$(\text{Var})_1 = (.05)[-0.15 - 0.05]^2 + (.08)[-0.10 - 0.05]^2 + \dots + (.05)[0.25 - 0.05]^2 = 0.0108$$

and

$$(\text{Var})_2 = (.25)[-0.05 - 0.05]^2 + (.35)[0.00 - 0.05]^2 + \dots + (.03)[0.35 - 0.05]^2 = 0.0114$$

Taking the square roots of these values leaves:

$$SD_1 = 10.39\% \quad \text{and} \quad SD_2 = 10.65\%$$

# Example of Downside Risk Measures (cont.):

## 2. Semi-Variance

The semi-variance adjusts the variance by considering only those potential outcomes that fall below the expected returns. For our two portfolios we have:

$$\begin{aligned}(\text{SemiVar})_1 &= (.05)[-0.15 - 0.05]^2 + (.08)[-0.10 - 0.05]^2 + (.12)[-0.05 - 0.05]^2 + \\ &\quad (.16)[0.00 - 0.05]^2 = 0.0054\end{aligned}$$

and

$$(\text{SemiVar})_2 = (.25)[-0.05 - 0.05]^2 + (.35)[0.00 - 0.05]^2 = 0.0034$$

Also, the semi-standard deviations can be derived as the square roots of these values:

$$(\text{SemiSD})_1 = 7.35\% \quad \text{and} \quad (\text{SemiSD})_2 = 5.81\%$$

Notice here that although Portfolio #2 has a higher standard deviation than Portfolio #1, its semi-standard deviation is smaller.

# Example of Downside Risk Measures (cont.):

## 3. Lower Partial Moments

For these two portfolios, we will consider two cases ( $n = 1$  and  $n = 2$ ), both having a threshold level of 0% (i.e.,  $\tau = 0$ ):

### (i) LPM1

$$(\text{LPM1})_1 = (.05)[0.00 - (-0.15)] + (.08)[0.00 - (-0.10)] + (.12)[0.00 - (-0.05)] = 0.0215$$

and

$$(\text{LPM1})_2 = (.25)[0.00 - (-0.05)] = 0.0125$$

### (ii) LPM2

$$\begin{aligned} (\text{LPM2})_1 &= (.05)[0.00 - (-0.15)]^2 + (.08)[0.00 - (-0.10)]^2 + (.12)[0.00 - (-0.05)]^2 \\ &= 0.0022 \end{aligned}$$

and

$$(\text{LPM2})_2 = (.25)[0.00 - (-0.05)]^2 = 0.0006$$

For comparative purposes, it is also useful to take the square root of the LPM2 values. These are:

$$(\text{SqRt LPM2})_1 = 4.72\% \quad \text{and} \quad (\text{SqRt LPM2})_2 = 2.50\%$$

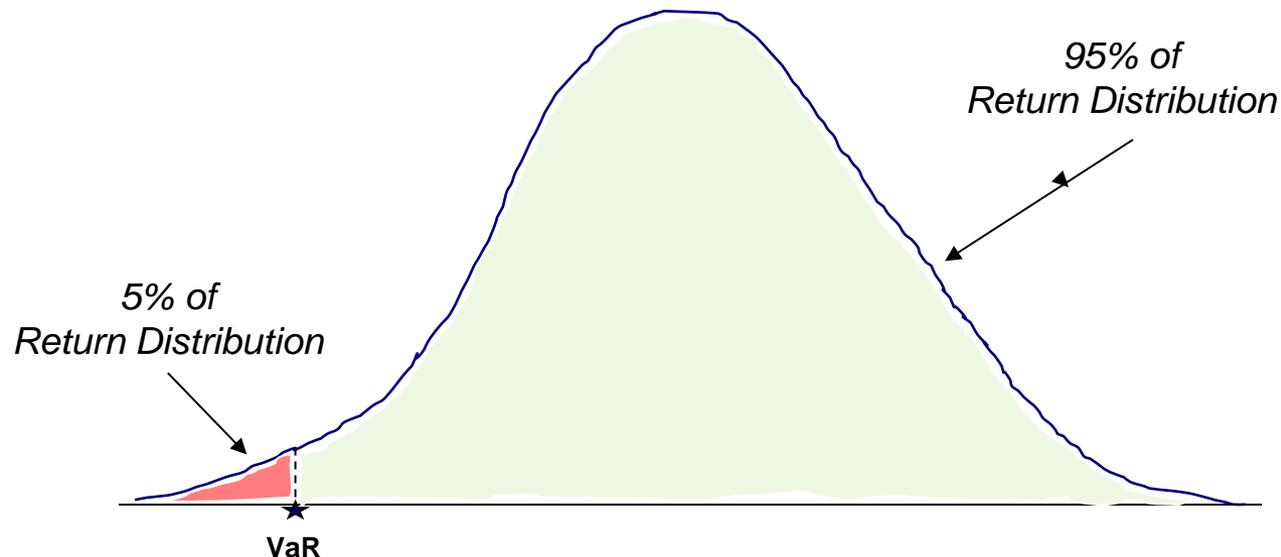
Notice again that Portfolio #2 is seen as being less risky when the lower partial moment risk measures are used.

## Concept #2: Value at Risk (VaR) is Downside Risk

- Value at Risk is an attempt to measure the “worst case” loss in market value for an existing investment position (e.g., trading book, security portfolio) given:
  - a change in the relevant economic variables,
  - under normal market conditions, and
  - over a pre-defined holding period.
- In effect, VaR is an attempt to answer the following question:
  - *What is the most that we can conceivably lose on this investment within a given period of time?*
- Notice that, by definition, VaR is a *downside measure of risk*, but one that is usually expressed in either dollar terms or as a percentage of the portfolio’s initial value.
  - It can be thought of as:  $\%(\text{VaR})_p = (\sigma_p) \times (\text{“Worst Case” \# of } \sigma)$

## Illustrating VaR at the 5% Level

- Expressed in dollar terms, you would expect to lose at least as much as this 5% VaR once every 20 investment periods
- It is often more convenient to express the dollar VaR in **percentage terms** by scaling it by the total amount of assets under management (AUM)

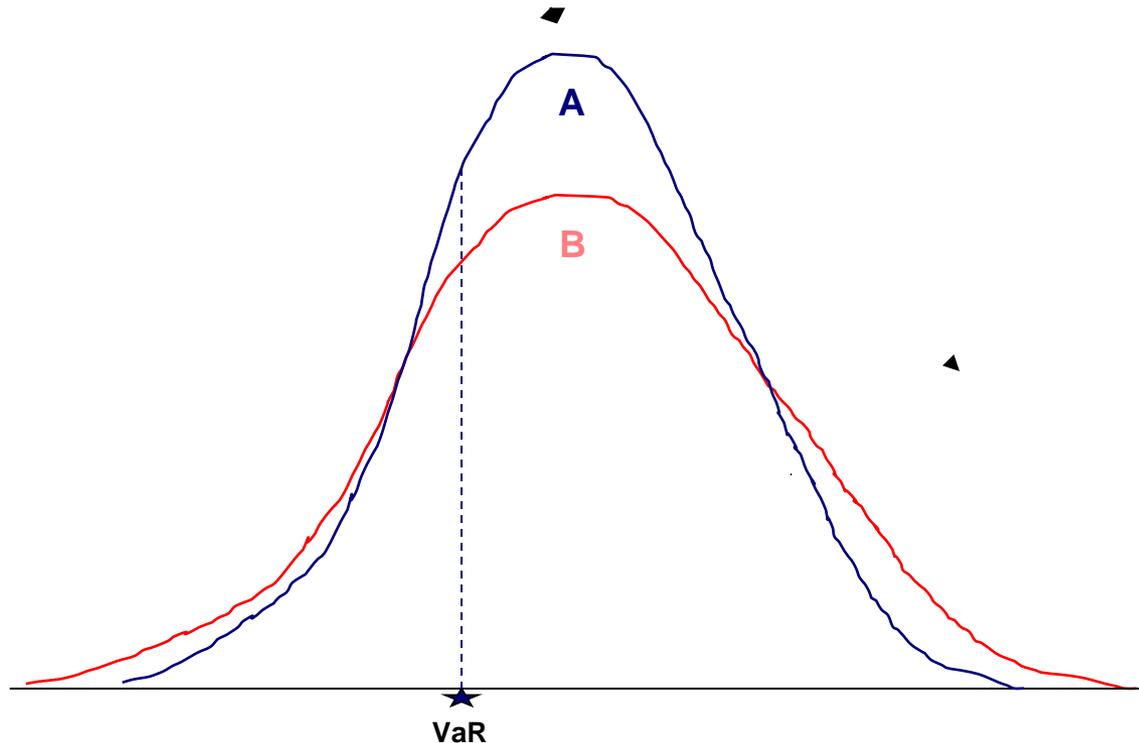


# VaR Concept & Measurement (cont.)

- There are several **standard assumptions** that are typically made when measuring VaR, including:
  - The **Normal distribution** is a reasonable depiction of the probability distribution governing changes in market values
  - “**Worst case**” is typically not literally defined as the worst possible outcome (e.g., complete financial ruin), but rather refers to the adverse investment outcome at either the **10%** (i.e., a 1-in-10 occurrence), **5%** (i.e., a 1-in-20 occurrence), or **2.5%** level
  - So, for instance, you would expect the portfolio to *fall in value* by amount at least as much as the monthly 5% VaR level (assuming this value is negative) once in every 20 months
- Notice that VaR is equivalent to the **value of  $\tau$**  (i.e., the risk threshold) that gives the appropriate probability level in a **lower-partial moment** calculation where  **$n = 0$**  (i.e., a zero-order moment)
  - As a **shortfall probability** measure, VaR essentially measures one adverse outcome but does not always capture other relevant aspects of risk analysis (e.g., “**fat tail**” risk)

## Interpreting VaR:

- In an example such as this, it is possible for Portfolios A and B the following are true:
  - $VaR(A) = VaR(B)$
  - Volatility Risk (A) < Volatility Risk (B)

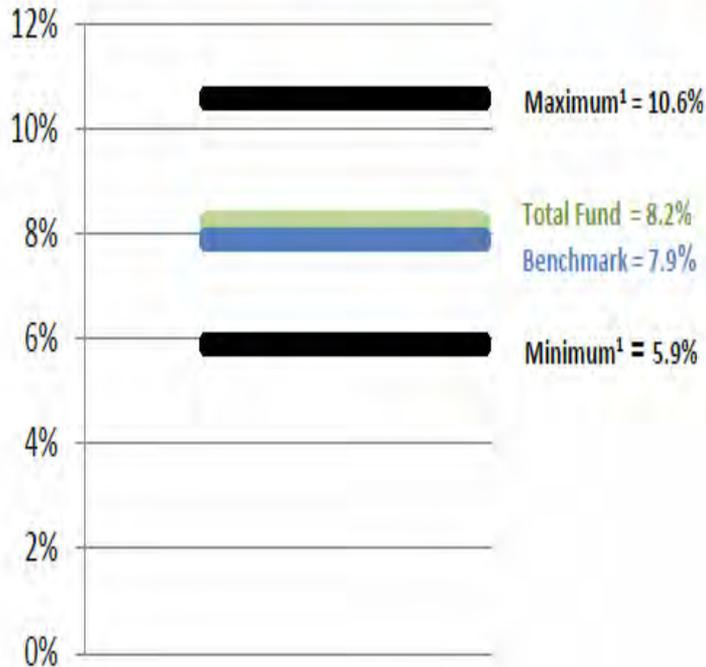


# VaR Concept & Measurement (cont.)

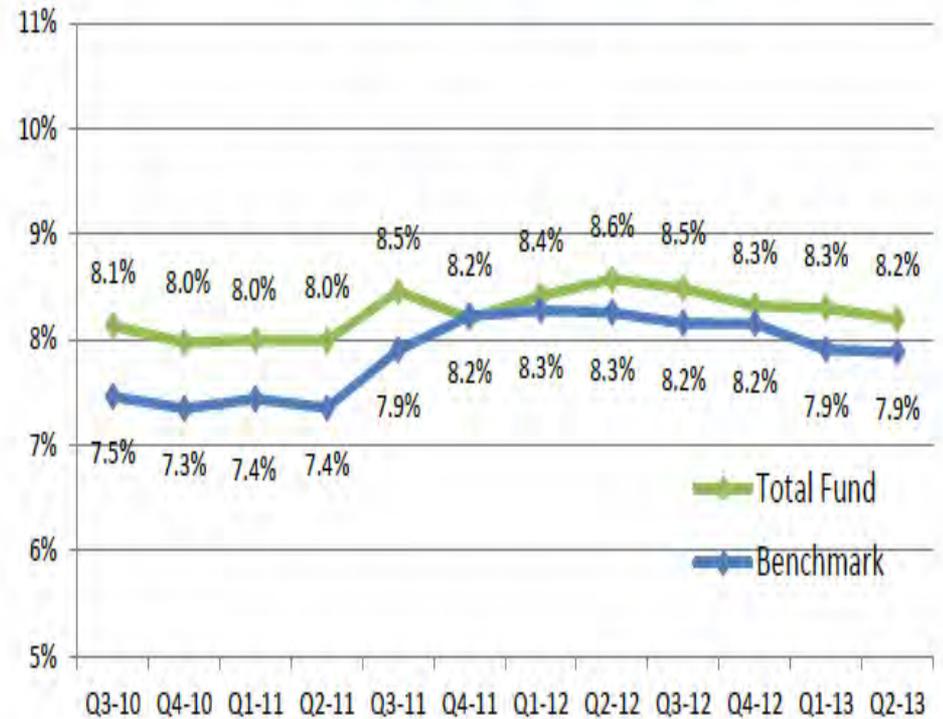
- Generally, **three different approaches** can be made to forecasting the “worst case” VaR loss for a portfolio:
  - *Parametric Forecasting*: Creation of a probability distribution of potential portfolio values from forecasts of the component parts
  - *Historical Simulation*: Creation of a hypothetical time series of portfolio returns based on actual historical data
  - *Monte Carlo Simulation*: Simulation of future possible investment outcomes based on probability distribution estimates for underlying market risk factors
- A illustrative numerical example of the parametric forecasting approach to calculating VaR is provided in the **technical appendix**

# VaR at TRS - June 2013

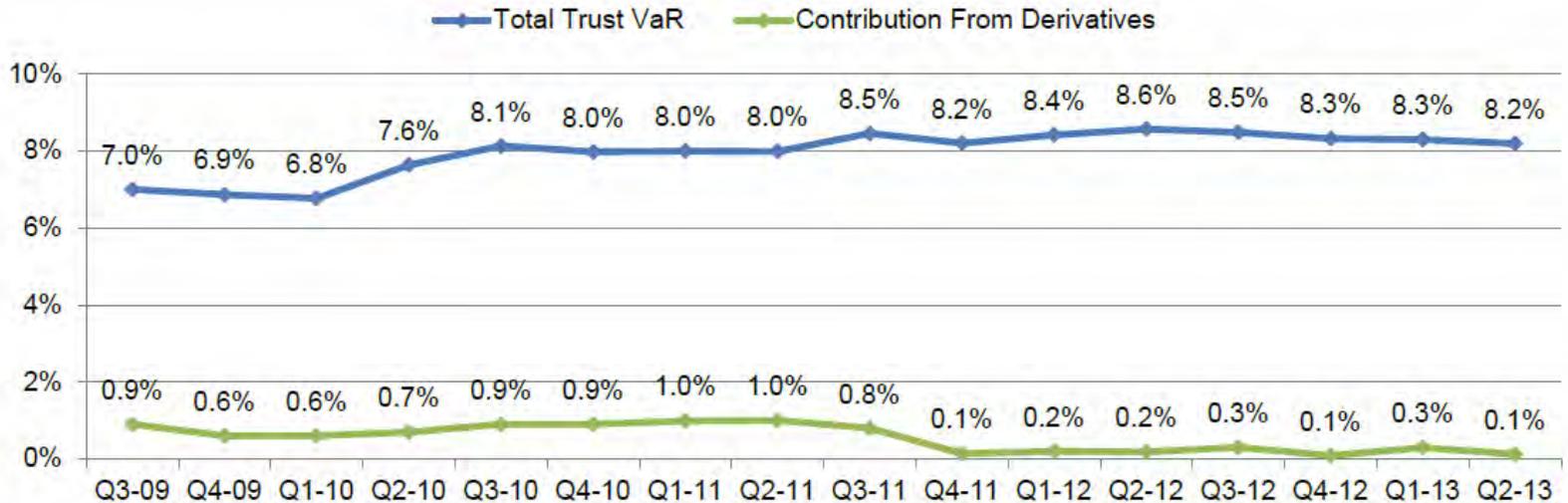
VaR as a Percent of Market Value  
(One Month, 95% Confidence)



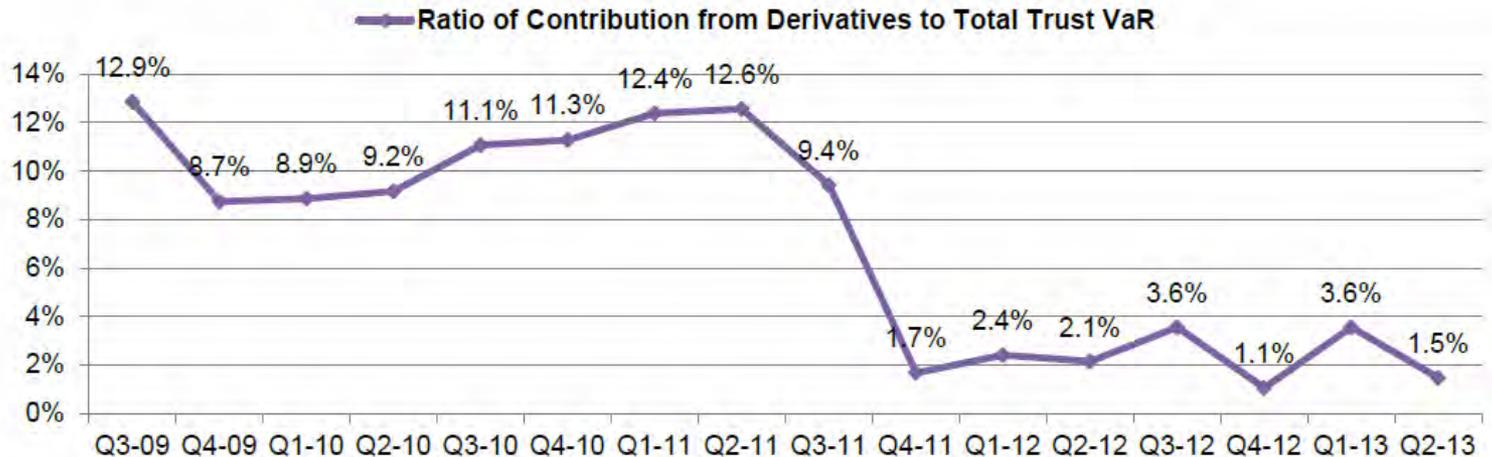
Three-Year VaR History  
(as Percent of Market Value)



# VaR at TRS - June 2013 (cont.)



As TAA has moved to a nearly net zero funded position, the contribution to Total Trust VaR from derivatives has decreased



### Concept #3: Tracking Error is Risk Relative to a Benchmark

- Active portfolio managers attempt to add “alpha” by producing returns in excess of a benchmark index or peer group.
  - By definition, to beat a benchmark an active manager must invest differently than the benchmark.
- **Tracking error** (TE) measures how closely the returns produced by the active manager follow those produced by the benchmark.
  - TE is calculated as the *standard deviation of the difference in returns* between the active portfolio and the benchmark.
- Tracking error can be thought of as the **incremental “cost”** (i.e., *active risk*) incurred while trying to beat the benchmark.
  - Risk-adjusted performance for an active manager is often measured by the *Information Ratio*, which is the manager’s alpha divided by the tracking error.

## Tracking Error (cont.)

- Tracking error can be computed as the **standard deviation of the *difference in returns*** between the managed portfolio (i.e., either active or passive) and the underlying benchmark.
- Let  $\Delta_t = (R_{\text{MgdPort}} - R_{\text{Bench}})_t$ . Then, using a total of T return periods, ***periodic tracking error*** equals:

$$\sigma_{\Delta} = \sqrt{\frac{\sum_{t=1}^T (\Delta_t - \bar{\Delta})^2}{(T-1)}}$$

- For P return periods in a year (e.g., P = 12 for monthly returns) ***annualized tracking error*** is then:

$$\text{TE} = \sigma_{\Delta} \sqrt{P}$$

## Notion of Tracking Error (cont.)

- Generally speaking, managed portfolios can be separated into the following categories by the level of their annualized tracking errors:
  - *Passive* (i.e., Indexed):  $TE < 1.0\%$  (Note:  $TE < 0.5\%$  is normal)
  - *Structured* (i.e., Enhanced Index):  $1.0\% \leq TE \leq 3\%$
  - *Active*:  $TE > 3\%$  (Note:  $TE > 5\%$  is normal for some active managers)

# Tracking Error at TRS – June 2013

## Policy Asset Class Tracking Error

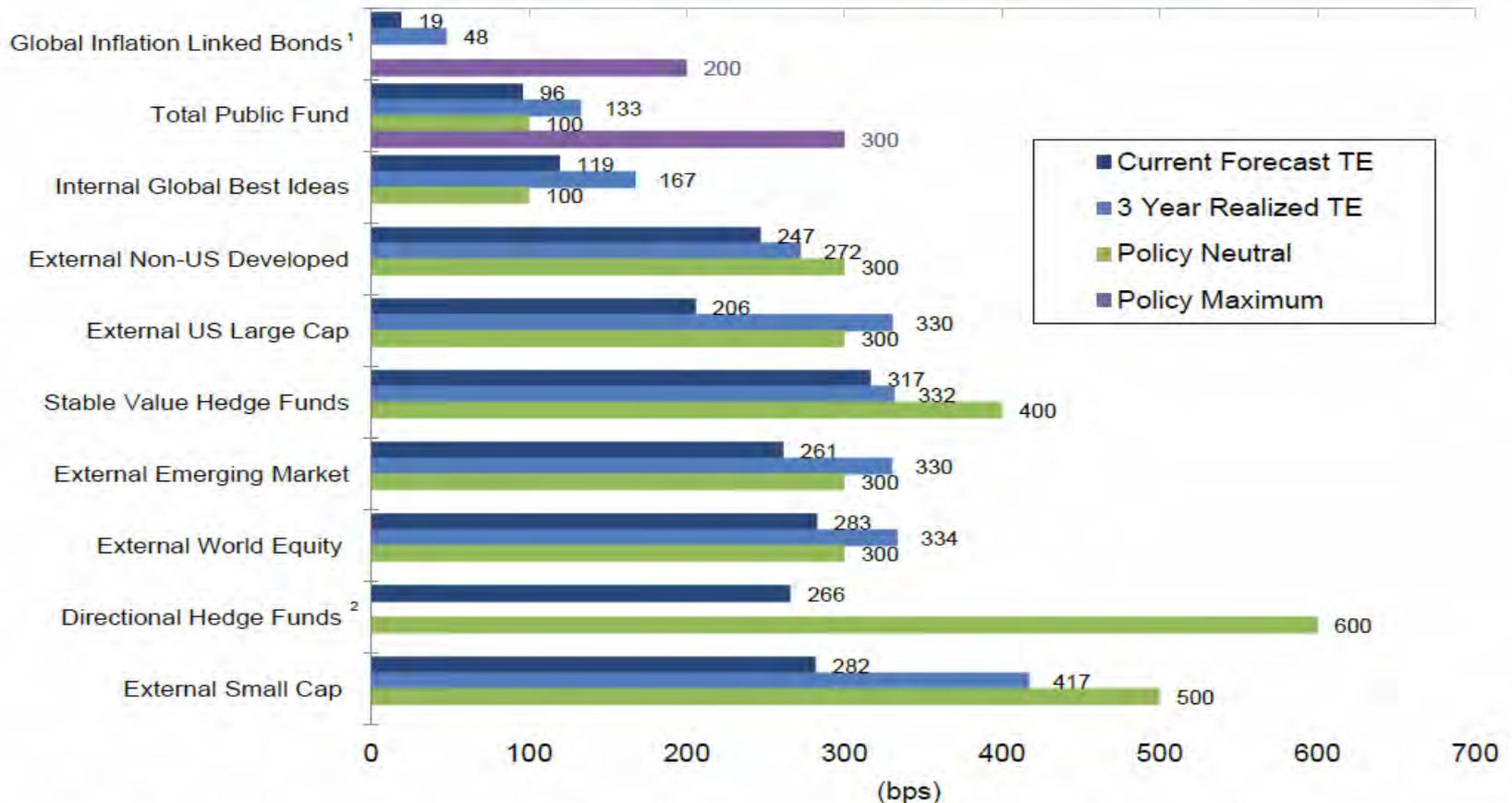
Policy Assets	Market Value (\$, billions)	Current Forecast (bps)	3 Year Realized (bps)
US Large Cap	\$17.6	204	262
US Small Cap	5.4	282	319
Non-US Developed	18.3	142	134
Emerging Market	12.0	198	264
Directional Hedge Funds	5.7	266	<sup>[1]</sup>
US Treasuries	14.0	27	168
Absolute Return	0.0	3423	894
Stable Value Hedge Funds	4.3	317	332
Cash	2.7	9	58
Global Inflation Linked Bonds	5.8	19	48
Commodities	0.4	3306	1363
<b>Total Public Assets</b>	<b>\$86.3</b>	<b>96</b>	<b>133</b>
Private Equity	14.0	173	439
Real Assets	15.7	564	219
<b>Total Private Assets</b>	<b>\$29.6</b>	<b>335</b>	<b>265</b>
<b>Total Assets</b>	<b>\$116.0</b>	<b>135</b>	<b>140</b>

← Policy neutral is 100 bps  
and policy maximum is  
300 bps

<sup>1</sup>Realized tracking error cannot be calculated due to the short history of this portfolio

# Tracking Error at TRS – June 2013 (cont.)

## Actual Tracking Error Level vs. Policy Requirement



<sup>1</sup>No policy neutral tracking error set for Global Inflation Linked

<sup>2</sup>Realized tracking error cannot be calculated because of the short history of this portfolio

## Concept #4: Dollar Allocation and Risk Allocation are Two Different Things

- Historically, investors have attempted to control the risk level of their portfolios exclusively through their dollar investment allocations to various asset classes
- This notion leads to the erroneous thinking that the biggest “bets” in the portfolio are the ones with the largest dollar allocations.
- The *Marginal Risk of an Asset Within the Portfolio* is the basis for measuring directly the amount of the total portfolio risk that a particular asset is responsible for
- This Marginal Risk statistic depends on three things:
  - The inherent volatility of the asset itself
  - How the asset interacts (i.e., correlates) with all of the other assets in the portfolio
  - The relative dollar allocation to the asset

## Concept #4: Marginal Risk Contribution (cont.)

- In general, the following statement is true because of the ability of less-than-perfectly correlated assets to diversify risk when they are held in the same portfolio:

$$Total\ Risk = \sigma_{portfolio} < \sum_i w_i \sigma_i$$

where, as before,  $w_i$  represents the investment allocation to the  $i$ -th asset class

- Intuitively, the notion behind the marginal risk contribution calculation is to **reinterpret** the **volatility** of an asset class within the context of how much it **diversification potential** it provides so that:

$$Total\ Risk = \sigma_{portfolio} = \sum_i w_i (Marginal\ Risk)_i$$

- So, the Marginal Risk statistic of an asset within the portfolio can be interpreted as the **asset's volatility** (i.e., standard deviation) **adjusted for its diversification potential**

## Marginal Risk Calculations: An Example

Suppose that the manager has made standard deviation and correlation coefficient estimates for four different asset classes that he intends to form into a portfolio:

$\sigma_1 =$	16.7%	$\rho_{12} =$	0.71	$\rho_{23} =$	0.58
$\sigma_2 =$	12.8	$\rho_{13} =$	0.42	$\rho_{24} =$	0.30
$\sigma_3 =$	6.9	$\rho_{14} =$	0.22	$\rho_{34} =$	0.10
$\sigma_4 =$	7.0				

Assume further that the manager decides upon the following investment weights for his initial strategic asset allocation:

$$\mathbf{w_1 = 10\%; w_2 = 40\%; w_3 = 20\%; w_4 = 30\%.$$

With these forecasts and allocation decisions, the standard deviation for the overall portfolio is:

$$\begin{aligned}\sigma_p &= \{[(.1)^2(.167)^2 + (.4)^2(.128)^2 + (.2)^2(.069)^2 + (.3)^2(.070)^2] \\ &\quad + [2(.1)(.4)(.167)(.128)(0.71) + 2(.1)(.2)(.167)(.069)(0.42) + 2(.1)(.3)(.167)(.070)(0.22) \\ &\quad + 2(.4)(.2)(.128)(.069)(0.58) + 2(.4)(.3)(.128)(.070)(0.30) + 2(.2)(.3)(.069)(.070)(0.10)]\}^{1/2} \\ &= \mathbf{8.13\%}.\end{aligned}$$

## Marginal Risk Calculations: An Example (cont.)

The overall volatility of the portfolio can be decomposed in the following manner:

$$\begin{aligned} \text{MR}_1 = & [(.1)(.167)^2 + (.4)(.167)(.128)(0.71) + (.2)(.167)(.069)(0.42) \\ & + (.3)(.167)(.070)(0.22)] \div (.0813) = \mathbf{13.03\%} \text{ (vs. } \sigma_1 = 16.7\%) \end{aligned}$$

$$\begin{aligned} \text{MR}_2 = & [(.4)(.128)^2 + (.1)(.128)(.167)(0.71) + (.2)(.128)(.069)(0.58) \\ & + (.3)(.128)(.070)(0.30)] \div (.0813) = \mathbf{12.17\%} \text{ (vs. } \sigma_2 = 12.8\%) \end{aligned}$$

$$\begin{aligned} \text{MR}_3 = & [(.2)(.069)^2 + (.1)(.069)(.167)(0.42) + (.4)(.069)(.128)(0.58) \\ & + (.3)(.069)(.070)(0.10)] \div (.0813) = \mathbf{4.46\%} \text{ (vs. } \sigma_3 = 6.9\%) \end{aligned}$$

$$\begin{aligned} \text{MR}_4 = & [(.3)(.070)^2 + (.1)(.070)(.167)(0.22) + (.4)(.070)(.128)(0.30) \\ & + (.2)(.070)(.069)(0.10)] \div (.0813) = \mathbf{3.56\%} \text{ (vs. } \sigma_4 = 7.0\%) \end{aligned}$$

so that:

$$\text{TCR}_1 = (.1)(13.03) = 1.30\% \quad \text{and} \quad (\% \text{TCR})_1 = (1.30) \div (8.13) = \mathbf{16.02\%}$$

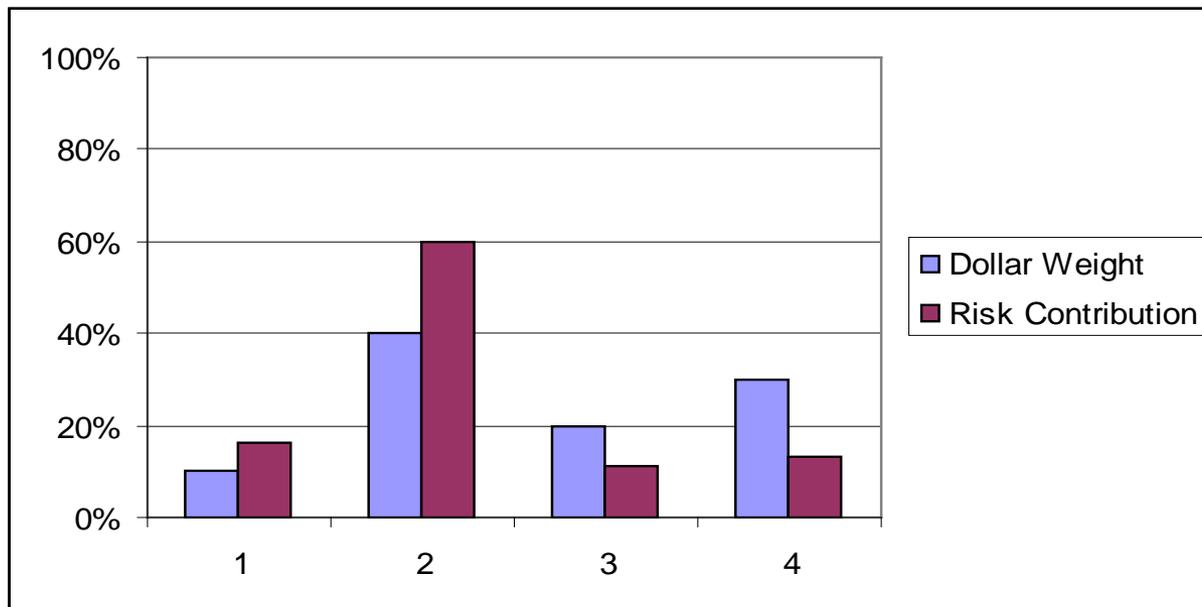
$$\text{TCR}_2 = (.4)(12.17) = 4.87\% \quad \text{and} \quad (\% \text{TCR})_2 = (4.87) \div (8.13) = \mathbf{59.86\%}$$

$$\text{TCR}_3 = (.2)(4.46) = 0.89\% \quad \text{and} \quad (\% \text{TCR})_3 = (0.89) \div (8.13) = \mathbf{10.97\%}$$

$$\text{TCR}_4 = (.3)(3.56) = 1.07\% \quad \text{and} \quad (\% \text{TCR})_4 = (1.07) \div (8.13) = \mathbf{13.14\%}$$

## Marginal Risk Calculations: An Example (cont.)

To interpret these figures, notice that while Asset 4 has 30% of the dollars invested in the portfolio, it contributes just 13.14% of the overall risk within the portfolio. This is because (i) it has a comparatively low volatility level as a stand-alone asset class and (ii) its relatively low correlations with the other asset classes creates the largest diversification opportunities. On the other hand, only 10% of the funds are invested in Asset 1, but this asset class accounts for more than 16% of the overall volatility, which makes it a much bigger “bet” within the portfolio. In graphical form, the dollar and risk allocations for the four asset classes can be compared as follows:



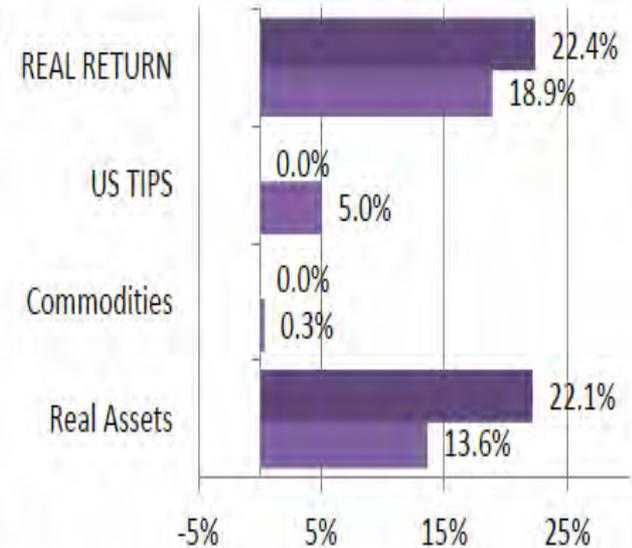
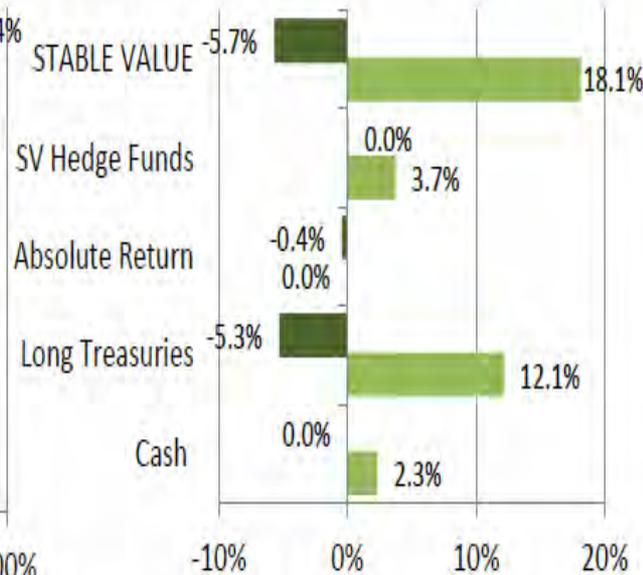
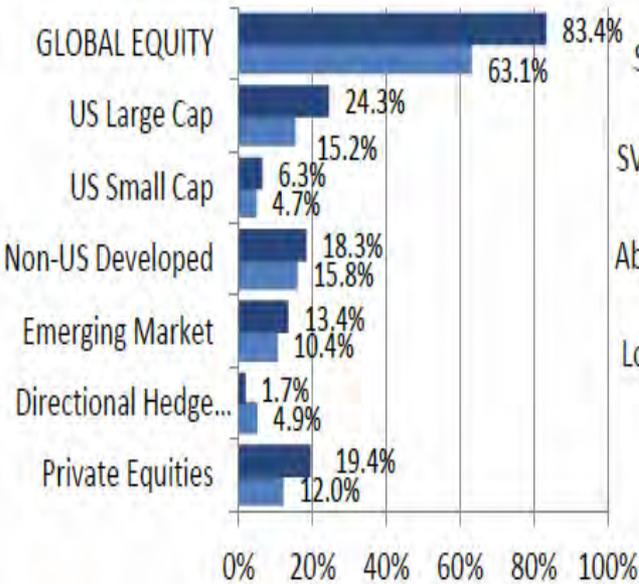
# Dollar Allocation vs. Marginal VaR Risk Contribution: Texas Teacher Retirement System - June 2013

## VaR vs. \$ Allocation - Detail

■ VaR Contribution   ■ \$ Asset Allocation

■ VaR Contribution   ■ \$ Asset Allocation

■ VaR Contribution   ■ \$ Asset Allocation

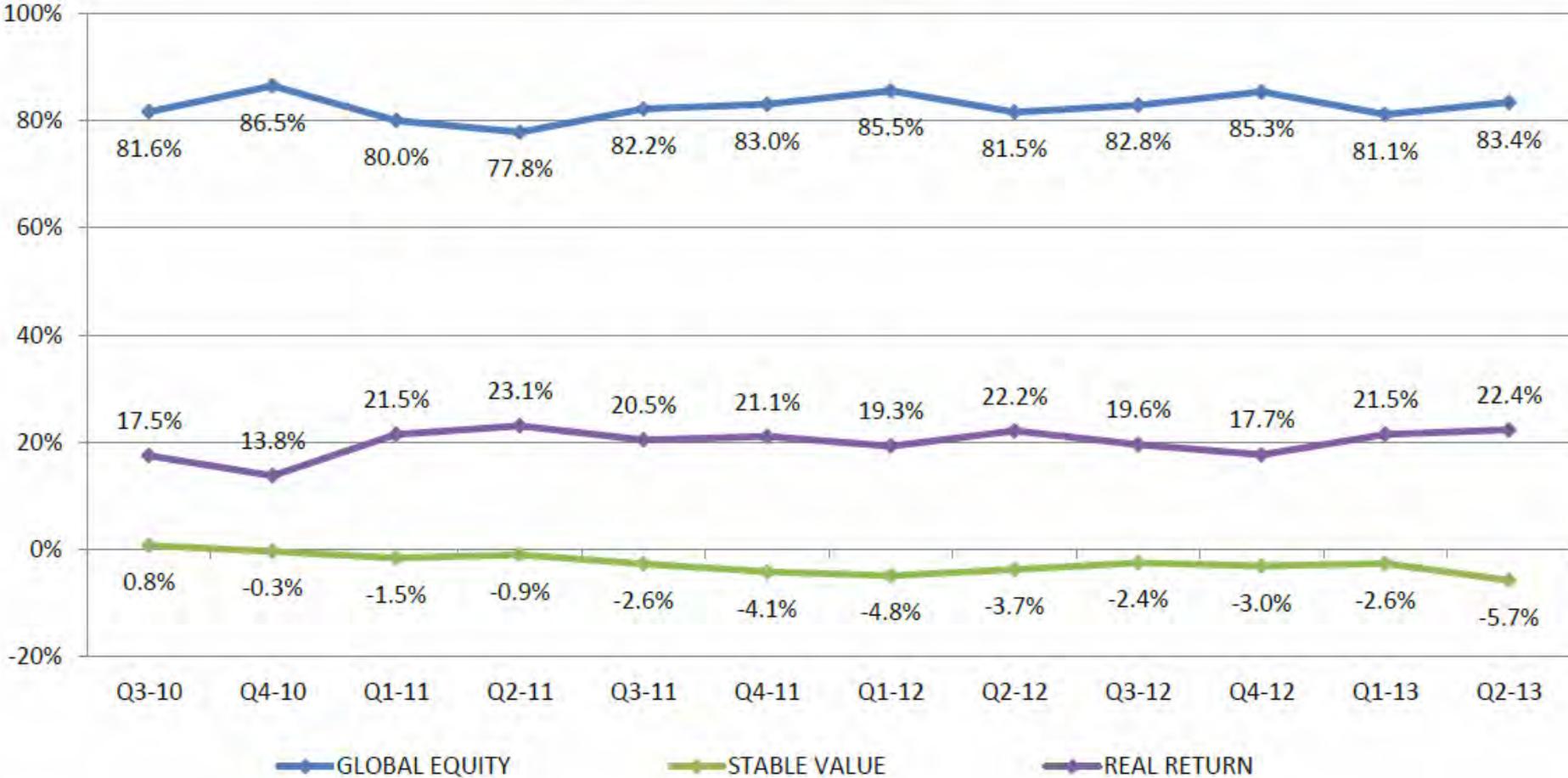


<sup>1</sup>Minimum and maximum VaR levels are determined by adjusting the allocation to each policy asset class within the allowable policy range such that VaR is minimized and maximized.



# Marginal VaR Risk Contribution at TRS: July 2010 - June 2013

## History of VaR Contribution



## Concept #5: Credit Risk and Liquidity Risk Are Also Important Considerations

- The risk control measures considered so far have been concerned with **market (or price) risk**, where the concern is with assessing the impact of adverse movements in the market values of the positions held in the portfolio
  - As we have seen, market risk can be viewed in either **absolute** (i.e., VaR) or **relative** (i.e., TE) terms
- Beyond adverse market price movements, there are other things that can go wrong (i.e., adversely effect the value of the overall portfolio). Two of the most **important additional risk exposures** that must be managed and monitored are:
  - **Credit Risk**: The potential loss that results from a “borrower” defaulting on a promise to repay what is owed to a “lender”, which can result in both a loss of invested principal and a disruption to expected cash flows
  - **Liquidity Risk**: The potential loss that results from the possibility that a given asset holding cannot be traded quickly enough to prevent a loss or a financial liability cannot be refunded in a prompt manner

## Considering Credit Risk (cont.)

- For any given position, the expected loss associated with a credit risk event can be quantified as follows:

$$\text{Expected Loss} = (\text{Probability of Default}) \times (\text{Amount of Loss, if Default})$$

- From this equation, it is clear that monitoring credit risk is necessarily a function of **assessing both** default probabilities and economic exposures to various counterparties
- Some additional thoughts about credit risk:
  - Generally speaking, credit risk is **one-sided**: a lender will never receive more than promised, but could receive less if the borrower defaults.
  - Diversification of credit risk works only to the extent that lenders limit their exposures to specific borrowers (i.e., limit **concentration risk**)
  - Although a lender cannot prevent a borrower from defaulting, **credit risk can be mitigated** in a variety of ways, including loan covenants, collateral arrangements, insurance and credit-related derivatives
  - When **derivative positions** are involved (e.g., swap contracts), the definition of “lender” and “borrower” can be both **confusing** and one that **changes over time**

# Credit Risk at TRS – June 2013

## Counterparty Exposure

Counterparty	Swaps Number of Contracts	Forwards Number of Contracts	Futures Number of Contracts	OTC Options Number of Contracts	Counterparty Exposure (\$, millions)	Net Notional (\$, millions)
<b>Over the Counter<sup>[1]</sup></b>						
Bank of America, N.A		5			\$0.4	-12.3
Barclays Bank PLC	11	17			\$0.0	-870.5
Citibank N.A.	4	96			\$1.2	359.9
Credit Suisse International	2	1			\$0.7	63.0
Deutsche Bank AG	10	84		2	\$17.2	-128.8
Goldman Sachs International	21	33		1	\$16.7	214.5
JPMorgan Chase Bank N.A	43	56		1	\$0.0	293.0
Morgan Stanley	3	21			\$0.0	7.9
Societe Generale	4	38			\$1.2	41.0
UBS AG	12	110		1	\$1.5	-57.2
<b>Exchange Traded Futures<sup>[2]</sup></b>						
Goldman Sachs & Co.			172		\$188.8	772.8
JP Morgan Securities LLC			42		\$51.1	514.7
<b>Grand Total</b>	<b>110</b>	<b>461</b>	<b>214</b>	<b>5</b>	<b>\$278.8</b>	<b>\$1,198.1</b>

<sup>1</sup> Counterparty exposure is defined as positive market value of all OTC derivative positions less collateral posted. Policy limits this value to \$500 million per counterparty.

<sup>2</sup> Counterparty exposure is initial margin posted.

## Considering Credit Risk (cont.)

- Assessing default probabilities is typically a function of sophisticated **credit analysis** focusing on the ability of a borrower to repay its obligations
  - Many institutional investors rely on the **credit ratings** by third-party providers, such as Standard & Poor's, Moody's, or Fitch
  
- Credit ratings tend to be a **good predictor** (at least on a relative basis) of future default behavior
  - This chart shows the default rates (in %) for corporate bonds in various S&P rating categories over the subsequent 1-, 5-, and 10-year periods

Rating	Year 1	Year 5	Year 10
UST	0.00	0.00	0.00
AAA	0.00	0.10	0.44
AA+	0.00	0.15	0.33
AA	0.00	0.15	0.85
AA-	0.02	0.51	1.07
A+	0.05	0.63	1.60
A	0.04	0.42	1.72
A-	0.04	0.80	2.25
BBB+	0.20	2.08	4.25
BBB	0.28	2.24	5.33
BBB-	0.36	4.52	8.36
BB+	0.59	6.29	11.20
BB	0.87	9.43	16.81
BB-	1.62	14.16	23.57
B+	2.86	19.93	28.97
B	7.78	27.91	34.93
B-	11.22	35.14	42.27
CCC/C	27.02	47.56	53.05

## Credit Risk at TRS – June 2013 (cont.)

### Counterparty Ratings and Capital Assessment<sup>1</sup>

Counterparty	S&P Rating	Moody's Rating	Fitch Rating	Capital Ratios <sup>2</sup>	
				Tier 1	Common
<b>Over the Counter</b>					
Bank of America, N.A.	A	A3	A	16.7	11.7
Barclays Bank PLC	A+	A2	A	13.3	11.8
Citibank N.A.	A	A3	A	14.1	16.0
Credit Suisse International	A+	A1	A	19.4	12.0
Deutsche Bank AG	A+	A2	A+	15.1	11.9
Goldman Sachs International	A-	A3	A	12.6	11.4
JPMorgan Chase Bank N.A.	A+	Aa3	A+	17.7	16.4
Morgan Stanley	A-	Baa1	A	12.5	11.6
Societe Generale	A	A2	A+	21.3	20.5
UBS AG	A	A2	A	19.1	16.5
<b>Exchange Traded Futures</b>					
Goldman Sachs & Co.	A	A3	A	12.6	11.4
JP Morgan Securities LLC	A-	A1	A+	17.7	16.4

<sup>1</sup>Rating of credit support provider. Policy requirement is A- or A3 by at least one of Fitch, Moody's or S&P.

<sup>2</sup> When fully implemented, Basel 3 will require 8.5% Tier 1 capital and 7.0% Common capital.

## Considering Liquidity Risk

- A **standard definition** of liquidity is the *amount of time necessary to convert an asset into cash at approximately its current market value*
  - In practice, a liquid asset might be defined as one that can be sold at no more than a 10% discount to its true market value within a reasonably short period of time (e.g., 10 days)
- As noted earlier, the risk associated with holding illiquid assets (e.g., private equity investments) comes from being **unable to convert** the holding to cash in time to **avoid an economic loss** due to adverse market movements or a credit risk event
  - Recent efforts to measure the amount of a **liquidity premium** that an investor should expect for holding illiquid position put the amount at 300-500 basis points, depending on the exact asset class definition
- There are a variety of ways in which **liquidity risk** can be **measured**, including:
  - **Liquidity gap**, which is the ratio of excess of liquid assets over outstanding liabilities
  - The **bid-offer spread** for a given position, which reflects in part the ability of a market maker to make a quick transaction in the asset
  - **Market depth**, which is the amount of the asset that can be bought or sold at various bid-ask spreads
  - **Scenario analysis** (i.e., stress testing), which is an attempt to quantify the potential economic impact of being unable to trade part or all of an investment portfolio under hypothetical adverse circumstances

## Liquidity Risk at TRS – June 2013

Sources of Liquidity (\$, billions)	Market Value	Stressed Value
Liquid Assets Not on Loan (Cash, UST, TIPS, Equity, Commodities)	53.4	31.1
Securities Lending Collateral (Cash, Fixed Income)	23.1	19.4
<b>Total Sources of Liquidity</b>	<b>76.5</b>	<b>50.4</b>
<i>Note: Excluded Illiquid Assets (Private Equity, Real Assets, Hedge Funds, Other)</i>	42.8	NA
<i>Note: Excluded Liquid Assets remaining on loan</i>	19.8	NA

Uses of Liquidity (\$, billions)	Market Value	Stressed Value
Normal Uses of Liquidity	-0.8	-0.8
Stressed Securities Lending		-2.6
Stressed Derivatives		-1.4
Stressed Private Markets		-1.6
<b>Total Uses of Liquidity</b>	<b>-0.8</b>	<b>-6.3</b>

Liquidity Ratio	
Sources of Liquidity	50.4
Uses of Liquidity	-6.3
<b>Ratio (Sources/Uses)</b>	<b>8.0</b>
Alert Threshold	4.0
Fail Threshold	3.0
<b>Test Result</b>	<b>Pass</b>
<i>Note: Net Liquidity (Sources less Uses)</i>	44.1
<i>Note: 12 Months Benefit Payments (at 4% Annual)</i>	4.6

Assumptions: In the stress case, Liquid Assets are valued at 53% and Securities Lending collateral is valued at 77% which is meant to approximate 1.5x the worst monthly performance of these assets in the past ten years plus an additional liquidity stress. Within Securities Lending, 50% of equity on loan and 0% of US Treasuries on loan are assumed to be returned to TRS. Derivatives are assumed to experience the same market stress applied to the Liquid Assets. Private Markets investments are assumed to not return any capital and experience capital calls at 6x the normal amount expected for a month.

### III. Risk Parity and Asset Allocation: A Brief Overview

- A common approach to allocating financial capital across a universe of asset classes is to think **directly** about how to **deploy the available investment dollars** in an “optimal” manner
  - An example of this is the celebrated **mean-variance optimization** approach of Markowitz, whereby the optimal asset class allocations are derived by minimizing portfolio risk subject to a specific return goal
- This “**efficient portfolio**” approach to strategic asset allocation has been extremely useful in practice—albeit to varying degrees—over the past 60 years. However, it does have **myriad shortcomings**:
  - The process **requires estimates** of several asset class investment characteristics: expected returns, standard deviations, correlations
  - It is prone to producing “**corner solutions**” (i.e., extreme over- or under-allocations) when using historical data over abnormal past periods
  - Some of the input variables (e.g., asset class correlations) are known to be quite **unstable over time**, which can lead to fragile solutions

## Risk Parity and Asset Allocation: Overview (cont.)

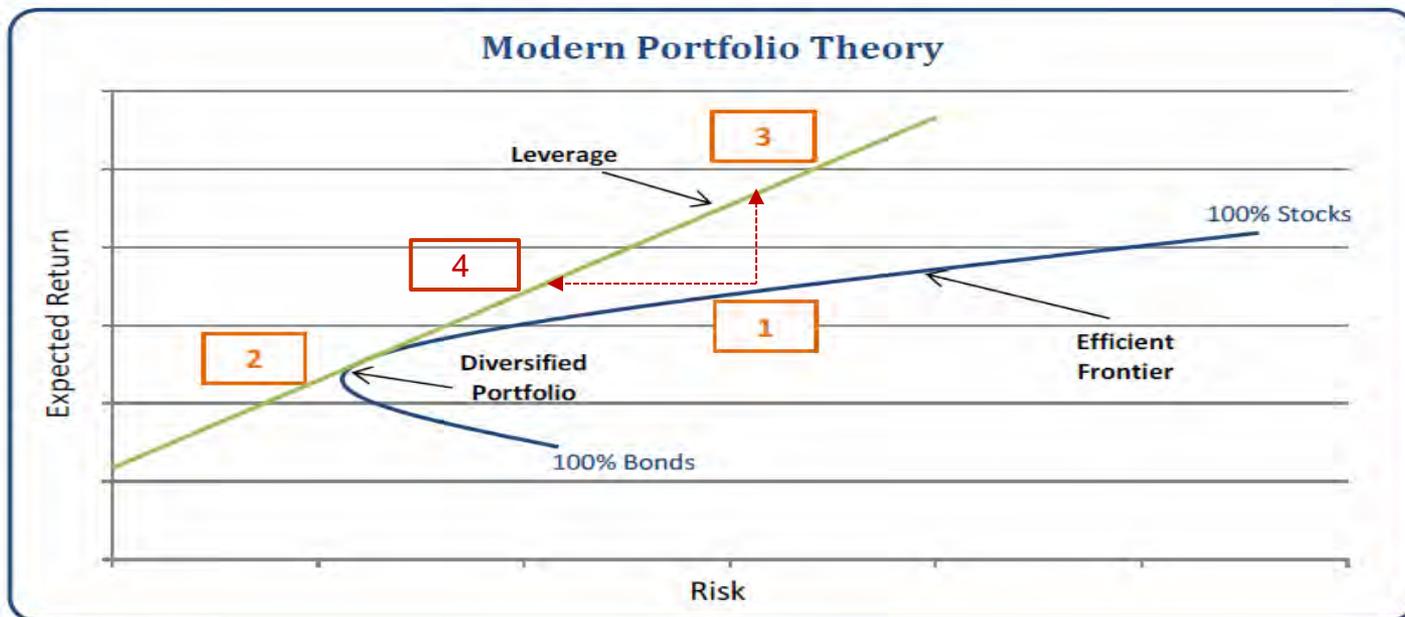
- In some ways, a **more important criticism** of mean-variance optimization is that, by focusing of the allocation of capital rather than the way in which risk is allocated, the approach can lead to **inefficient concentrations of assets** for most return goals
  - For instance, an investor with a higher return goal will invariably put more capital into higher risk assets that promise higher payoffs which leads to fund solutions that, while falling on the Efficient Frontier, may be dominated by other potential portfolios
  - A consequence of this approach is that higher volatility assets tend to have an **disproportionate impact on the risk** of the total portfolio that may be out of sync with how the dollars are allocated in the fund
- The basic idea of a **risk parity approach to asset allocation** is for the investor to commit capital in the portfolio so as to **equalize the risk contribution** of each asset class
  - Stated more plainly: **Risk Parity = Equal Risk Contribution to the Total Portfolio** by each asset class in the investable universe
  - Notice that risk parity begins with the idea that it is the **risk allocation that matters**, not the dollar allocation (which then implies the level of portfolio risk)

## Risk Parity and Asset Allocation: Overview (cont.)

- Ultimately, the value of the risk parity approach to asset allocation rests on **two arguments**:
  - It presents the investor with a **more balanced** (i.e., diversified) **combination of risks** in the portfolio and it is thus a better way for the investor to spend his or her “risk budget” in anticipation of an uncertain economic future
  - The risk parity portfolio allocation is a **good proxy** for the so-called **tangency portfolio** in the mean-variance Efficient Frontier framework (i.e., the allocation scheme that maximizes the ex ante Sharpe Ratio, or the expected excess return divided by the portfolio’s risk)
- Both of these arguments have some **intuitive appeal**:
  - By concentrating directly on how risk is bundled in the portfolio, the risk parity approach to investing can be seen to provide the investor with **better protection in diverse economic circumstances** (e.g., high vs. low inflation, strong vs. weak GDP growth); it has also been called the “**All Weather**” asset allocation strategy.
  - There is **no guarantee** that an equal risk contribution allocation will be the **tangency portfolio**—the *most* efficient of the set of mean-variance efficient portfolios—but it has often generated a superior risk-return combination than portfolios designed to seek much higher expected return goals

## Risk Parity and Asset Allocation: Overview (cont.)

- So, the ultimate distinction between the two investment approaches is how the investor increases the risk necessary to generate the higher expected return goal
  - *Markowitz*: Alter the holdings of the Risk Parity portfolio to **increase the allocation to riskier assets** (and decrease the allocation to less-risky assets), using the same level of investment capital (i.e., no borrowing): #2 to #1
  - *Risk Parity*: Borrow money to **buy more** of the original Risk Parity portfolio. Thus, the composition of the portfolio does not change and the additional risk comes from **using financial leverage**: #2 to #3 (or #4)



## Risk Parity and Asset Allocation: Overview (cont.)

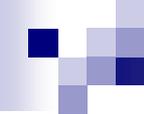
- The Risk Parity approach to asset allocation has an **investment implication** that is important to understand:
  - The Risk Parity portfolio (i.e., the tangency portfolio proxy) will typically have an expected return that is less than the investor's goal
  - This means that a 100% allocation to the Risk Parity portfolio is not appropriate for an investor with a higher return hurdle
- There are two ways that an investor desiring a higher expected return goal than that offered by the Risk Parity portfolio can react:
  - The **Markowitz** solution would be to adjust the contents of the Risk Parity portfolio to **increase the allocation to higher risk assets**.
  - The **Risk Parity** solution would be to **use leverage to buy more of the same Risk Parity portfolio** which maximizes the expected "reward-to-risk" ratio

## Risk Parity and Asset Allocation: Summary

- The **theoretical justification** for the Risk Parity approach to asset allocation has been around for more than 50 years, dating to the **pioneering work** of Nobel laureate **James Tobin**
  - The **main idea** is that investors should only hold the **single collection of risky assets** that maximizes the ex ante Sharpe Ratio (i.e., the tangency portfolio) and then **adjust this position** to their desired risk exposure through the use of **leverage**
- The **critical assumption** underlying the Risk Parity allocation scheme is that the Risk Parity portfolio is a **good proxy** for the **tangency portfolio** on the mean-variance Efficient Frontier
  - This is a reasonable assumption in a wide variety of situations—including the example developed here—but need not be true in all cases

## Risk Parity and Asset Allocation: Summary (cont.)

- Several other points associated with the Risk Parity approach to forming a strategic asset allocation are worth noting here:
  - Although the preceding analysis was based on volatility (i.e., standard deviation) as a risk measure, the Risk Parity concepts can be **applied with downside risk measures** (e.g., Value at Risk, or VaR) as well
  - Because of Risk Parity portfolios and mean-variance efficient portfolios for higher return goals tend to have very different asset allocation schemes, they also tend to produce returns that are **not perfectly correlated**. This means that a Risk Parity portfolio can also be viewed as a way to **further diversify** an existing allocation (i.e., Risk Parity can be used as a **partial solution**, not a replacement)
  - The **use of leverage** in the Risk Parity scheme can be **considerable** and **tends to increase** with the distance between the investor's return goal and the expected return of Equal Total Risk Contribution portfolio



# The Risk Management Foundations of Asset Allocation:

## Technical Appendix

*Prepared for:*

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Teacher Retirement System of Texas

*Prepared by:*

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December 12, 2013

## IV. Appendix

### 1. Examples of Portfolio Risk & Expected Return Calculations

- Consider the risk and return characteristics of two asset classes:

$$E(R_1) = 5\%$$

$$\sigma_1 = 8\%$$

$$\rho_{1,2} = 0.4$$

$$E(R_2) = 6\%$$

$$\sigma_2 = 10\%$$

- Risk and Return of a 50%-50% Portfolio:

$$E(R_p) = (0.5)(5) + (0.5)(6) = \mathbf{5.50\%}$$

and:

$$\sigma_p = [(.25)(64) + (.25)(100) + 2(.5)(.5)(8)(10)(.4)]^{1/2} = \mathbf{7.55\%}$$

Note that the risk of the portfolio is lower than that of either of the individual asset classes

# Portfolio Risk Calculations: Three-Asset Class Portfolio

Suppose that a portfolio is divided into three different subportfolios consisting of stocks, bonds, and cash equivalents, respectively. Further assume that the subportfolios have the following risk and expected return characteristics:

$$\begin{array}{lll} E(R_{\text{stock}}) = 12.0\% & \sigma_{\text{stock}} = 21.2\% & \rho_{\text{stock,bond}} = 0.18 \\ E(R_{\text{bond}}) = 5.1\% & \sigma_{\text{bond}} = 8.3\% & \rho_{\text{cash,stock}} = -0.07 \\ E(R_{\text{cash}}) = 3.6\% & \sigma_{\text{cash}} = 3.3\% & \rho_{\text{cash,bond}} = 0.22 \end{array}$$

Then, an overall portfolio consisting of a 60%-30%-10% mix of stocks, bonds, and cash equivalents would have the following characteristics:

$$E(R_p) = (0.6)(0.120) + (0.3)(0.051) + (0.1)(0.036) = 0.0909 \text{ or } 9.09\%$$

and:

$$\begin{aligned} \sigma_p^2 = & [(0.6)^2(0.212)^2 + (0.3)^2(0.083)^2 + (0.1)^2(0.033)^2] + \\ & \{[2(0.6)(0.3)(0.212)(0.083)(0.18)] + [2(0.6)(0.1)(0.212)(0.033)(-0.07)] \\ & + [2(0.3)(0.1)(0.083)(0.033)(0.22)]\} = 0.01793 \end{aligned}$$

or

$$\sigma_p = (0.01793)^{1/2} = 0.1339 \text{ or } 13.39\%$$

## 2. Tracking Error Examples

### Actively Managed Mutual Fund (DGAGX)

DGAGX US \$ NAV **45.19** -.08 Purch Prc 45.19  
 .... On 14 Jan

<b>DGAGX US Equity</b>		<b>99 Feedback</b>		Page 1/4	Description: Profile
<b>1) Profile</b>		<b>2) Performance</b>		<b>3) Holdings</b>	
				<b>4) Organizational</b>	

DREYFUS APPRECIATION FD INC Objective Growth-Large Cap  
 Dreyfus Appreciation Fund, Inc. is an open-end fund incorporated in the USA. The Fund's objective is long-term capital growth consistent with the preservation of capital. Its secondary goal is current income. The Fund invests at least 80% of its net assets in the common stock of U.S. and foreign blue-chip companies of market capitalization of more than \$5 billion. [BBGID BBG000BBW0L3]

6) Current Data (COMP)			Bloomberg Classification		
<p>1 yr Tot Ret vs Index</p> <ul style="list-style-type: none"> <li>■ BBOEGLUS Index 14.5115</li> <li>■ SPX Index 16.2722</li> <li>■ DGAGX US Equity 11.8769</li> </ul>			Fund Type: Open-End Fund Asset Class: Equity Geo. Focus.: Global Style: Growth Size: Large-cap		
7) NAV (GP) USD 45.19			Fund Info		
Assets 01/14/13 USD 5.61B			Inception Date 01/18/84		
Performance			Share Class Retail		
1 Month	Return 2.75%	Percentile 1	Min Investment USD 2500		
YTD	2.87%	22	Min Subsequent USD 100.00		
1 Year	12.59%	21	Min IRA USD 750		
3 Year	11.11%	78	Expense Ratio .97%		
5 Year	3.46%	70	Fees		
Px Source NASDAQ			Front Load .00%		
			Back Load .00%		
			Early Withdrawal .00%		
			Current Mgmt Fee .55%		
			Performance Fee N.A.		
			12b1 Fee .00%		

Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000  
 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2013 Bloomberg Finance L.P.  
 SN 335716 CST GMT-6:00 6819-2832-0 15-Jan-2013 12:17:16

# Index Fund (VFINX) and Exchange-Traded Fund (SPY)

VFINX US \$ NAV **135.56** -.12 Purch Prc 135.56

.... On 14 Jan

VFINX US Equity	99 Feedback	Page 1/4	Description: Profile
1) Profile	2) Performance	3) Holdings	4) Organizational

VANGUARD 500 INDEX FUND-INV Objective Index Fund-Large Cap  
 Vanguard 500 Index Fund is an open-end fund incorporated in the USA. The Fund aims to track the performance of the Standard & Poor's 500 Index, which is dominated by the stocks of large U.S. companies. The Fund invests substantially all of its assets in the stocks that make up the Index. [BBGID BBG000BHTMY2]

6) Current Data (COMP)			Bloomberg Classification		
			Fund Type Open-End Fund Asset Class Equity Geo. Focus. U.S. Style Index Fund Size Large-cap		
7) NAV (GP) USD 135.56 Assets 12/31/12 USD 111.88B			Fund Info Inception Date 08/31/76 Share Class Investor Min Investment USD 3000 Min Subsequent USD 100.00 Min IRA N.A. Expense Ratio .17%		
Performance Return Percentile 1 Month 4.18% 60 YTD 3.19% 56 1 Year 16.52% 73 3 Year 10.75% 72 5 Year 2.94% 75			Fees Front Load .00% Back Load .00% Early Withdrawal .00% Current Mgmt Fee .14% Performance Fee N.A. 12b1 Fee .00%		
Px Source NASDAQ					
Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2013 Bloomberg Finance L.P. SN 335716 CST GMT-6:00 6819-2832-0 15-Jan-2013 12:21:48					

SPY US \$ ↑ **146.83** -.14 P146.82/146.83H 340x348

... At 12:10 d Vol 44,224,351 0 146.29X H 146.9315D L 146.20T Val 6.479B

SPY US Equity	99 Feedback	Page 1/5	Description: Profile	
1) Profile	2) Performance	3) Holdings	4) Allocations	5) Organizational

SPDR S&P 500 ETF TRUST Objective Blend - Large Cap  
 SPDR S&P 500 ETF Trust is a unit investment trust incorporated in the United States. The Trust consists of a portfolio representing all 500 stocks in the S&P 500 Index. [BBGID BBG000BDTBL9]

7) Current Data (COMP)		Bloomberg Classification		Appropriations	
		Fund Type ETF Asset Class Equity Size Large-cap Style Blend Geo. Focus. U.S.		Leverage No Actively Managed No Swap Based No Derivatives Based No Currency Hedged No Replication Strategy Full Securities Lending No	
7) Price (GP) USD 146.82 8) NAV(NAV) USD 146.93 INAV USD 146.82 Fund Percent Premium 0.000% 52 Wk H 09/14/12 USD 148.11 52 Wk L 06/04/12 USD 127.135 9) Options(OMON) Yes		Trading Data Bid Ask Spread 0.010 30D Avg Volume 137.9M Implied Liquidity 61.7M Market Cap USD 126.70B Shares Out 862.9M Total Assets USD 126.79B		Characteristics Und. Index 10) SPX Index Weight Market Cap Px Track. Error .314 NAV Track. Error .042 Inception Date 01/22/93 Expense Ratio .095%	
Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2013 Bloomberg Finance L.P. SN 335716 CST GMT-6:00 6819-2832-0 15-Jan-2013 12:25:53					

## Tracking Errors for VFINX, SPY, DGAGX

Period	Return to <u>VFINX</u>	Return to <u>SPY</u>	Return to <u>DGAGX</u>	Return to <u>SPX</u>	<u>Δvfinx</u>	<u>Δspy</u>	<u>Δdgagx</u>
2012	15.82	15.99	10.18	16.00	-0.18	-0.01	-5.82
2011	1.97	1.89	7.62	2.11	-0.14	-0.22	5.51
2010	14.91	15.06	15.26	15.06	-0.15	0.00	0.20
2009	26.49	26.37	21.01	26.46	0.03	-0.09	-5.45
2008	-37.02	-36.81	-32.37	-37.00	-0.02	0.19	4.63
2007	5.82	5.14	6.54	5.49	0.33	-0.35	1.05
2006	15.64	15.85	16.26	15.79	-0.15	0.06	0.47
2005	4.77	4.83	4.14	4.91	-0.14	-0.08	-0.77
2004	10.74	10.70	5.57	10.88	-0.14	-0.18	-5.31
2003	<u>28.50</u>	<u>28.18</u>	<u>20.39</u>	<u>28.68</u>	<u>-0.18</u>	<u>-0.50</u>	<u>-8.29</u>
<b>Average (%):</b>	8.76	8.72	7.46	8.84	<b>-0.07</b>	<b>-0.12</b>	<b>-1.38</b>
Periodic Tracking Error (%):					0.16	0.20	4.66
Period/Yr:					1.00	1.00	1.00
<b>Annual Tracking Error (%):</b>					<b>0.16</b>	<b>0.20</b>	<b>4.66</b>

## Tracking Error Example: Calculations

- TE for VFINX:

$$\sqrt{\frac{[-0.18 - (-0.07)]^2 + [-0.14 - (-0.07)]^2 + \dots + [-0.18 - (-0.07)]^2}{(10-1)}} = 0.16$$

- TE for SPY:

$$\sqrt{\frac{[-0.01 - (-0.12)]^2 + [-0.22 - (-0.12)]^2 + \dots + [-0.50 - (-0.12)]^2}{(10-1)}} = 0.20$$

- TE for DGAGX:

$$\sqrt{\frac{[-5.82 - (-1.38)]^2 + [5.51 - (-1.38)]^2 + \dots + [-8.29 - (-1.38)]^2}{(10-1)}} = 4.66$$

### 3. Extending VaR: Stress Testing

- Notion:

An attempt at sensitivity analysis, designed to address the following questions (among others) about the Value at Risk calculation:

- What would happen if some of the underlying assumptions about return volatilities and correlations are wrong?
- What would happen if these assumptions are correct given the recent series of historical events, but might be inaccurate if a "big" new event was to occur?
- What would happen if some relevant risks have been left out of the calculation?

## VaR Stress Testing Example:

- Assume that in the original example, there are only three sources of potential error:
  - (i) Incorrect equity volatilities ( $\sigma_{us}$  and  $\sigma_{for}$ )
  - (ii) Incorrect exchange rate volatility ( $\sigma_{fx}$ )
  - (iii) Incorrect correlations ( $\rho_{us,for}$ ,  $\rho_{us,fx}$ , and  $\rho_{for,fx}$ )

### 3. Extending VaR

#### A Simple Calculation:

- Standard Deviation of Portfolio Position:

$$\sigma_p = \sqrt{\sum_i \omega_i^2 \sigma_i^2 + \sum_{i \neq j} \omega_i \omega_j \sigma_i \sigma_j \rho_{i,j}}$$

where:  $\{\sigma_i\}$  are the standard deviations for the separate assets,  
 $\{\omega_i\}$  are the investment weights for the separate assets,  
 $\{\rho_{i,j}\}$  are the correlations between the assets.

## VaR Calculation (cont.):

- VaR of Portfolio:

$$\% (\text{VaR})_p = (\sigma_p) \times (\# \text{ of } \sigma\text{'s})$$

where  $(\# \text{ of } \sigma\text{'s}) = 1.65$  for the 95-th percentile event  
or  $2.00$  for the 97.5-th percentile event

## Example of a VaR Calculation:

- Suppose that a U.S.-based investor has two positions and the following market conditions prevail:
  - 50,000,000 in a U.S. equity index, denominated in dollars (\$)
  - 75,000,000 in a foreign country equity index, denominated in that country's currency (FC)
  - Current exchange rate = FC1.50/\$

## VaR Example (cont.):

- Periodic Volatilities:

U.S. equity:  $\sigma_{us} = 2\%$

Foreign equity:  $\sigma_{for} = 2\%$

Exchange Rate:  $\sigma_{fx} = 1\%$

- Correlations:

U.S. and Foreign Equity:  $\rho_{us,for} = 0.30$

Foreign Equity and Exchange Rate:  $\rho_{for,fx} = 0.00$

U.S. Equity and Exchange Rate:  $\rho_{us,fx} = 0.00$

Under the conditions, using the 97.5% definition of VaR (i.e., two standard deviations):

- Current Value of the Whole Portfolio:

$$\begin{aligned} \$50,000,000 + [FC75,000,000/(FC1.50/\$)] \\ = \$100,000,000 \end{aligned}$$

- Volatility of U.S. Position (in \$):

$$\$50,000,000 \times (0.02) \times (2.00) = \$2,000,000$$



so, with  $\rho_{\text{for,fx}} = 0.00$ , net volatility of foreign position:

$$\sqrt{(2,000,000)^2 + (980,392)^2} = \$2,227,368$$

Thus, given  $\rho_{\text{us,for}} = 0.30$  and  $\rho_{\text{us,fx}} = 0.00$ , the portfolio's VaR is

**\$3,410,866:**

$$\text{VaR} = \sqrt{(2,000,000)^2 + (2,227,368)^2 + 2(2,000,000)(2,227,368)(0.3)}$$

or, **3.41%** of the portfolio's current market value

Assume for simplicity that  $\rho_{us,fx}$ ,  $\sigma_{us}$ , and  $\sigma_{for}$  vary and  $\sigma_{us} \div \sigma_{for} = 1$ .

Then, VaR calculations for several different combinations are listed on the following chart (in % of initial \$100,000,000 portfolio value):

## VaR Sensitivity Analysis:

$$\sigma_{us} = \sigma_{for}:$$

	1%	2%:	3%:	5%:
-1.0:	0.40%	0.23%	0.16%	0.10%
-0.5:	1.25	2.12	3.08	5.05
$\rho$ : 0.0:	1.72	2.99	4.35	7.14
0.3:	1.95	3.41	4.96	8.14
0.5:	2.09	3.66	5.33	8.74
1.0:	2.40	4.23	6.16	10.10

## “Worst Worst Case” Analysis

- What would be the potential loss in portfolio value if:
  - (i) A series of adverse, extreme events occurred in all markets (i.e., equity and foreign exchange), and
  - (ii) the correlation between equity markets became 1.0?

Assuming the "base case" volatilities, VaR can be recalculated for several "standard deviation" events:

<u>Number of Std. Deviations</u>	<u>VaR as % of Value</u>
1	2.12%
2	4.23
3	6.33
4	8.44
5	10.54

# 4. The Components of Portfolio Risk

## 1. Decomposing Total Portfolio Risk

Suppose that a manager has formed a portfolio consisting of  $N$  asset classes. Suppose also the portfolio weight in the  $j$ -th asset class is denoted as  $w_j$  while  $\sigma_{jk}$  represents the covariance between Assets  $j$  and  $k$  (where  $\sigma_{jk}$  equals the variance,  $\sigma_j^2$ , when  $j = k$ ). With this notation, the return variance,  $\sigma_p^2$ , of the portfolio is given by:

$$\sigma_p^2 = \sum_{j=1}^N \sum_{k=1}^N w_j w_k \sigma_{jk} \quad (1)$$

or, equivalently:

$$\sigma_p^2 = \sum_{j=1}^N w_j^2 \sigma_j^2 + \sum_{j=1}^N \sum_{\substack{k=1 \\ j \neq k}}^N w_j w_k \sigma_{jk} \quad (2)$$

The standard deviation of the portfolio is:

$$\sigma_p = \left[ \sum_{j=1}^N w_j^2 \sigma_j^2 + \sum_{j=1}^N \sum_{\substack{k=1 \\ j \neq k}}^N w_j w_k \sigma_{jk} \right]^{1/2} \quad (3)$$

## The Components of Portfolio Risk (cont.)

### 2. Marginal Asset Risk Within the Portfolio

To compute the contribution of Asset k's risk to the overall risk of the portfolio, we can take the derivative of (3) with respect to Asset k's weight in the portfolio:

$$\begin{aligned}
 \frac{\partial \sigma_p}{\partial w_k} &= \frac{1}{2} \left[ \sum_{j=1}^N w_j^2 \sigma_j^2 + \sum_{j=1}^N \sum_{\substack{k=1 \\ j \neq k}}^N w_j w_k \sigma_{jk} \right]^{-1/2} \left[ 2w_k \sigma_k^2 + 2 \sum_{\substack{j=1 \\ j \neq k}}^N w_j \sigma_{jk} \right] \\
 &= \left[ \sum_{j=1}^N w_j^2 \sigma_j^2 + \sum_{j=1}^N \sum_{\substack{k=1 \\ j \neq k}}^N w_j w_k \sigma_{jk} \right]^{-1/2} \left[ w_k \sigma_k^2 + \sum_{\substack{j=1 \\ j \neq k}}^N w_j \sigma_{jk} \right] \\
 &= \left[ \sigma_p^2 \right]^{-1/2} \left[ w_k \sigma_k^2 + \sum_{\substack{j=1 \\ j \neq k}}^N w_j \sigma_{jk} \right]
 \end{aligned}$$

which can be simplified to:

$$\frac{\partial \sigma_p}{\partial w_k} = \left[ \frac{1}{\sigma_p} \right] \left[ \sum_{j=1}^N w_j \sigma_{jk} \right] = \left[ \frac{1}{\sigma_p} \right] \left[ \sum_{j=1}^N w_j \sigma_j \sigma_k \rho_{jk} \right] \quad (4)$$

## The Components of Portfolio Risk (cont.)

where  $\sigma_j$  and  $\sigma_k$  are the standard deviations of asset classes  $j$  and  $k$ , respectively, and  $\rho_{jk}$  is the correlation coefficient between them. Equation (4) shows that the **marginal volatility** of Asset  $k$  in a portfolio is the weighted sum of the  $k$ -th row (or, equivalently, the  $k$ -th column) of the return covariance matrix divided by the standard deviation of the entire portfolio. Notice that the magnitude of this *marginal risk contribution* is determined by three factors: (i) the volatility of the asset itself, (ii) the asset's weight in the portfolio, and (iii) the asset's covariance with all of the other portfolio holdings and their investment weights.

A convenient property of marginal volatilities is that *the weighted sum over all assets held in the portfolio is, in fact, the overall volatility of the portfolio*. By contrast, recall that the standard deviation of a portfolio *is not* simply a weighted average of the standard deviations of the underlying assets whenever the correlations between the asset classes are less than +1.0. However, by redefining the risk of Asset  $k$  *within the portfolio* taking those correlations into account—which is what (4) does—it is possible to view overall portfolio risk as an additive statistic. To see this notice that:

$$\begin{aligned} \sum_{k=1}^N w_k \left[ \frac{\partial \sigma_p}{\partial w_k} \right] &= \sum_{k=1}^N w_k \left\{ \frac{1}{\sigma_p} \left[ \sum_{j=1}^N w_j \sigma_{jk} \right] \right\} \\ &= \frac{1}{\sigma_p} \sum_{j=1}^N \sum_{k=1}^N w_j w_k \sigma_{jk} = \frac{\sigma_p^2}{\sigma_p} = \sigma_p \end{aligned} \quad (5)$$

## The Components of Portfolio Risk (cont.)

This feature provides a mechanism for the portfolio manager to “roll-up” marginal volatilities to a higher level (e.g., the sector or country level) without having to recompute the derivatives. In other words, assume that the marginal volatility of each of the  $N$  assets has been calculated. Assume also that we are interested in knowing the aggregate marginal volatility of a collection of  $M$  assets where  $k = 1$  to  $M < N$  (i.e., the  $M$  assets comprise a subset of the total portfolio). For example, these  $M$  assets could represent the exposure to a particular country within a global equity portfolio. The marginal volatility of this sub-portfolio is given by:

$$\frac{\partial \sigma_p}{\partial w_M} = \frac{\sum_{k=1}^M w_k \frac{\partial \sigma_p}{\partial w_k}}{\sum_{k=1}^M w_k} \quad (6)$$

This additive property also allows the portfolio manager to interpret the weighted marginal volatilities directly as the *asset's total contribution to risk* in the overall portfolio or as the *contribution to tracking error* if asset class returns are defined in excess of the returns to a benchmark. That is:

$$\text{Asset } k\text{'s Marginal Risk (MR}_k\text{):} \quad \left[ \frac{\partial \sigma_p}{\partial w_k} \right] \quad (7)$$

$$\text{Asset } k\text{'s Total Contribution to Risk (TCR}_k\text{):} \quad w_k \left[ \frac{\partial \sigma_p}{\partial w_k} \right] \quad (8)$$

## The Components of Portfolio Risk (cont.)

Once again, (7) and (8) highlight two facts: (i) Asset  $k$ 's *marginal risk* ( $MR_k$ ) within the portfolio depends not only on its own inherent riskiness (i.e.  $\sigma_k$ ) but also how it interacts with every other asset held in the portfolio (i.e.,  $\rho_{jk}$ ), and (ii) Asset  $k$ 's *total contribution to risk* ( $TCR_k$ ) in the overall portfolio also depends on how much the manager invests in that asset class ( $w_k$ ). For convenience, an asset's total contribution to risk is often *expressed as a percentage of the overall standard deviation of the portfolio*:

$$\text{Asset } k\text{'s \% Total Contribution to Risk (\%TCR}_k\text{): } \left[ w_k \frac{\partial \sigma_p}{\partial w_k} \right] \div \sigma_p \quad (9)$$

In the form of (9), an asset's total risk contribution in the portfolio can be compared directly to its dollar allocation weight in that portfolio.

# Risk Decomposition with Tracking Error: Chilean Pension Risk-Tracking System – March 2004

PRISM (CR) / Return, Volatility and Tracking Error for 200401

March 17, 2004

Obs	AFP	AFP Id	Assets	Volatility	Tracking Error	Mean Portfolio Return	Mean Excess Return
1	LLLL	1	733	0.081731	0.003646	0.23543	0.004531
2	MMMM	2	738	0.081423	0.003514	0.23476	0.003862
3	NNNN	3	635	0.080780	0.004187	0.22947	-0.001425
4	PPPP	4	257	0.077193	0.004713	0.21804	-0.012857
5	QQQQ	5	469	0.079808	0.003791	0.22660	-0.004296
6	RRRR	6	54	0.073797	0.008308	0.22981	-0.001082
7	SSSS	7	31	0.061490	0.020927	0.20014	-0.030757
8	SISTEMA	8	2918	0.080525	0.000000	0.23089	0.000000

PRISM (CY) / AFP Value at Risk for 200401

March 17, 2004

Obs	AFP	Assets	Tracking Error (%)	50bp Shortfall Probability (%)	200bp Shortfall Probability (%)
1	LLLL	733	0.3646	8.5130	0.0000
2	MMMM	738	0.3514	7.7410	0.0000
3	NNNN	635	0.4187	11.6213	0.0001
4	PPPP	257	0.4713	14.4383	0.0011
5	QQQQ	469	0.3791	9.3576	0.0000
6	RRRR	54	0.8308	27.3640	0.8034
7	SSSS	31	2.0927	40.5582	16.9613
8	SISTEMA	2918	0.0000	.	.

# Chilean Sistema Risk Tracking Example (cont.)

PRISM (CX) / Risk Diagnostics  
Sistema-Relative Tracking Error for 200401

March 17, 2004 1

Obs	AFP	Asset Class	Active Weight (%)	Worst Case Contribution (%)	Contribution to Tracking Error (%)	Implied View (%)
1	LLLL	PRD_BCD	-0.2144	-0.0194	0.0023	-1.0527
2	LLLL	PDBC_PRBC	-1.1800	-0.0331	-0.0097	0.8206
3	LLLL	BCP	0.1830	0.0111	-0.0003	-0.1709
4	LLLL	RECOGN_BOND	-1.2731	-0.1965	0.1040	-8.1706
5	LLLL	CERO	-0.2823	-0.0026	0.0002	-0.0617
6	LLLL	PRC_BCU	-1.1605	-0.0822	0.0193	-1.6626
7	LLLL	BCE	0.0385	0.0011	0.0003	0.8206
8	LLLL	PCD_PTF	-0.0002	-0.0000	-0.0000	0.8206
9	LLLL	ZERO	-0.0184	-0.0017	0.0002	-1.0363
10	LLLL	DEPOSITS_OFFNO	0.4018	0.0041	0.0001	0.0347
11	LLLL	DEPOSITS_OFFUF	3.7074	0.1039	0.0304	0.8206
12	LLLL	LHF	-0.9636	-0.0363	0.0074	-0.7657
13	LLLL	BEF	-0.0080	-0.0011	0.0002	-2.4299
14	LLLL	BSF	-0.0395	-0.0029	0.0005	-1.3547
15	LLLL	CC2	-0.2398	0.0000	0.0000	0.0000
16	LLLL	CFI	-0.3106	-0.0212	0.0004	-0.1428
17	LLLL	CORPORATE_BOND	-0.1932	-0.0084	0.0006	-0.3317
18	LLLL	CTC_A	-0.3847	-0.0826	0.0148	-3.8358
19	LLLL	ENDESA	-0.0505	-0.0095	0.0001	-0.2352
20	LLLL	COPEC	0.1789	0.0424	0.0031	1.7448
21	LLLL	ENTEL	-0.0672	-0.0179	0.0015	-2.1698
22	LLLL	CMPC	0.2043	0.0436	0.0104	5.1077
23	LLLL	SQM-B	-0.1966	-0.0356	-0.0010	0.5129
24	LLLL	CERVEZAS	0.0069	0.0018	-0.0001	-1.2372
25	LLLL	COLBUN	0.0184	0.0032	-0.0001	-0.4791
26	LLLL	D&S	-0.4237	-0.1334	0.0127	-2.9882
27	LLLL	ENERSIS	0.3731	0.1107	0.0286	7.6550
28	LLLL	Chile_SMALL_CAP	0.6830	0.0677	0.0039	0.5649
29	LLLL	US	0.8959	0.1332	0.0607	6.7785
30	LLLL	EUROPE	0.0364	0.0063	0.0022	6.0088
31	LLLL	UK	-0.0954	-0.0158	-0.0064	6.7521
32	LLLL	JAPAN	0.0710	0.0149	0.0029	4.0322
33	LLLL	GLOBAL	0.8999	0.1219	0.0518	5.7571
34	LLLL	ASIA_EX_JAPAN	-2.1238	-0.3475	-0.0165	0.7754
35	LLLL	LATIN_AMERICA	-0.5469	-0.0898	-0.0272	4.9767
36	LLLL	EASTERN_EUROPE	-0.1620	-0.0299	-0.0061	3.7790
37	LLLL	EMERGING_MARKETS	1.8244	0.2729	0.0638	3.4975
38	LLLL	G7_BOND	0.1123	0.0062	0.0008	0.7247
39	LLLL	HY	0.0364	0.0041	0.0011	3.0627
40	LLLL	EMB	0.2535	0.0304	0.0069	2.7101
41	LLLL	MM	0.0094	0.0008	0.0002	2.5109
			=====	=====	=====	
			0.0000	-0.1870	0.3640	

**Tab 6 B**



# Teacher Retirement System of Texas

Performance Review: Third Quarter 2013  
December 2013

**Hewitt** ennisknupp

*An Aon Company*

# Summary

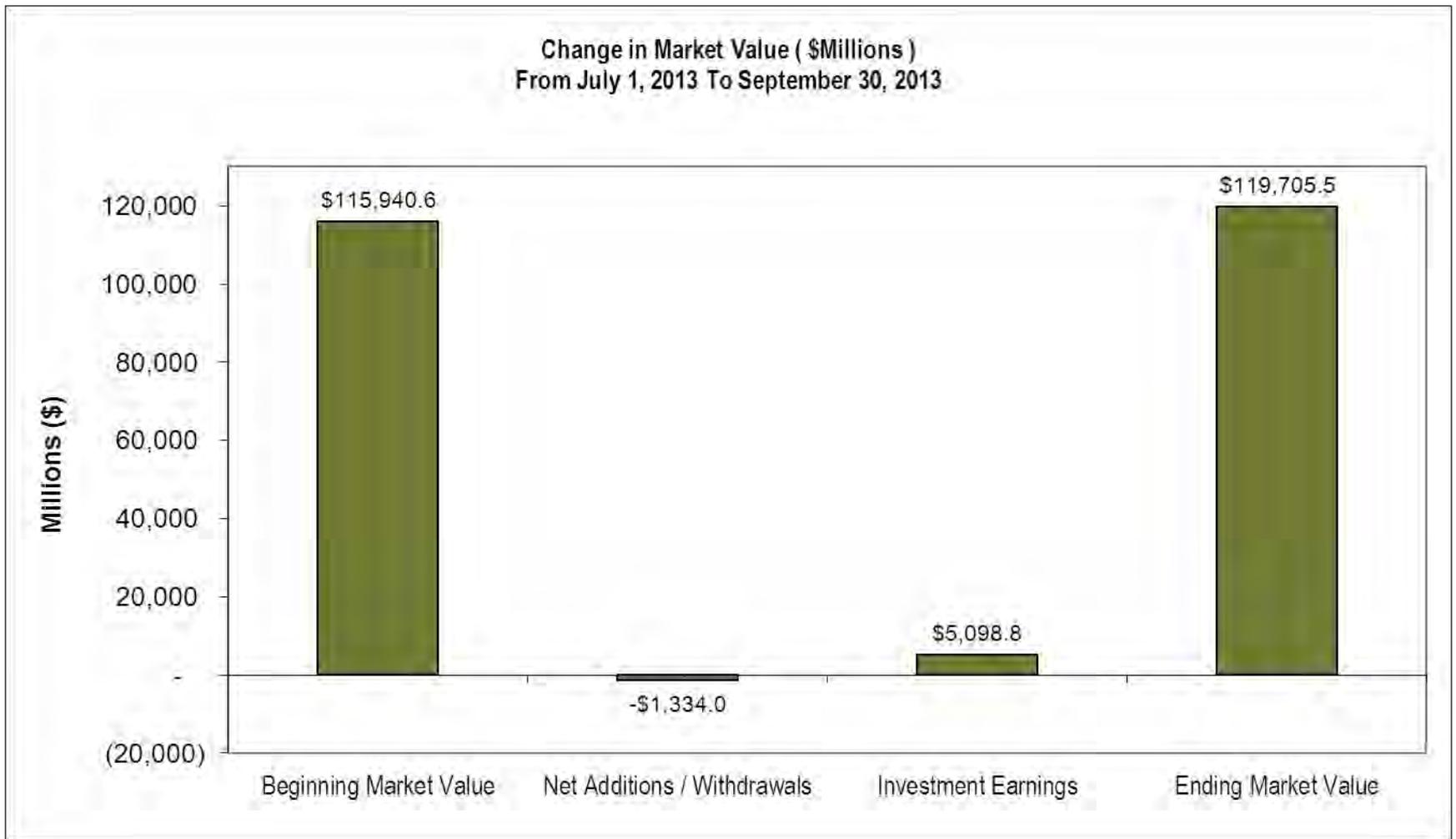
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- Capital markets continued to be volatile during the third quarter.
- Despite the uncertainties in monetary policy, the unrest in Syria, and U.S. debt and budget negotiations, equity markets remained positive for the quarter
  - International equities gained 11.3% during the quarter as Europe unexpectedly emerged from its 18-month recession
- TRS gained 4.4% during the third quarter and outperformed its benchmark by 16 basis points
  - Year-to-date and over the trailing 12 month period TRS performance remains strong on an absolute and relative basis
  - TRS also exceeded its performance benchmark during the trailing 3, 5, and 10 year periods
- Major sources of outperformance during the third quarter included:
  - Global Equity
    - U.S. Large Cap
    - U.S. Small Cap (overweight)
    - Private Equity
- Investments that detracted from relative results included:
  - Non-U.S. Developed (both underperformance and underweight)
  - Stable Value Hedge Funds
  - Real Assets

# 1. Market Summary – Third Quarter 2013

	Third Quarter	YTD	One Year	Three Years	Five Years	Ten Years
<b>Global Equity:</b>						
MSCI USA Standard	5.7%	20.2%	19.9%	16.5%	10.2%	7.8%
MSCI USA Small Cap	9.4	26.9	30.5	18.9	14.1	10.5
MSCI EAFE + Canada Index	11.3	14.7	21.4	7.9	6.1	8.2
MSCI Emerging Markets Index	5.8	-4.4	1.0	-0.3	7.2	12.8
HFRI Fund of Funds Composite Index	1.6	5.1	6.4	2.5	1.9	3.4
State Street Private Equity Index (qtr lagged)	2.6	9.8	12.5	13.3	4.9	12.4
Global Equity Policy Benchmark	6.3	11.7	15.0	10.0	7.9	--
<b>Stable Value:</b>						
Barclays Capital Long Treasury Index	-2.2%	-9.9%	-10.6%	3.6%	6.5%	6.1%
HFRI Fund of Funds Conservative Index	1.2	4.8	6.5	2.6	1.4	2.7
3 Month LIBOR + 2%	0.6	1.7	2.3	2.4	2.5	4.1
90 Day US Treasury Bill	0.0	0.1	0.1	0.1	0.2	1.7
Stable Value Policy Benchmark	-1.4	-6.2	-6.4	3.8	5.8	--
<b>Real Return:</b>						
Barclays Capital US Treasury TIPS Index	0.7%	-6.7%	-6.1%	4.0%	5.3%	5.2%
NCREIF ODCE (qtr lagged)	3.6	8.3	11.1	13.9	-1.1	--
Goldman Sachs Commodities Index	4.8	-0.9	-4.1	3.6	-8.5	1.8
MSCI US REIT	-3.0	3.2	5.8	12.4	5.9	9.5
Real Return Policy Benchmark	2.9	4.4	6.6	10.6	4.2	--
TRS Policy Benchmark	4.2	6.9	9.3	9.4	7.4	7.2

## 2. Market Value Change

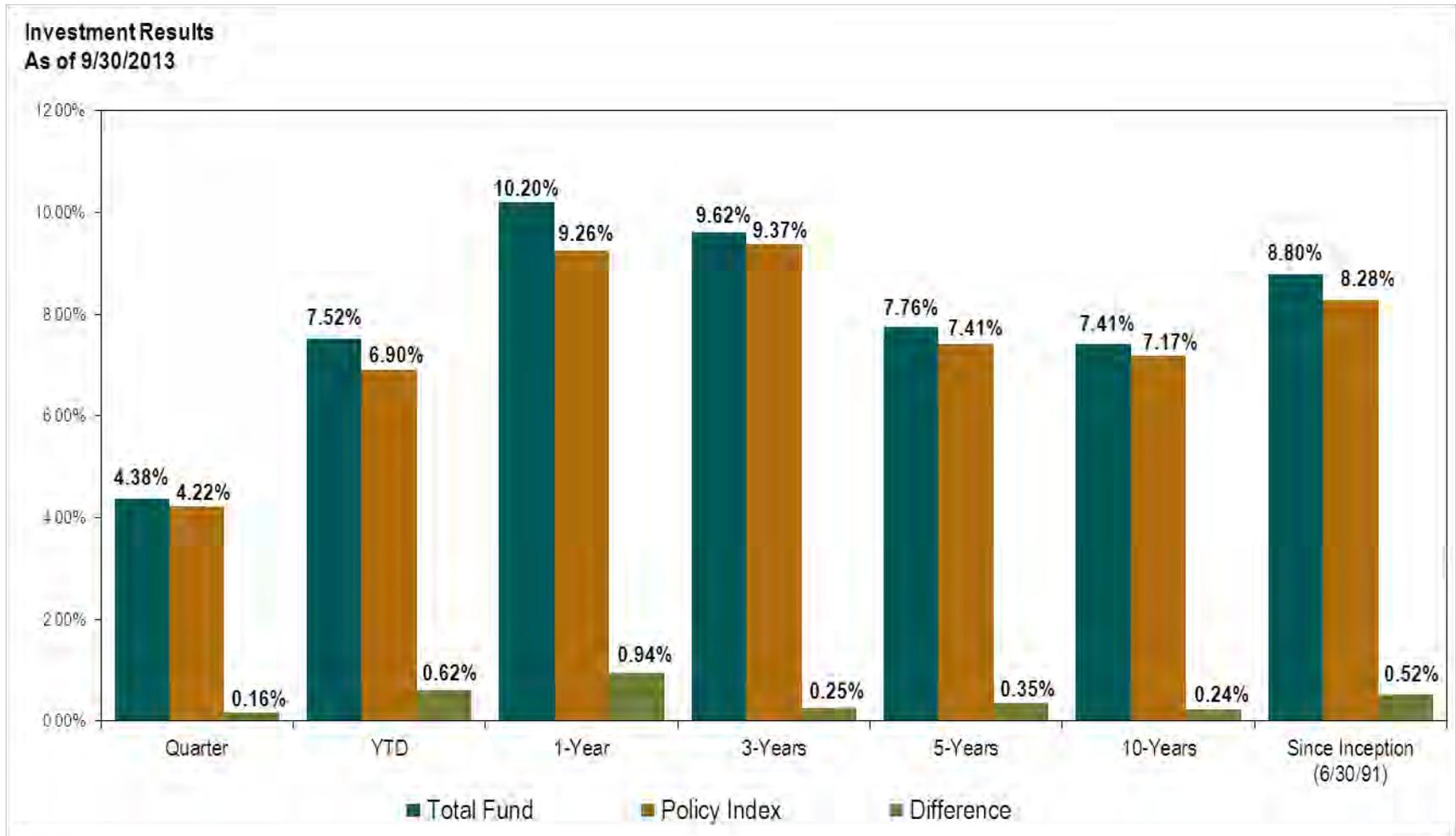


### 3. Asset Allocation Detail

	Market Value (\$ in millions) as of 9/30/2013		Policy Target	Relative Allocation to Policy Target	Ranges
	(\$)	(%)			
<b>Total Fund</b>	<b>\$119,706</b>	<b>100%</b>	<b>100%</b>	<b>---</b>	<b>--</b>
U.S. Large	\$22,079	18.4%	18%	+0.4%	13-23%
U.S. Small	\$4,423	3.7%	2%	+1.7%	0-7%
Non-U.S. Developed	\$17,135	14.3%	15%	-0.7%	10-20%
Emerging Markets	\$12,821	10.7%	10%	+0.7%	5-15%
Directional Hedge Funds	\$6,088	5.1%	5%	+0.1%	0-10%
Private Equity	\$14,343	12.0%	12%	+0.0%	7-17%
<b>Global Equity</b>	<b>\$76,888</b>	<b>64.2%</b>	<b>62%</b>	<b>+2.2%</b>	<b>55-69%</b>
Long Treasuries	\$14,293	11.9%	13%	-1.1%	0-20%
Stable Value Hedge Funds	\$4,520	3.8%	4%	-0.2%	0-10%
Absolute Return (including OAR)	\$460	0.4%	0%	+0.4%	0-20%
Cash	\$578	0.5%	1%	-0.5%	0-5%
<b>Stable Value</b>	<b>\$19,850</b>	<b>16.6%</b>	<b>18%</b>	<b>-1.4%</b>	<b>13-23%</b>
TIPS	\$6,631	5.5%	5%	+0.5%	0-10%
Real Assets	\$15,886	13.3%	15%	-1.7%	5-20%
Commodities	\$450	0.4%	0%	+0.4%	0-5%
<b>Real Return</b>	<b>\$22,967</b>	<b>19.2%</b>	<b>20%</b>	<b>-0.8%</b>	<b>15-25%</b>

Note: Actual allocations above are based upon Account Level information

## 4. Total TRS Performance Ending 9/30/2013



Note: The excess returns shown above may not be a perfect difference between the actual and benchmark returns due entirely to rounding.

## 5. Total Fund Attribution - Quarter Ending 9/30/2013

TOTAL FUND ATTRIBUTION ANALYSIS  
3 MONTHS ENDING 9/30/13



Asset Class	Allocation Effect (in bps)
U.S. Large Cap	1
U.S. Small Cap	5
Non-U.S. Developed	-2
Emerging Markets	2
Directional Hedge Funds	0
Private Equity	0
Long Treasuries	-1
Stable Value Hedge Funds	1
Other Absolute Return	0
Cash Equivalents	-1
U.S. TIPS	0
Real Assets	1
REITS	0
Commodities	0
<b>Total Allocation Effect</b>	<b>+6</b>

## 5. Total Fund Attribution – Trailing One Year Ending 9/30/2013

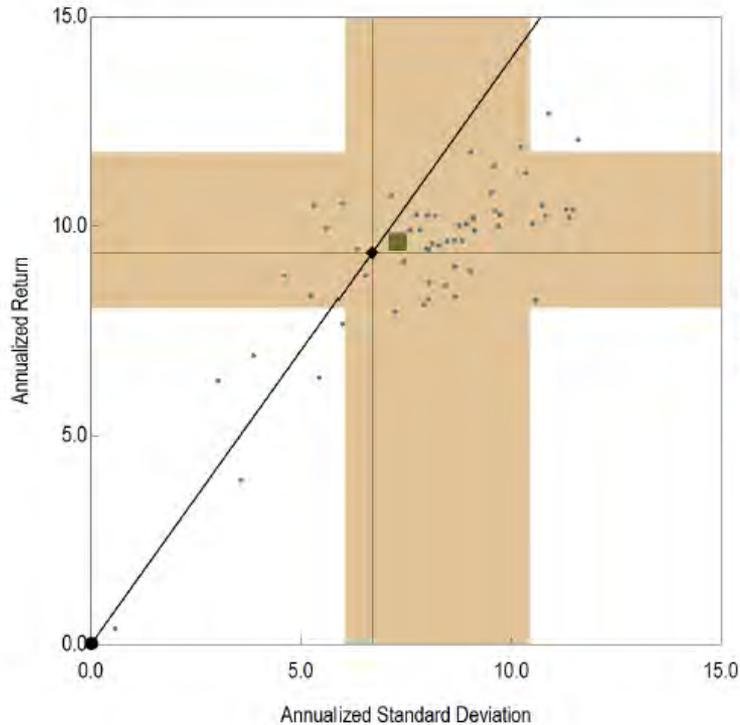
TOTAL FUND ATTRIBUTION ANALYSIS  
1 YEAR ENDING 9/30/13



Asset Class	Allocation Effect (in bps)
U.S. Large Cap	3
U.S. Small Cap	5
Non-U.S. Developed	-15
Emerging Markets	-9
Directional Hedge Funds	0
Private Equity	-1
Long Treasuries	14
Stable Value Hedge Funds	2
Other Absolute Return	-4
Cash Equivalents	-5
U.S. TIPS	-3
Real Assets	-4
REITS	0
Commodities	-10
<b>Total Allocation Effect</b>	<b>-27</b>

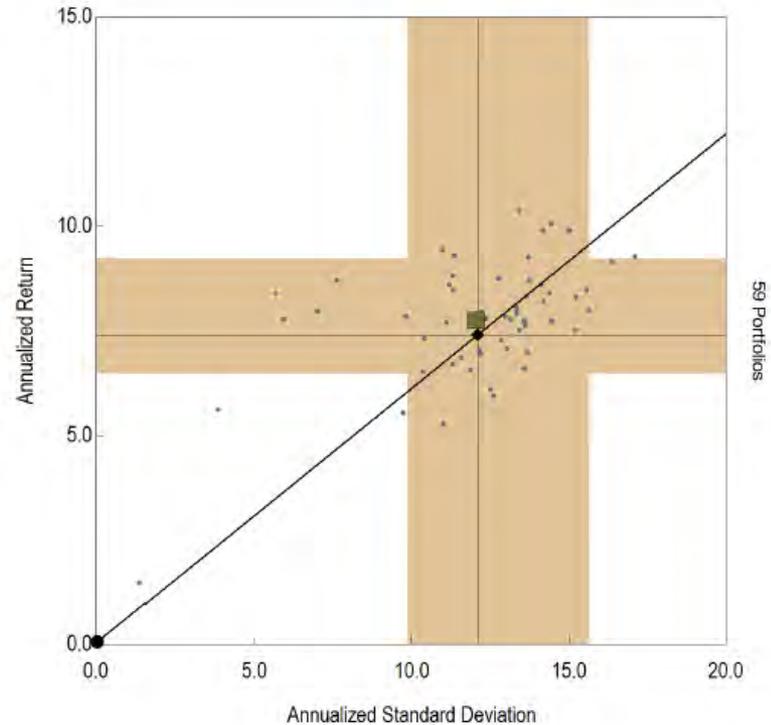
## 6. Risk Profile: Total Fund Risk-Return vs. Peers

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending September 30, 2013



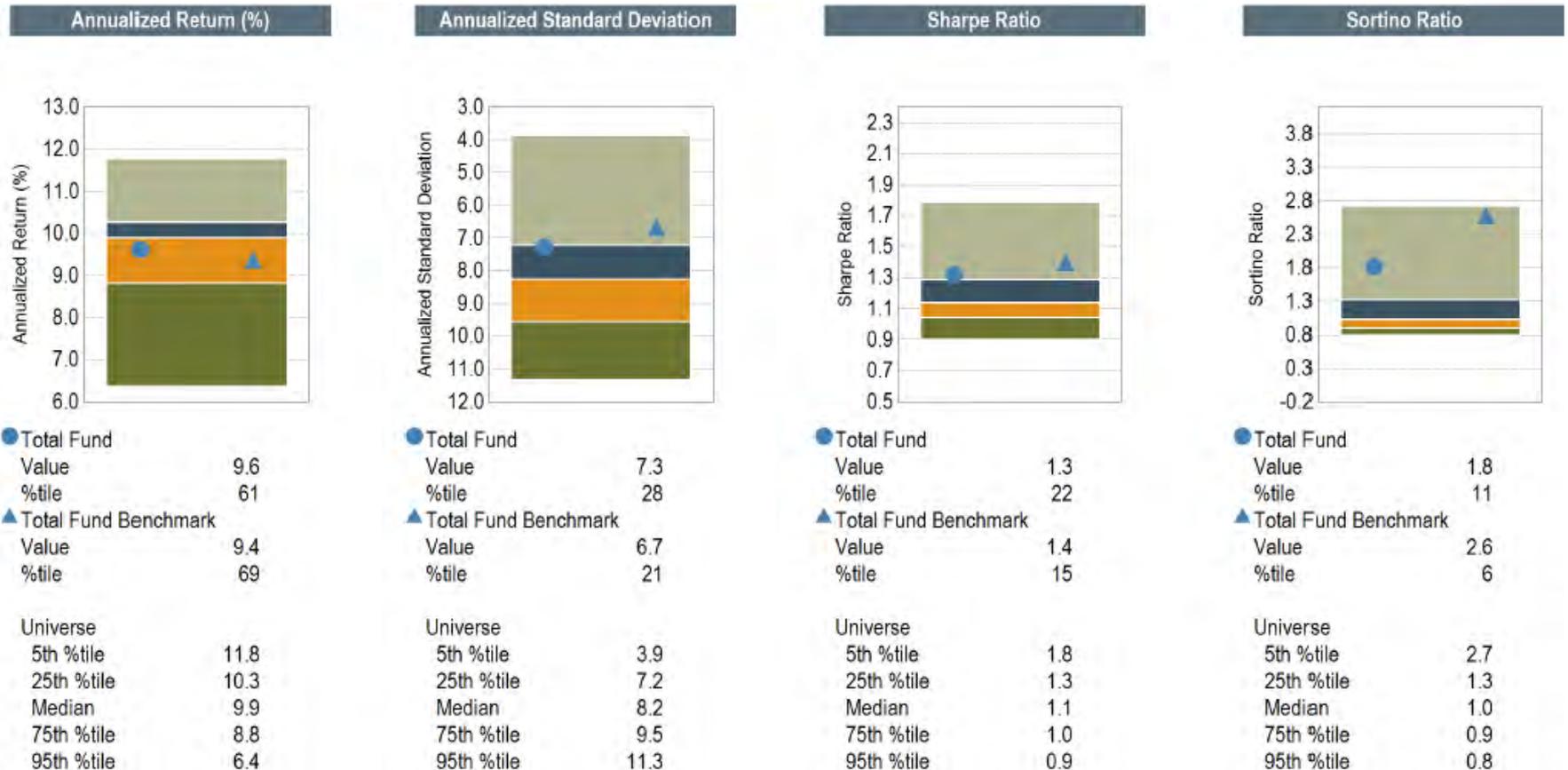
- Total Fund
- Total Fund Benchmark
- Risk Free
- 68% Confidence Interval
- Public Funds >\$1B Net

Annualized Return vs. Annualized Standard Deviation  
5 Years Ending September 30, 2013



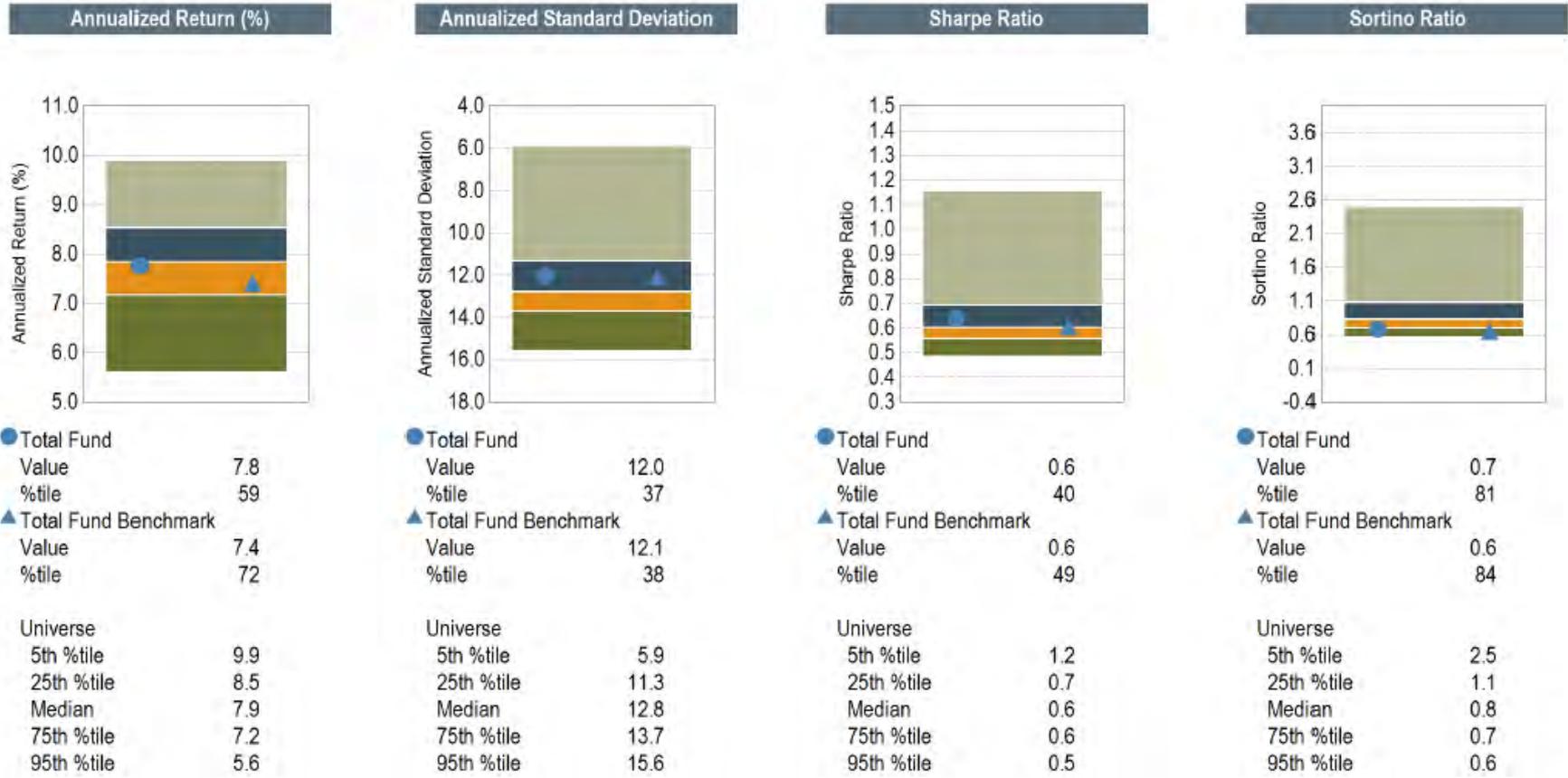
- Total Fund
- Total Fund Benchmark
- Risk Free
- 68% Confidence Interval
- Public Funds >\$1B Net

## 6. Risk Profile: Trailing 3-Year Risk Metrics Peer Comparison



Universe: **Public Funds > \$1B Net**

# 6. Risk Profile: Trailing 5-Year Risk Metrics Peer Comparison



Universe: **Public Funds > \$1B Net**

## 7. Global Equity: Performance Summary Ending 9/30/2013

	Third Quarter	YTD	One Year	Three Years	Five Years
<b>Total Global Equity</b>	<b>6.6%</b>	<b>13.0%</b>	<b>17.0%</b>	<b>10.2%</b>	<b>7.8%</b>
Global Equity Benchmark	6.3	11.7	15.0	10.0	7.9
<i>Difference</i>	+0.3	+1.3	+2.0	+0.2	-0.1
<b>Total U.S.</b>	<b>7.4</b>	<b>21.1</b>	<b>22.2</b>	<b>16.3</b>	<b>10.4</b>
U.S. Benchmark	6.1	20.9	21.0	16.6	10.3
<i>Difference</i>	+1.3	+0.2	+1.2	-0.3	+0.1
<u>U.S. Large Cap</u>	<b>7.1</b>	<b>20.4</b>	<b>21.3</b>	<b>16.1</b>	<b>10.2</b>
Large Cap Benchmark	5.7	20.2	19.9	16.5	10.0
<i>Difference</i>	+1.4	+0.2	+1.4	-0.4	+0.2
<u>U.S. Small Cap</u>	<b>9.4</b>	<b>27.6</b>	<b>31.5</b>	<b>20.6</b>	<b>13.5</b>
Small Cap Benchmark	9.4	26.9	30.5	18.9	12.1
<i>Difference</i>	0.0	+0.7	+1.0	+1.7	+1.4
<b>Non-U.S. Equity</b>	<b>8.5</b>	<b>7.8</b>	<b>13.8</b>	<b>4.8</b>	<b>6.6</b>
Non-U.S. Benchmark	9.1	6.7	12.9	4.6	6.7
<i>Difference</i>	-0.6	+1.1	+0.9	+0.2	-0.1
<u>Non-U.S. Developed</u>	<b>10.2</b>	<b>15.6</b>	<b>21.6</b>	<b>8.5</b>	<b>6.1</b>
MSCI EAFE + Canada	11.3	14.7	21.4	7.9	6.1
<i>Difference</i>	-1.1	+0.9	+0.2	+0.6	0.0
<u>Emerging Markets</u>	<b>6.0</b>	<b>-2.1</b>	<b>3.7</b>	<b>0.3</b>	<b>7.3</b>
MSCI Emerging Markets	5.8	-4.4	1.0	-0.3	7.2
<i>Difference</i>	+0.2	+2.3	+2.7	+0.6	+0.1

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

## 7. Global Equity: Performance Summary Ending 9/30/2013 (cont'd)

	Third Quarter	YTD	One Year	Three Years	Five Years
<b>Directional Hedge Funds</b>	<b>2.1%</b>	<b>6.9%</b>	<b>9.3%</b>	--	--
HFRI Fund of Funds Composite Index	1.6	5.1	6.4	--	--
<i>Difference</i>	+0.5	+1.8	+2.9	--	--
<b>Total Public Equity</b>	<b>7.4</b>	<b>12.9</b>	<b>16.6</b>	<b>9.3</b>	<b>7.4</b>
Public Equity Benchmark	7.2	12.1	15.5	9.3	7.4
<i>Difference</i>	+0.2	+0.8	+1.1	0.0	0.0
<b>Total Private Equity</b>	<b>3.2</b>	<b>13.6</b>	<b>18.7</b>	<b>15.1</b>	<b>8.2</b>
Private Equity Benchmark	2.6	9.8	12.5	13.3	10.5
<i>Difference</i>	+0.6	+3.8	+6.2	+1.8	-2.3

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## 8. Stable Value: Performance Summary Ending 9/30/2013

	Third Quarter	YTD	One Year	Three Years	Five Years
<b>Total Stable Value</b>	<b>-1.5%</b>	<b>-6.0%</b>	<b>-6.0%</b>	<b>4.5%</b>	<b>7.3%</b>
Total Stable Value Benchmark	-1.4	-6.2	-6.4	3.8	5.8
<i>Difference</i>	-0.1	+0.2	+0.4	+0.7	+1.5
<b>Long Treasuries</b>	<b>-2.1</b>	<b>-9.7</b>	<b>-10.3</b>	<b>4.2</b>	<b>7.5</b>
Treasury Benchmark	-2.2	-9.9	-10.6	3.6	6.5
<i>Difference</i>	+0.1	+0.2	+0.3	+0.6	+1.0
<b>Stable Value Hedge Funds</b>	<b>-0.4</b>	<b>2.2</b>	<b>3.0</b>	<b>1.8</b>	<b>2.5</b>
Hedge Funds Benchmark	1.2	4.8	6.5	3.8	3.4
<i>Difference</i>	-1.6	-2.6	-3.5	-2.0	-0.9
<b>Other Absolute Return</b>	<b>-8.1</b>	<b>-6.1</b>	<b>-2.6</b>	<b>9.3</b>	<b>11.7</b>
Other Absolute Return Benchmark	0.6	1.7	2.3	2.4	2.5
<i>Difference</i>	-8.7	-7.8	-4.9	+6.9	+9.2
<b>Cash Equivalents</b>	<b>0.4</b>	<b>1.1</b>	<b>1.2</b>	<b>0.7</b>	<b>0.0</b>
Cash Benchmark	0.0	0.1	0.1	0.1	0.2
<i>Difference</i>	+0.4	+1.0	+1.1	+0.6	-0.2

*Note: Performance of Cash Equivalents is shown net of fees paid to TRS Strategic Partners*

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## 9. Real Return: Performance Summary Ending 9/30/2013

	Third Quarter	YTD	One Year	Three Years	Five Years
<b>Total Real Return</b>	<b>2.5%</b>	<b>2.8%</b>	<b>4.2%</b>	<b>9.8%</b>	<b>4.3%</b>
Real Return Benchmark	2.9	4.4	6.6	10.6	4.2
<i>Difference</i>	-0.4	-1.6	-2.4	-0.8	+0.1
<b>TIPS</b>	<b>0.7</b>	<b>-6.7</b>	<b>-6.0</b>	<b>4.2</b>	<b>5.5</b>
U.S. TIPS Benchmark	0.7	-6.7	-6.1	4.0	5.3
<i>Difference</i>	0.0	0.0	+0.1	+0.2	+0.2
<b>Real Assets</b>	<b>3.2</b>	<b>8.9</b>	<b>11.6</b>	<b>13.9</b>	<b>1.9</b>
Real Asset Benchmark	3.6	8.3	11.1	13.9	-0.5
<i>Difference</i>	-0.4	+0.6	+0.5	0.0	+2.4
<b>Commodities</b>	<b>7.3</b>	<b>-31.5</b>	<b>-38.4</b>	<b>-10.0</b>	<b>-13.5</b>
Commodities Benchmark	4.8	-0.9	-4.1	3.6	-8.5
<i>Difference</i>	+2.5	-30.6	-34.3	-13.6	-5.0

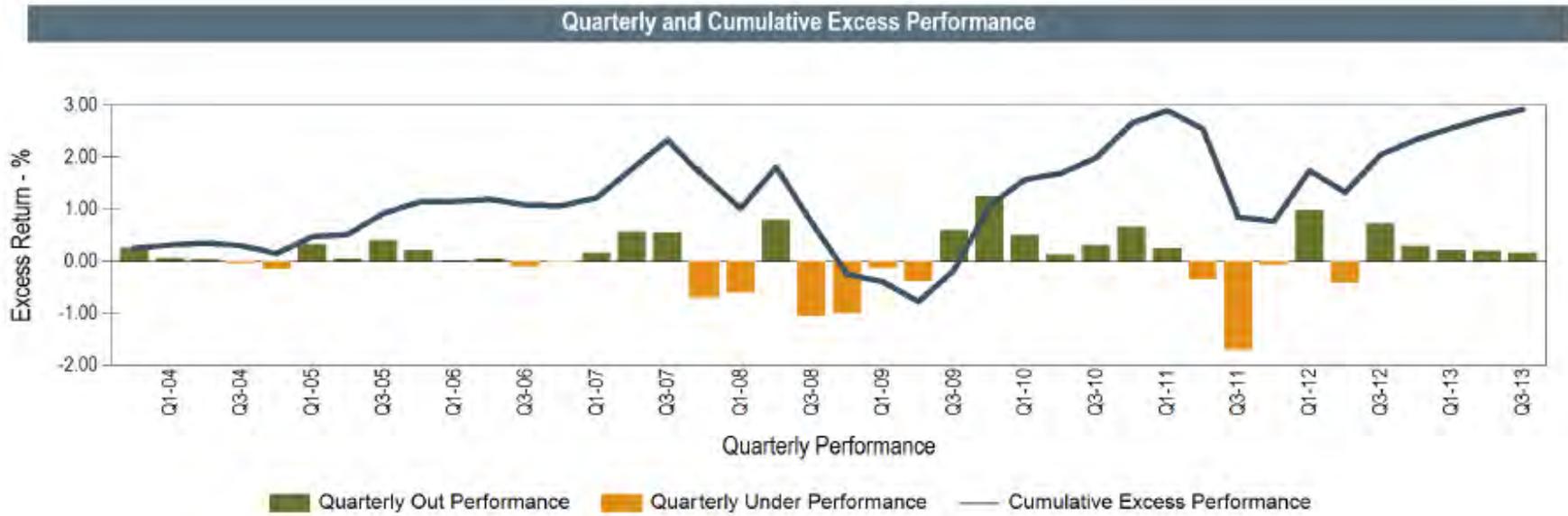
Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.



## Appendix – Supplemental Reporting

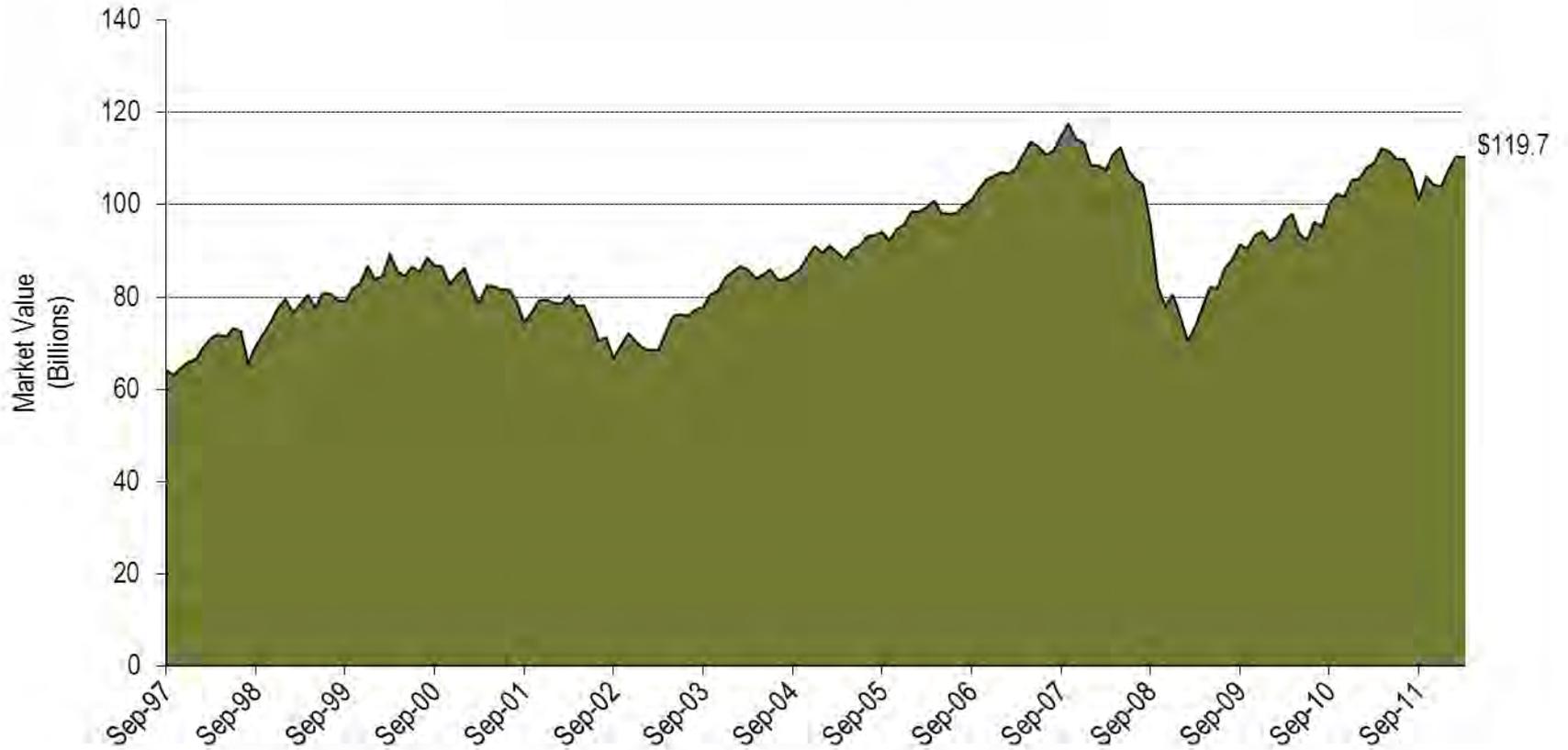
# Historical Excess Performance

Quarterly and Cumulative Excess Performance  
Total Fund vs. Total Fund Benchmark



# TRS Asset Growth

Total Fund Historical Growth (September 1997 - September 2013)



# External Manager Program: Public Equity Performance as of 9/30/2013

	Allocation (\$ in billions)	Third Quarter	YTD	One Year	Three Years
<b>EP Total Global Equity</b>	<b>\$32.7</b>	<b>7.1%</b>	<b>12.6%</b>	<b>17.1%</b>	<b>8.8%</b>
EP Global Equity Benchmark	--	6.6	10.9	14.2	8.4
<i>Difference</i>	--	+0.5	+1.7	+2.9	+0.4
<b>EP U.S. Large Cap</b>	<b>\$7.8</b>	<b>7.3</b>	<b>19.8</b>	<b>21.9</b>	<b>16.6</b>
EP Large Cap Benchmark	--	5.7	20.2	19.9	16.5
<i>Difference</i>	--	+1.6	-0.4	+2.0	+0.1
<b>EP U.S. Small Cap</b>	<b>\$1.9</b>	<b>9.5</b>	<b>27.2</b>	<b>30.8</b>	<b>19.1</b>
EP Small Cap Benchmark	--	9.4	26.9	30.5	18.9
<i>Difference</i>	--	+0.1	+0.3	+0.3	+0.2
<b>EP Non-U.S. Developed</b>	<b>\$5.7</b>	<b>11.3</b>	<b>16.8</b>	<b>23.4</b>	<b>7.9</b>
MSCI EAFE + Canada Index	--	11.3	14.7	21.4	7.9
<i>Difference</i>	--	0.0	+2.1	+2.0	0.0
<b>EP Emerging Markets</b>	<b>\$7.1</b>	<b>5.4</b>	<b>-2.2</b>	<b>3.6</b>	<b>-0.1</b>
MSCI Emerging Markets Index	--	5.8	-4.4	1.0	-0.3
<i>Difference</i>	--	-0.4	+2.2	+2.6	+0.2
<b>EP World Equity</b>	<b>\$4.8</b>	<b>8.7</b>	<b>18.0</b>	<b>23.5</b>	<b>11.5</b>
EP World Equity Benchmark	--	7.9	14.4	17.7	10.2
<i>Difference</i>	--	+0.8	+3.6	+5.8	+1.3
<b>EP Directional Hedge Funds</b>	<b>\$5.4</b>	<b>2.0</b>	<b>8.0</b>	<b>10.9</b>	<b>--</b>
HFRI Fund of Funds Composite Index	--	1.6	5.1	6.4	--
<i>Difference</i>	--	+0.4	+2.9	+4.5	--

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

# External Manager Program: Stable Value/Total Program Performance as of 9/30/2013

	Allocation (\$ in billions)	Third Quarter	YTD	One Year	Three Years
<b><u>EP Total Stable Value</u></b>	<b>\$4.6</b>	<b>-0.3%</b>	<b>3.1%</b>	<b>4.6%</b>	<b>4.5%</b>
EP Stable Value Benchmark	--	0.0	0.0	0.1	1.0
<i>Difference</i>	--	-0.3	+3.1	+4.5	+3.5
<b><u>EP Stable Value Hedge Funds</u></b>	<b>\$4.5</b>	<b>-0.5</b>	<b>2.2</b>	<b>3.0</b>	<b>1.8</b>
EP Stable Value Hedge Funds Benchmark	--	1.2	4.8	6.5	3.8
<i>Difference</i>	--	-1.7	-2.6	-3.5	-2.0
<b><u>EP OAR</u></b>	<b>\$0.1</b>	<b>6.3</b>	<b>40.0</b>	<b>57.0</b>	<b>27.4</b>
EP OAR Benchmark	--	0.6	1.7	2.3	2.4
<i>Difference</i>	--	+5.7	+38.3	+54.7	+25.0
<b><u>Total External Public Program</u></b>	<b>\$37.3</b>	<b>6.2</b>	<b>11.4</b>	<b>15.5</b>	<b>8.4</b>
EP External Public Benchmark	--	6.0	10.1	13.3	7.8
<i>Difference</i>	--	+0.2	+1.3	+2.2	+0.6

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

# Public Strategic Partnership Program (SPN): Performance Summary as of 9/30/2013

	Allocation (\$ in billions)	Third Quarter	YTD	One Year	Three Years
<b>Public Strategic Partnership</b>	<b>\$6.3</b>	<b>5.0%</b>	<b>8.3%</b>	<b>10.9%</b>	<b>9.8%</b>
Public SPN Benchmark	--	4.8	6.4	8.2	9.2
<i>Difference</i>	--	+0.2	+1.9	+2.7	+0.6
<b>Blackrock</b>	<b>\$1.4</b>	<b>4.6%</b>	<b>6.9%</b>	<b>9.3%</b>	<b>9.2%</b>
<b>J.P. Morgan</b>	<b>\$1.5</b>	<b>5.3%</b>	<b>9.4%</b>	<b>13.5%</b>	<b>10.1%</b>
<b>Neuberger Berman</b>	<b>\$1.4</b>	<b>5.1%</b>	<b>7.1%</b>	<b>9.0%</b>	<b>9.0%</b>
<b>Morgan Stanley</b>	<b>\$1.4</b>	<b>5.0%</b>	<b>10.5%</b>	<b>12.4%</b>	<b>11.0%</b>
<b>Barclays Capital</b>	<b>\$0.6</b>	<b>5.2%</b>	<b>7.0%</b>	<b>9.5%</b>	--

- The Public SPNs in aggregate outperformed the benchmark during all time periods shown above
  - Neuberger Berman was the only SPN with a 3-year return below benchmark
  - Barclays Capital outperformed the benchmark over the trailing twelve months

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

# Benchmarks

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- **Total Fund Performance Benchmark** – 18% MSCI US Standard, 2% MSCI US Small Cap, 10% MSCI Emerging Markets, 15% MSCI EAFE plus Canada, 5% HFRI FoF Composite Index, 12% State Street Private Equity (1 qtr lagged), 13% BC Long Term Treasury, 4% HFRI FoF Conservative Index, 1% Citigroup 3 Mo T-Bill, 5% BC US TIPS, and 15% NCREIF ODCE (1 qtr lagged)
- **Global Equity Benchmark**– 24% MSCI EAFE plus Canada, 29% MSCI US Standard, 3% MSCI US Small Cap, 16% MSCI Emerging markets index, 8% HFRI FoF Composite Index, and 19% State Street Private Equity (1 qtr lagged)
  - US Large Cap Benchmark - MSCI US Standard Index
  - US Small Cap Benchmark - MSCI US Small Cap Index
  - Emerging Markets Benchmark – MSCI Emerging Markets
  - Non-US Developed Benchmark– MSCI EAFE plus Canada
  - Directional Hedge Funds – HFRI Fund of Funds (FoF) Composite Index
  - Private Equity Benchmark - State Street Private Equity (1 qtr lagged)

*Note: Returns and market values (based on account level) reported are provided by State Street. Net additions/withdrawals are reported on a gross (adjusted for expenses) total fund level as provided by State Street. All rates of return for time periods greater than one year are annualized. The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## Benchmarks (cont'd)

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- **Stable Value Benchmark** – 22% HFRI FoF Conservative Index, 72% BC Long Term Treasury, and 6% Citigroup 3 mo T-Bill.
  - US Treasuries Benchmark – Barclays Capital (BC) Long Term Treasury
  - Stable Value Hedge Funds – HFRI Fund of Funds (FoF) Conservative Index
  - Other Absolute Return Benchmark - 3 Mo LIBOR + 2%
  - Cash Benchmark - Citigroup 3 Mo T-Bill
- **Real Return Benchmark** – 25% BC US TIPS and 75% NCREIF ODCE
  - US TIPS Benchmark - BC US TIPS Index
  - Real Assets Benchmark –NCREIF ODCE (1qtr lagged)
  - Commodities Benchmark - Goldman Sachs Commodity Index

*Note: Returns and market values (based on account level) reported are provided by State Street. Net additions/withdrawals are reported on a gross (adjusted for expenses) total fund level as provided by State Street. All rates of return for time periods greater than one year are annualized. The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## Description of Performance Attribution

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- A measure of the source of the deviation of a fund's performance from that of its policy benchmark. Each bar on the attribution graph represents the contribution made by the asset class to the total difference in performance. A positive value for a component indicates a positive contribution to the aggregate relative performance. A negative value indicates a detrimental impact. The magnitude of each component's contribution is a function of (1) the performance of the component relative to its benchmark, and (2) the weight (*beginning of period*) of the component in the aggregate.
- The individual Asset Class effect, also called Selection Effect, is calculated as  
$$\text{Actual Weight of Asset Class} \times (\text{Actual Asset Class Return} - \text{Asset Class Benchmark Return})$$
- The bar labeled Allocation Effect illustrates the effect that a Total Fund's asset allocation has on its relative performance. Allocation Effect calculation =  $(\text{Asset Class Benchmark Return} - \text{Total Benchmark Return}) \times (\text{Actual Weight of Asset Class} - \text{Target Policy Weight of Asset Class})$ .
- The bar labeled Cash Flow Effect describes the impact of asset movements on the Total Fund results.  
Cash Flow Effect calculation =  $(\text{Total Fund Actual Return} - \text{Total Fund Policy Return}) - \text{Current Selection Effect} - \text{Current Allocation Effect}$
- The bar labeled Benchmark Effect results from the weighted average return of the asset classes' benchmarks being different from the Total Funds' policy benchmark return. Benchmark Effect calculation =  $\text{Total Fund Policy Return} - (\text{Asset Class Benchmark Return} \times \text{Target Policy Weight of Asset Class})$
- Cumulative Effect  
Cumulative Effect calculation =  $\text{Current Effect } t \times (1 + \text{Cumulative Total Fund Actual Return } t-1) + \text{Cumulative Effect } t-1 \times (1 + \text{Total Fund Benchmark Return } t)$

**Tab 6 C**



# Presentation to the Board of Trustees

Britt Harris

Chief Investment Officer

December 2013

# Agenda

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- I. Our State Sponsor
- II. Market Conditions
- III. IMD Priorities

# US Regional Economic Map

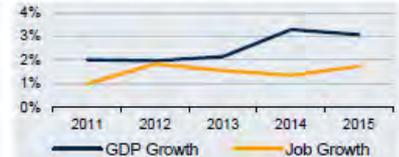
## National Economic Highlights and Perspective

- Fed tapering likely to begin in 2014, which would raise investor anxiety again.
- Economic recovery continues. GDP and employment growth strengthen.
- Unemployment rate edged up to 7.3% in October and remains well above target, but jobs should hit new peak by year-end.
- Dysfunction in Washington and fiscal drag to weigh less on growth going forward.
- Housing continues recovery. August Case-Shiller 20-city price index +12.8% YoY.

## Global Context

- Global economic recovery broadens.
- Europe: Gradual recovery underway, but still fragile.
- Asia-Pacific: China and Japan are on firmer footing.
- Canada: Weak commodities = below trend growth.
- Mexico: Sharp GDP decline in 2013, 3.6% to 1.2%.
- Global capital flows continue to seek safe havens.

## U.S. Economic Outlook



**Portland**  
Gaining momentum with home price gains and permit issuance, but looking for stronger export and tech sector growth in 2014.

**Seattle**  
Boeing solid, high-tech sector is growing and job growth is outpacing nation – new peak employment expected in late 2013.

**Denver**  
Growing, affluent population base and diversifying economy strongly outpacing the nation.

**U.S. Housing Market is beginning to provide lift to individual metros and national trends – price appreciation and starts.**

**Chicago**  
Diverse, dominant economy cannot overcome weak population growth.

**Boston**  
Momentum is mounting in most sectors. Tech continues to expand, but biotech firms are showing they are not immune to cuts.

**San Francisco Bay Area**  
SF added jobs at 2X the national pace in 2010-12, but is moderating to 1.2X in '13. OAK is improving on the coattails of SF, and SJ is now the healthiest metro in California and has room to run as tech drivers remain solid despite recent global headwinds.

**High-tech**  
Semiconductor sales grow to record level in 3Q, despite moderate global growth, led by strong sales in the Americas.

**Los Angeles/Orange County**  
LA is two years behind the U.S. in jobs recovery, but media and tech remain bright spots. OC is leading SoCal trends; 6% unemployment and home prices just 7% below peak levels.

**San Diego**  
Tepid recovery continues – headwinds from federal spending cuts may hold back metro in 2014.

**Phoenix**  
Population growing again, adding 100,000+ for the second year in a row, but job growth just OK.

**Texas**  
Great outlook – Energy, tech, housing and finance all growing, but risks in defense-related and air transport industries.

**Defense Spending Cuts**  
Pentagon cuts are set to slice \$52B from the budget after Jan. 1, unless lawmakers agree on alternative deficit reductions.

**South Florida**  
Despite nation's largest backlog of foreclosures, MIA condo prices nearing \$1,000/sf. High quality new jobs makes FLL economy outshine the rest and WPB's small but up-and-coming tech cluster will continue to thrive.

**New York**  
Wall Street profits expected to slow in 2H13; more cost cutting ahead. Upside: Hotel sector growing at a record-breaking pace.

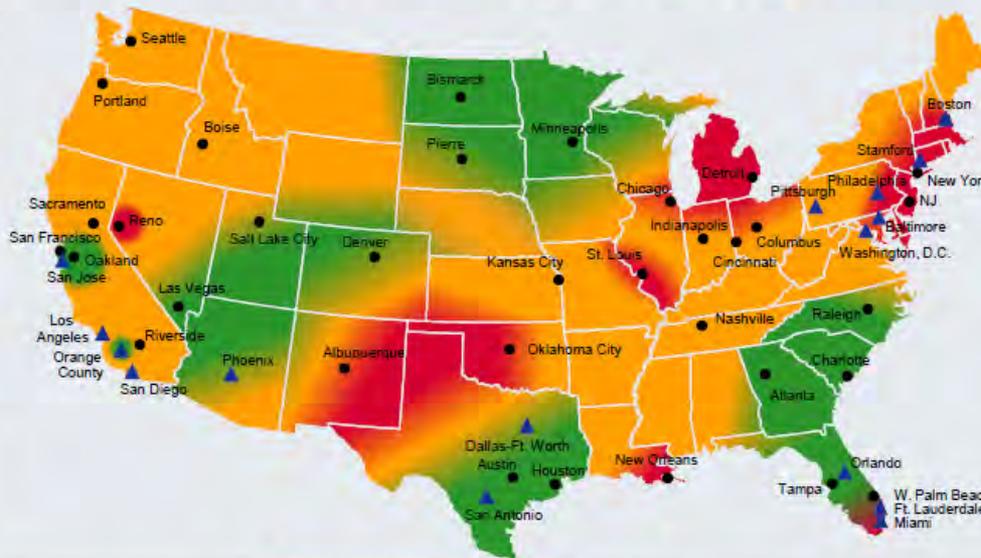
**Northern New Jersey**  
Continues to face challenges as hiring lags the U.S. average.

**Finance**  
U.S. banks under pressure from a weak U.S. economy, new regulations and soft loan demand.

**Baltimore**  
As budget cuts ramp up, federal agencies have cut jobs faster here than elsewhere in the U.S.

**Washington, D.C.**  
Sequester not as painful as first feared, but political uncertainty is clearly impeding growth.

**Atlanta**  
Housing market is finally recovering; after deep sell-off prices up 18.4% in August from a year ago. Jobs surging.



Employment growth: 2013 - 2015

- Above national average
- Near national average
- Below national average
- ▲ Defense spending exposure

# State Comparison Data

	Texas	US/US Average	Top 3 States			Bottom 3 States		
			Nebraska	North Carolina	Wyoming	Illinois	California	New Jersey
<b>General Obligation Ratings</b>								
S&P	AAA/stable	AA+ / stable	AAA/stable	AAA/stable	AAA/stable	A-/neg	A/stable	AA-/neg
Moody's	Aaa/stable	Aaa / stable		Aaa/stable		A3/neg	A1/stable	Aa3/stable
<b>GDP and Budget</b>								
GDP - 2012 (\$MM)	\$ 1,397,369	\$ 15,684,098	\$ 99,557	\$ 455,973	\$ 38,422	\$ 695,238	\$ 2,003,479	\$ 508,003
GDP Growth - 2012	5.8%	2.2%	3.5%	4.5%	0.6%	3.7%	4.9%	3.0%
GDP CAGR - 2012 vs. 2008	4.2%	1.4%	3.2%	2.3%	-0.2%	1.9%	1.1%	1.1%
Population (MM)	24.1	313.9	2	10.6	0.6	13.8	38.6	9
GDP Per Capita (\$)	\$ 58,099	\$ 49,965	\$ 49,778	\$ 42,884	\$ 63,667	\$ 50,328	\$ 51,914	\$ 56,477
Budget Shortfall - 2012 (\$MM)	\$ (9,000)	\$ (1,089,000)	\$ (166)	\$ (2,400)	N/A	\$ (6,400)	\$ (23,900)	\$ (11,000)
Federal Aid as % State General Revenue	40%	N/A	36%	35%	40%	34%	32%	29%
Education Spending as % Total Spending	22%	17%	25%	23%	18%	14%	14%	15%
<b>Unemployment</b>								
Unemployment Rate	6.4%	7.3%	4.2%	8.7%	4.6%	9.2%	8.9%	8.5%
Labor Force Participation Rate	65%	63%	72%	63%	70%	66%	63%	66%
<b>Debt &amp; Pension</b>								
Pension Liability (\$MM) - Average	\$ 28,871	\$ 16,656	\$ 1,899	\$ 3,897	\$ 1,090	\$ 33,633	\$ 124,011	\$ 41,087
Pension Liability Per Capita (\$)	\$ 1,124	\$ 2,902	\$ 1,031	\$ 404	\$ 1,918	\$ 2,613	\$ 3,290	\$ 4,658
Debt (\$MM) - Average	\$ 10,005	\$ 9,443	\$ 27	\$ 7,090	\$ 36	\$ 82,907	\$ 88,932	\$ 33,719
Debt Per Capita (\$)	\$ 390	\$ 1,334	\$ 15	\$ 734	\$ 63	\$ 6,442	\$ 2,359	\$ 3,823
Pension Funded Level	83%	73%	82%	95%	86%	43%	77%	68%
Debt + Pension Liability Per Capita (\$)	\$ 1,514	\$ 4,236	\$ 1,046	\$ 1,138	\$ 1,981	\$ 9,055	\$ 5,649	\$ 8,481
(Debt + Pension Liability Per Capita) / Income Per Capita	3.8x	10.3x	2.5x	3.2x	4.1x	20.7x	12.9x	16.2x
<b>Wealth and Poverty</b>								
GDP Per Capita (\$)	\$ 58,099	\$ 49,965	\$ 49,778	\$ 42,884	\$ 63,667	\$ 50,328	\$ 51,914	\$ 56,477
Population (MM)	24.1	313.9	2	10.6	0.6	13.8	38.6	9
% in Poverty	15%	16%	12%	16%	11%	12%	13%	8%
% on Foodstamps	15%	15%	10%	18%	7%	17%	11%	10%
<b>Affordability</b>								
Median/Average Household Income (\$)	\$ 50,740	\$ 51,017	\$ 50,723	\$ 45,150	\$ 54,901	\$ 55,137	\$ 58,328	\$ 69,667
Median House Listing Price (\$)	\$ 190,000	\$ 163,000	\$ 145,000	\$ 175,000	N/A	\$ 180,000	\$ 360,000	\$ 299,000
House Price/Income	3.7x	3.2x	2.9x	3.9x	N/A	3.3x	6.2x	4.3x
Avg Retail Electricity Price - Cents per KWH	11.46	12.61	11.93	11.33	10.72	10.31	16.54	16.23

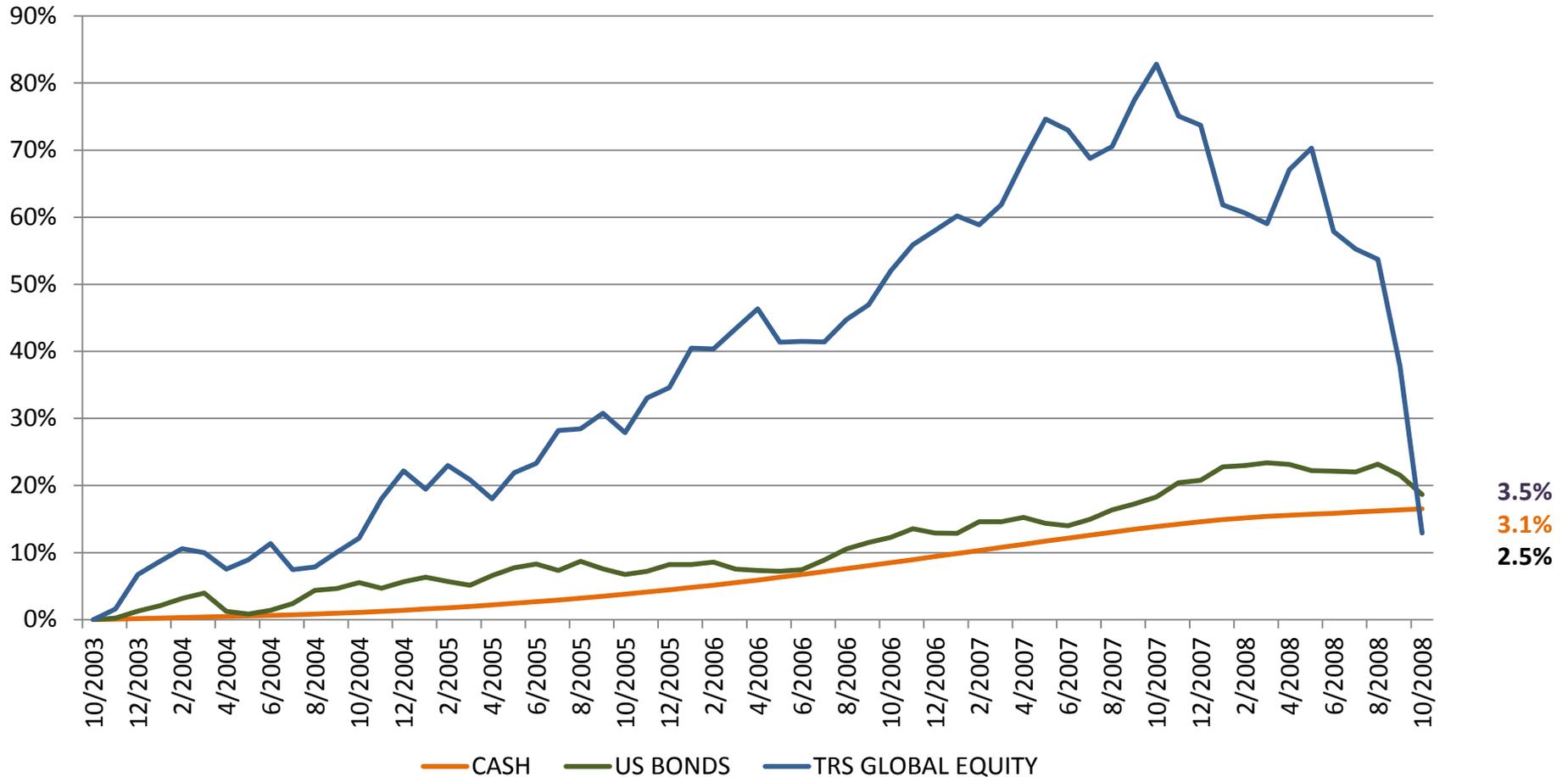
Source: Apollo Management, US Dept of Commerce, US Census Bureau, Kaiser Family Foundation, US Bureau of Labor Statistics, Trulia, Bloomberg, US Energy Information Administration



# Where Were We Five Years Ago?

5 Year Cumulative Returns

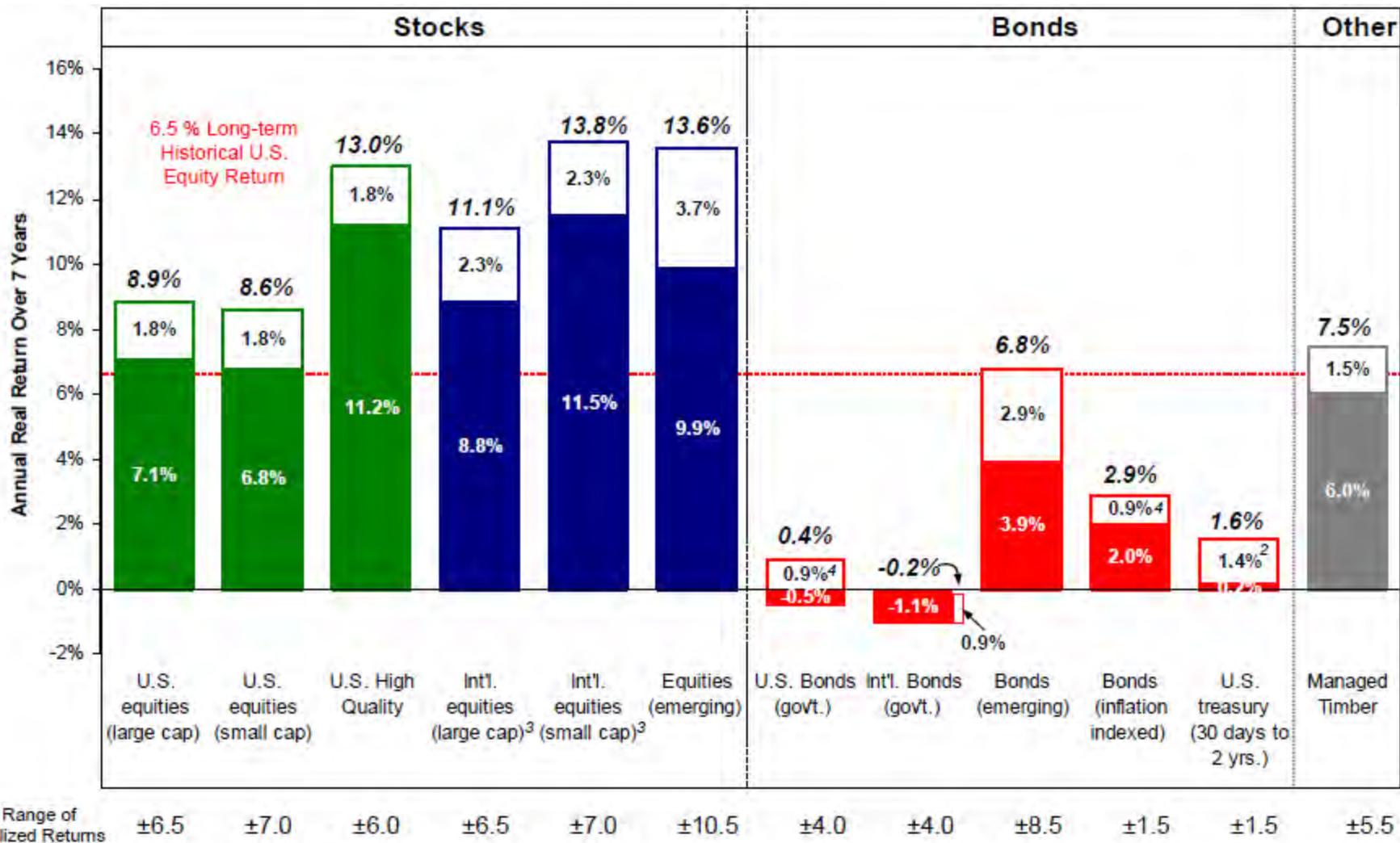
Annualized



3.5%  
3.1%  
2.5%

# GMO 7-Year Asset Class Return Forecasts

As of December 31, 2008



\*The chart represents real return forecasts<sup>1</sup> for several asset classes and an estimate of value expected to be added from active management. These forecasts are forward-looking statements based upon the reasonable beliefs of GMO and are not a guarantee of future performance. Actual results may differ materially from the forecasts above.

<sup>1</sup> Long-term inflation assumption: 2.5% per year.

<sup>2</sup> Alpha transported from management of global equities.

<sup>3</sup> Return forecasts for international equities are ex-Japan.

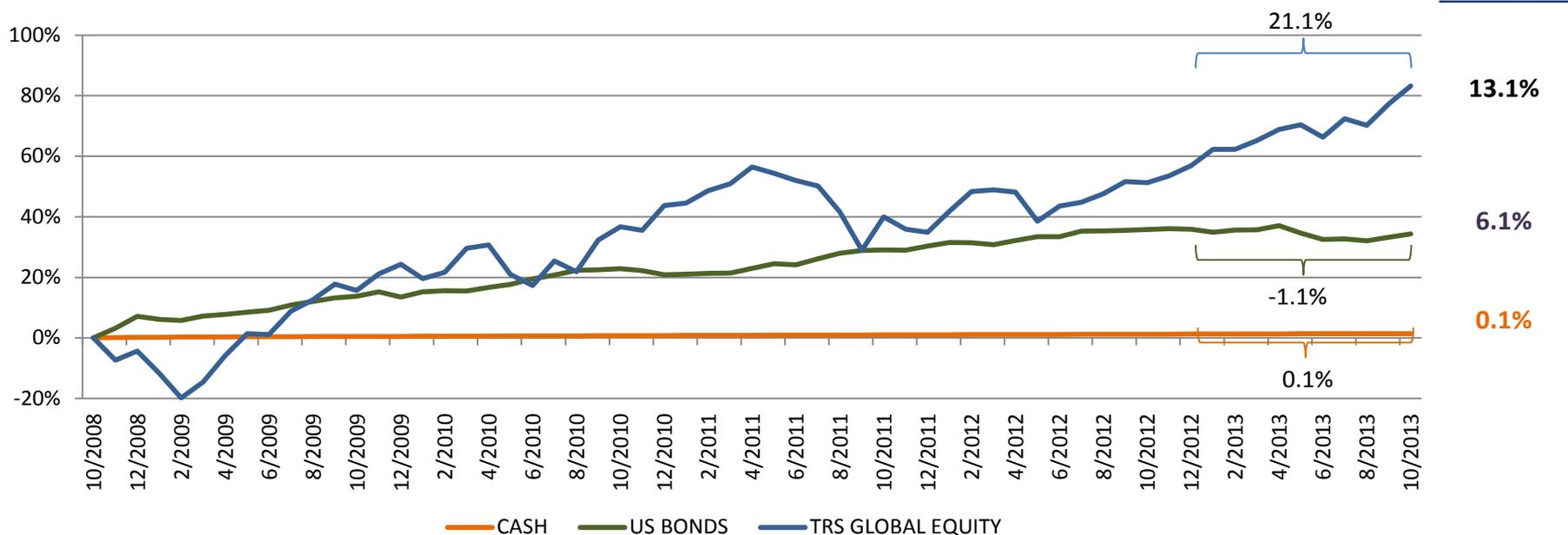
<sup>4</sup> Alpha transported from management of global bonds.

Source: GMO



# And Today?

## 5-Year Cumulative Returns



- Risk Premiums Have Been High
  - 7% Stocks over Bonds
  - 6% Bonds over Cash
- Real Returns Very High
  - CPI Inflation of 1.5% over this period

Source: State Street, Bloomberg



# Risk Premiums

Five Years Ending October 31, 2013

## SMALL CAP PREMIUM

UNITED STATES		EAFE	
US Small Cap	20.4%	EAFE Small Cap	18.2%
US Large Cap	<u>14.6%</u>	EAFE Large Cap	<u>11.9%</u>
<i>Difference</i>	5.8%	<i>Difference</i>	6.3%

## VALUE PREMIUM

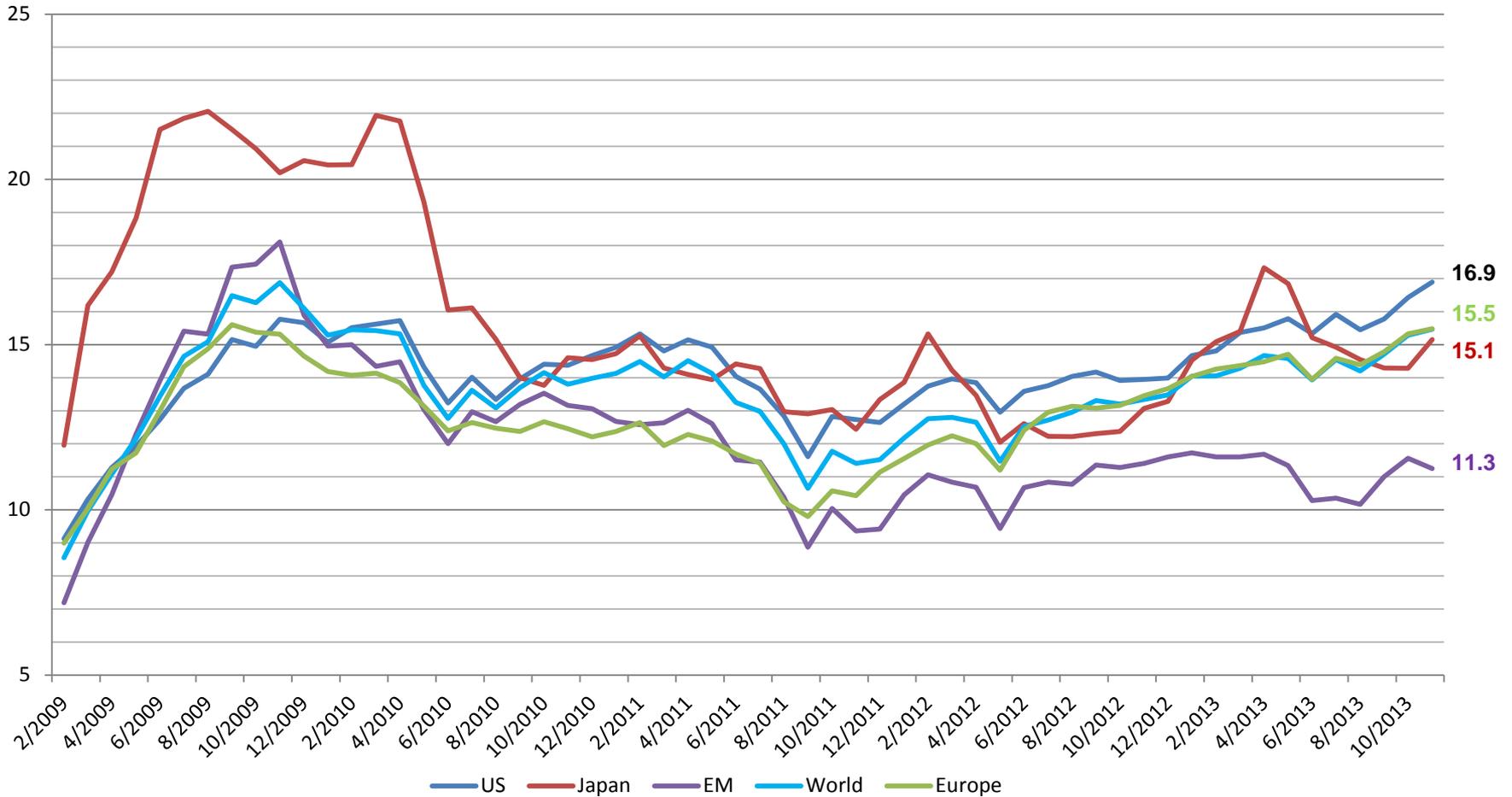
UNITED STATES		EAFE	
US Value	13.6%	EAFE Value	11.8%
US Growth	<u>17.1%</u>	EAFE Growth	<u>12.2%</u>
<i>Difference</i>	-3.5%	<i>Difference</i>	-0.4%

# Ten Year Comparison

	Ten Year	Last Five	First Five
TRS Global Equity	7.5%	13.1%	2.5%
US Bonds	4.8%	6.1%	3.5%
Cash	1.7%	0.1%	3.1%
Inflation	2.4%	1.5%	3.2%
Small Cap Premium			
US	2.6%	5.8%	-0.2%
EAFE	1.8%	6.3%	-0.5%
Value Premium			
US	0.0%	-3.5%	3.0%
EAFE	0.0%	-0.4%	0.4%

Source: State Street, Bloomberg

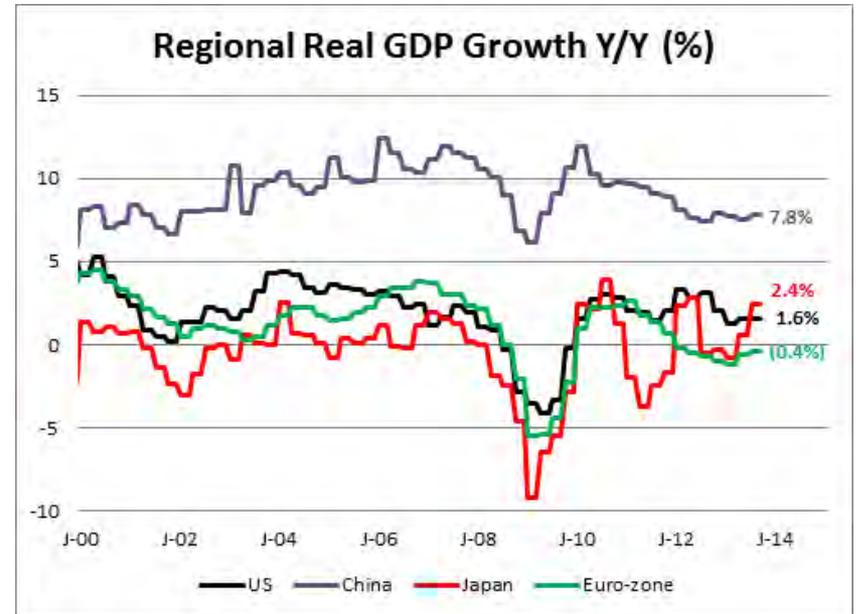
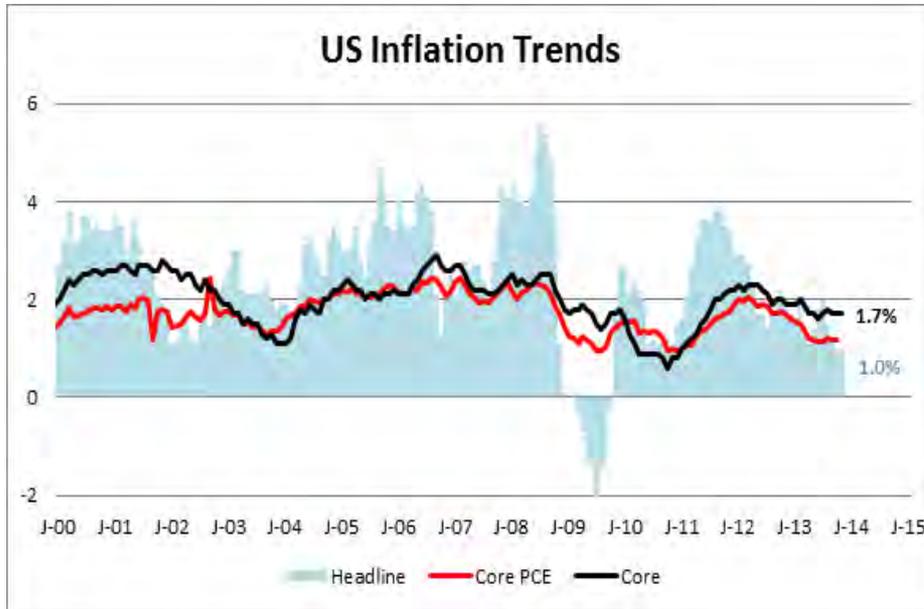
# PE Ratios Since Market Bottom



Source: Bloomberg



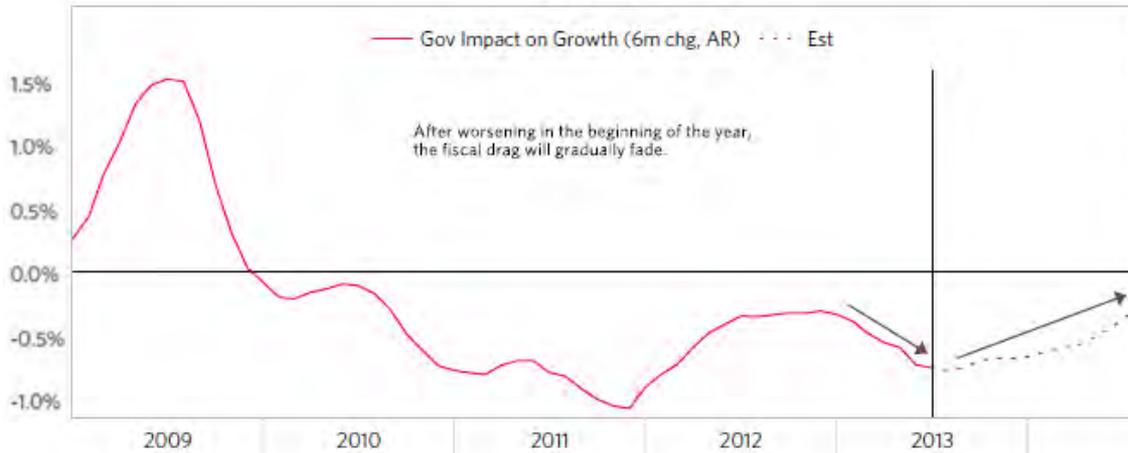
# Economic Conditions



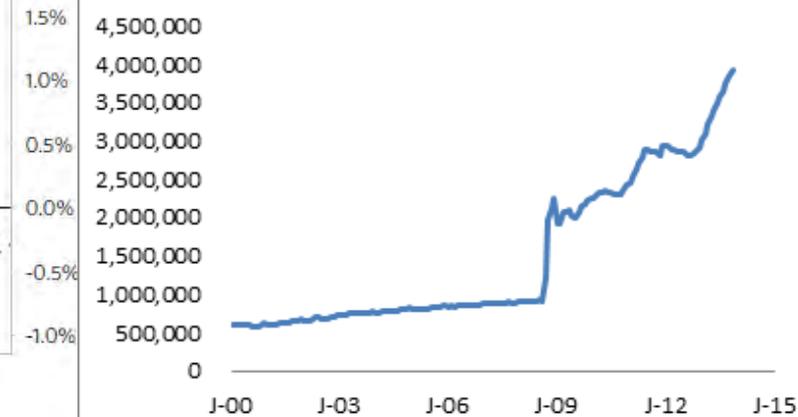
- Economic growth has been positive, but weak across global regions
- Inflation has been low (rental growth, transportation, education, energy, food)
- Unemployment and labor force participation have continued to be a problem

# Economic Conditions

### Developed World

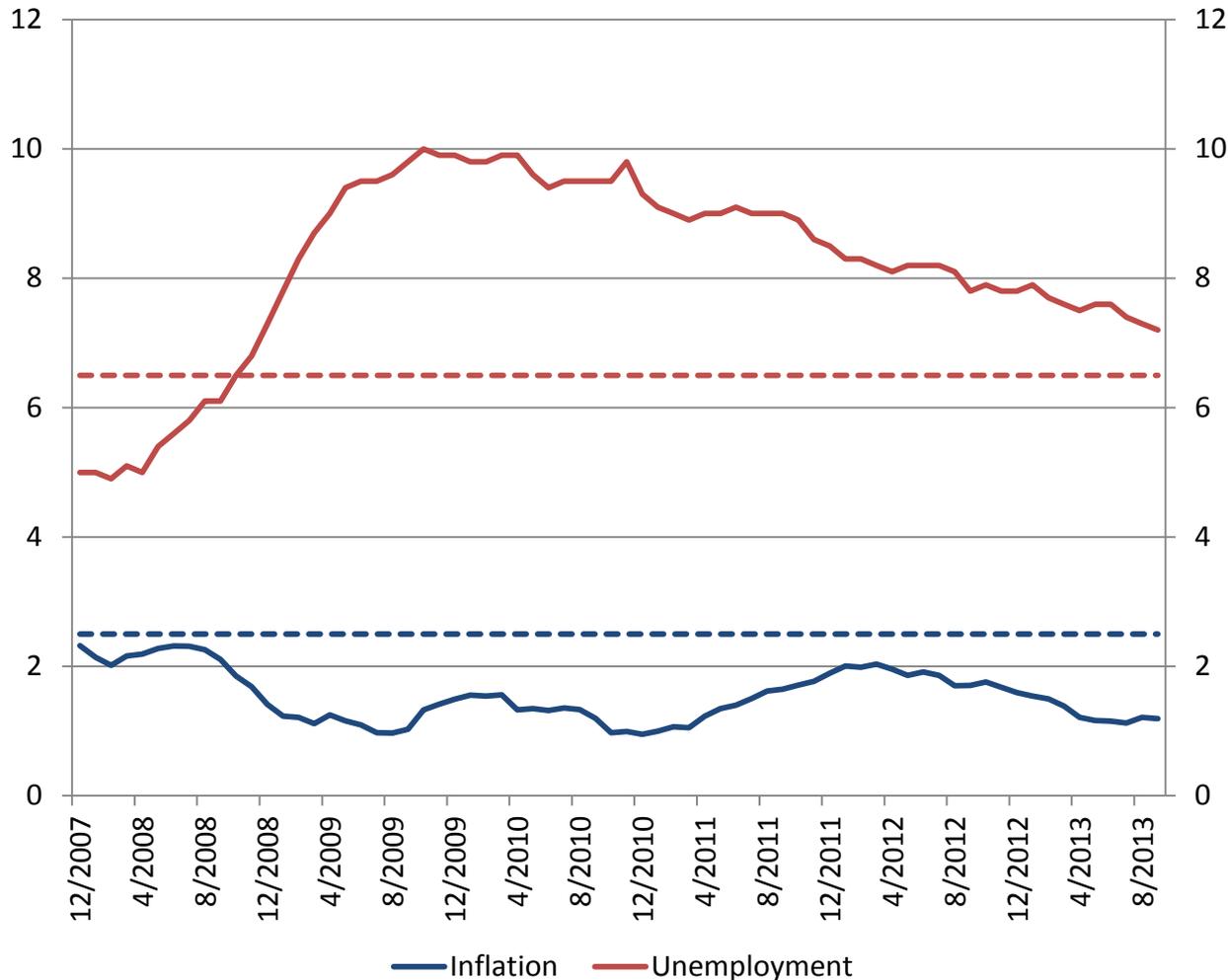


### Federal Reserve Total Assets (USD Millions)



- Government deficits have prevented most regions from using fiscal policy to support growth, and taxes have been rising
- Monetary policy has carried the load and Fed debt has exploded

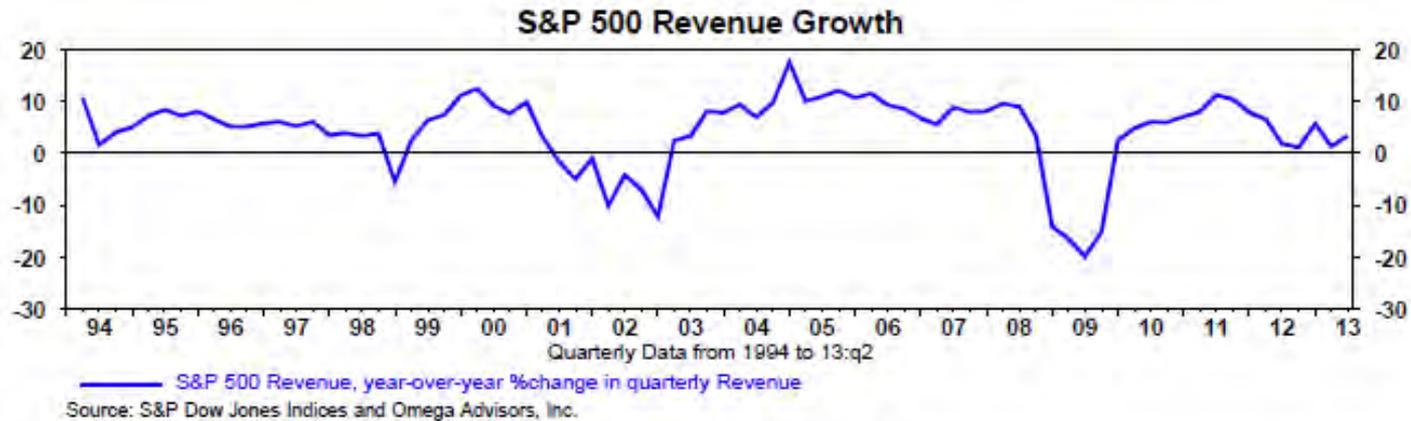
# Fed Policy



- Quantitative easing until unemployment falls to 6.5% or inflation rises to 2.5%
- Then purchases will be tapered, but no assets sold
- Janet Yellen becomes Fed Chair next month
- Most engineered economy in history

Source: Bloomberg

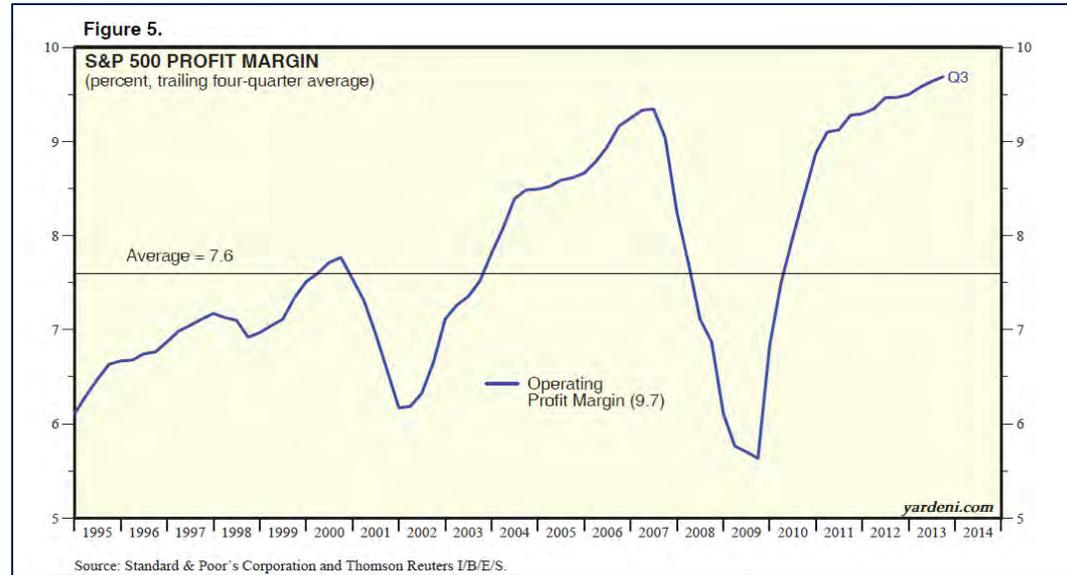
# Corporate Conditions



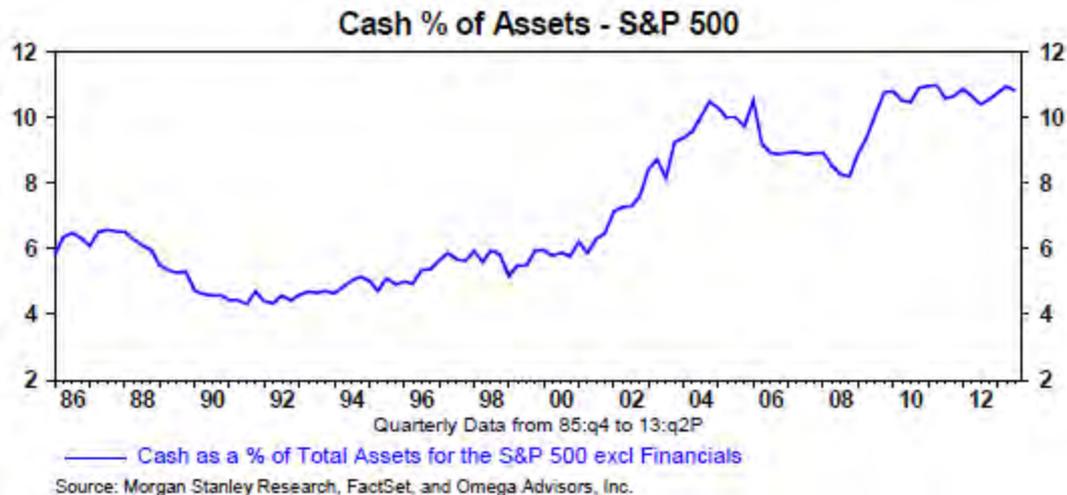
- Very slow earnings growth, particularly revenue growth

# Corporate Conditions

- Corporate profit margins are very high due to constrained spending and lower interest costs

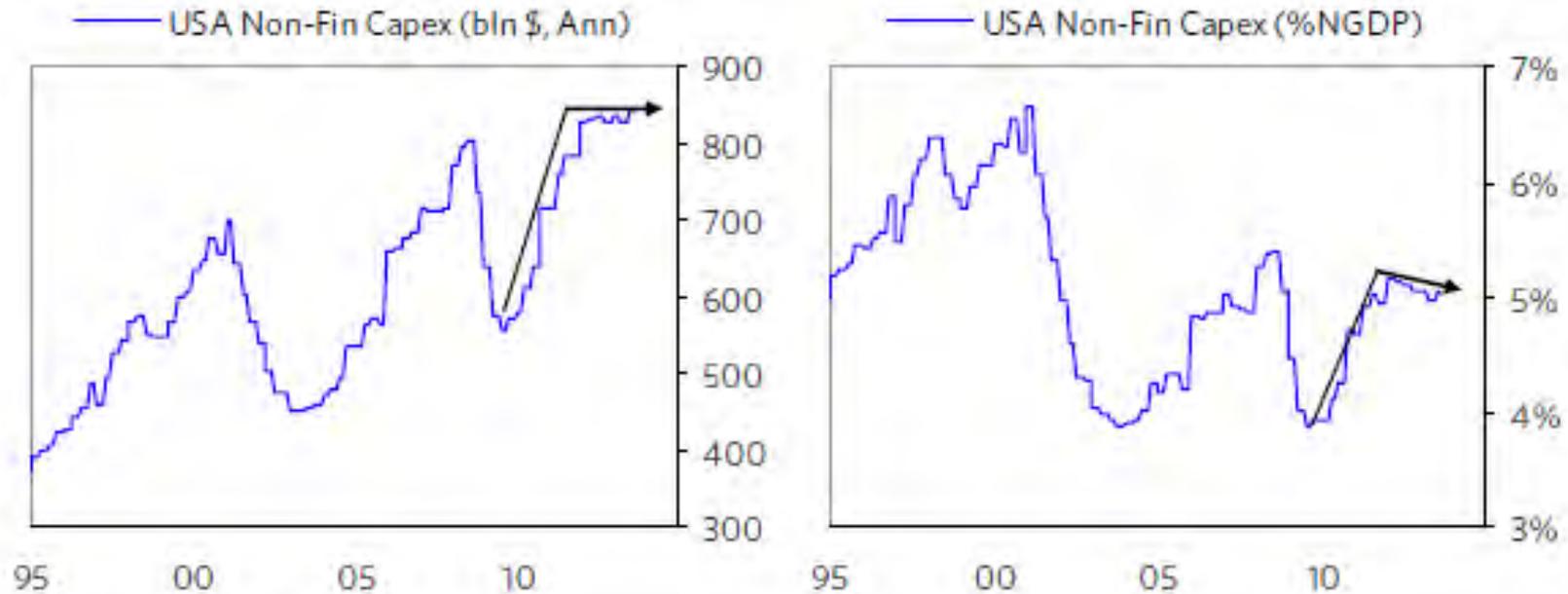


- Companies holding significant amounts of cash



Source: Yardeni Research, Omega Advisors

# Corporate Conditions



- Corporations continue to lack confidence or have a sense of urgency to spend
- Spending on capital projects stagnating to declining

# Corporate Conditions

---

**Icahn: Activist Investing Has Never Been Better**

The Golden Age Of Activist Investing



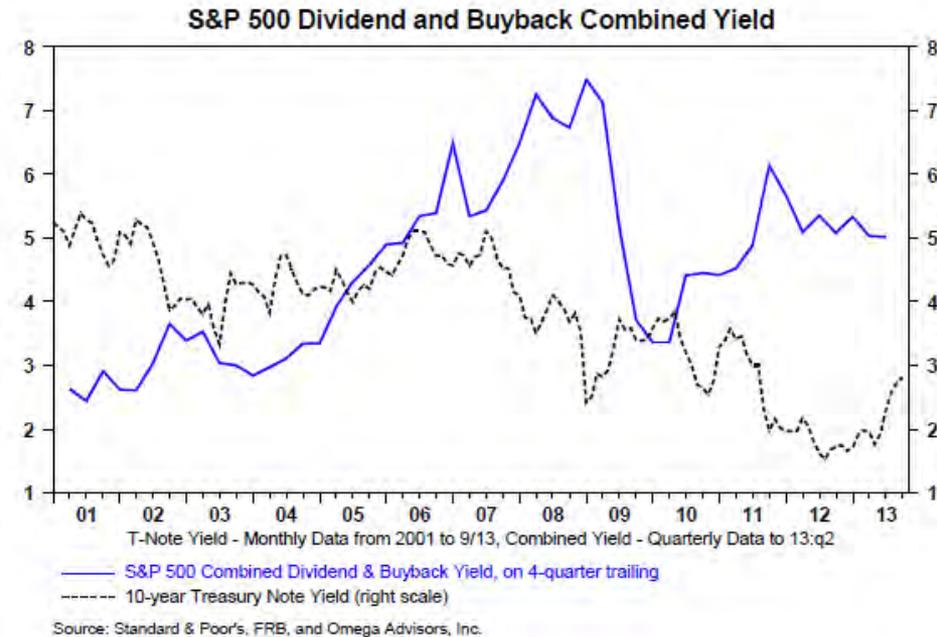
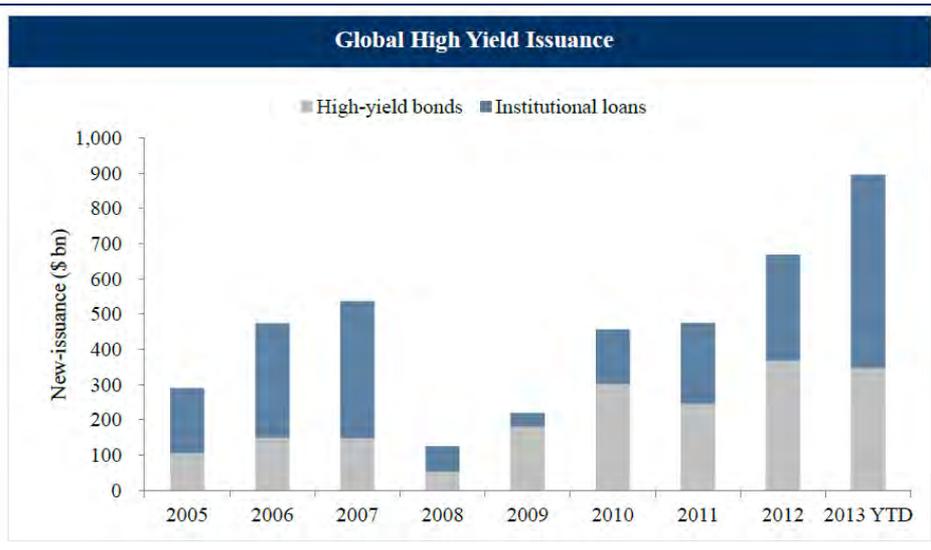
**Ackman Sees Expansion of Activist Investing to Europe**

**Bloomberg TV** +

Is 2013 the Year of the Activist Investor?

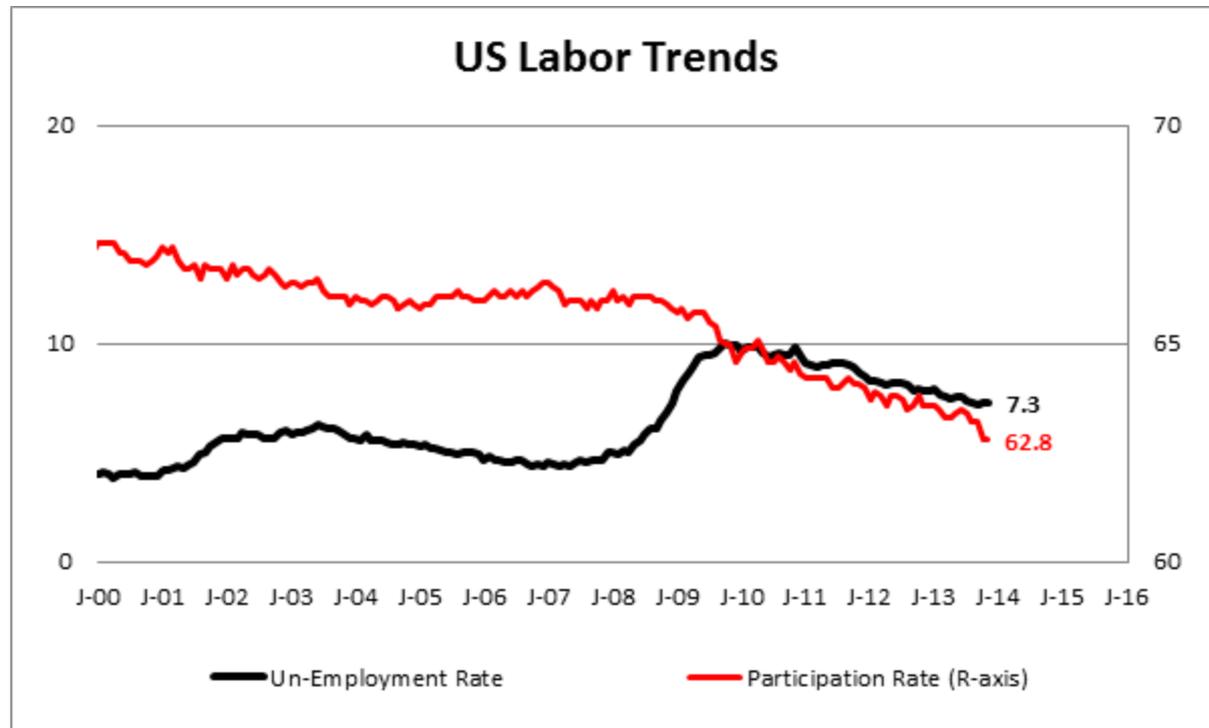
- Activists are starting to agitate

# Corporate Conditions



- Corporations using low interest rates to refinance debt rather than build and employ
- Using cash to buy back stock, return capital as dividends

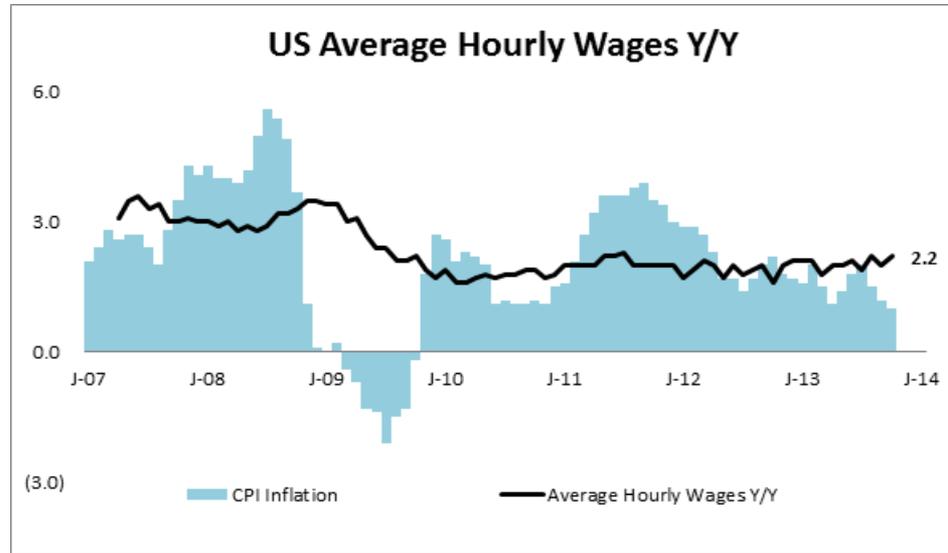
# Consumer Conditions



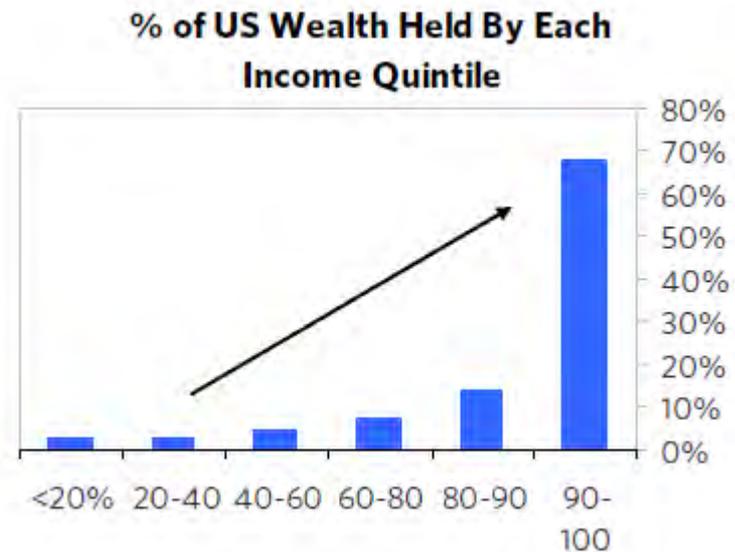
- Labor participation rates are near all-time lows

# Consumer Conditions

- Stagnant wage growth

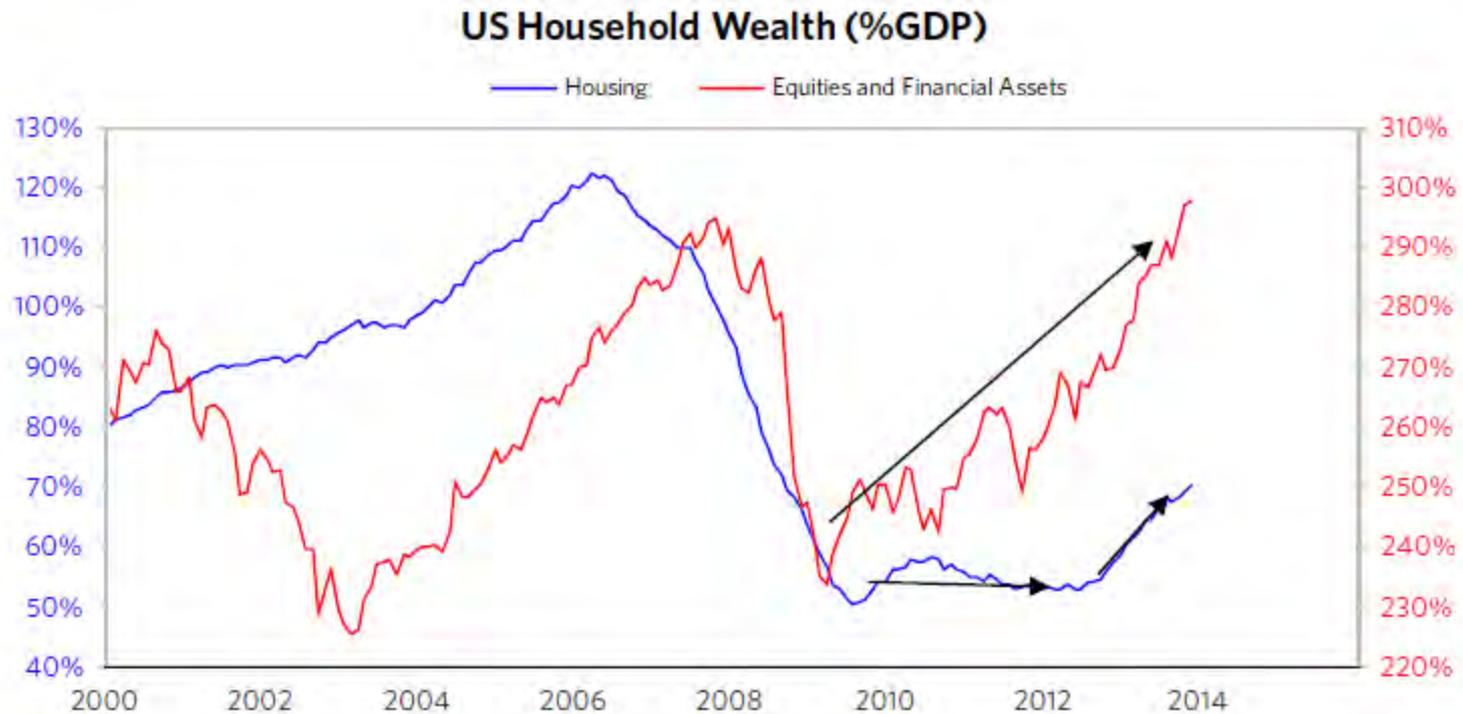


- Middle class has not participated in the stock market rally



Source: Bloomberg, Bridgewater Associates

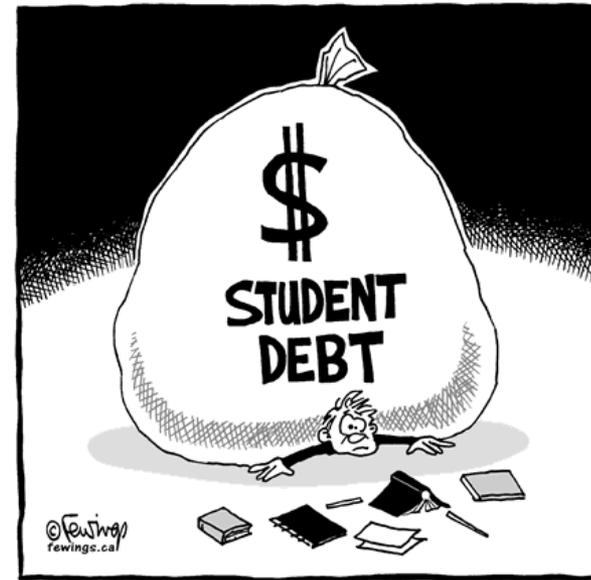
# Consumer Conditions



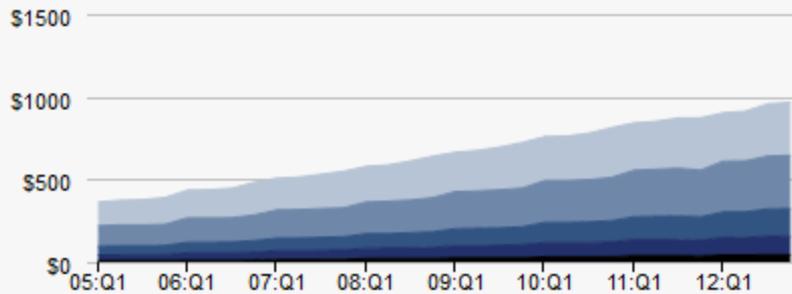
- Real estate has been recovering, but has not been the leading recovery sector as has typically been the case in the past

# Consumer Conditions

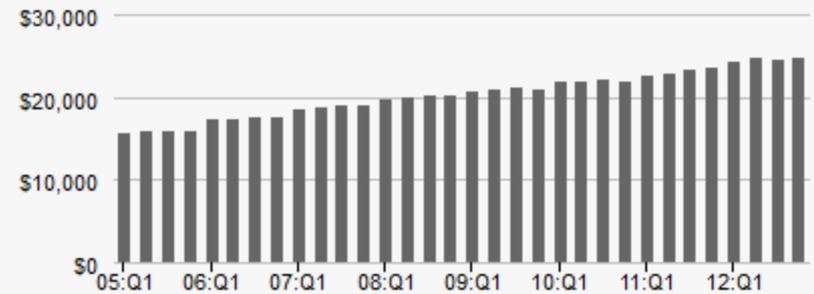
- I. Consumers are concerned about a number of things, including health care and jobs
- II. Young people are struggling the most due to student debt, unemployment, etc.



Total Student Loan Debt, billions (all age groups)

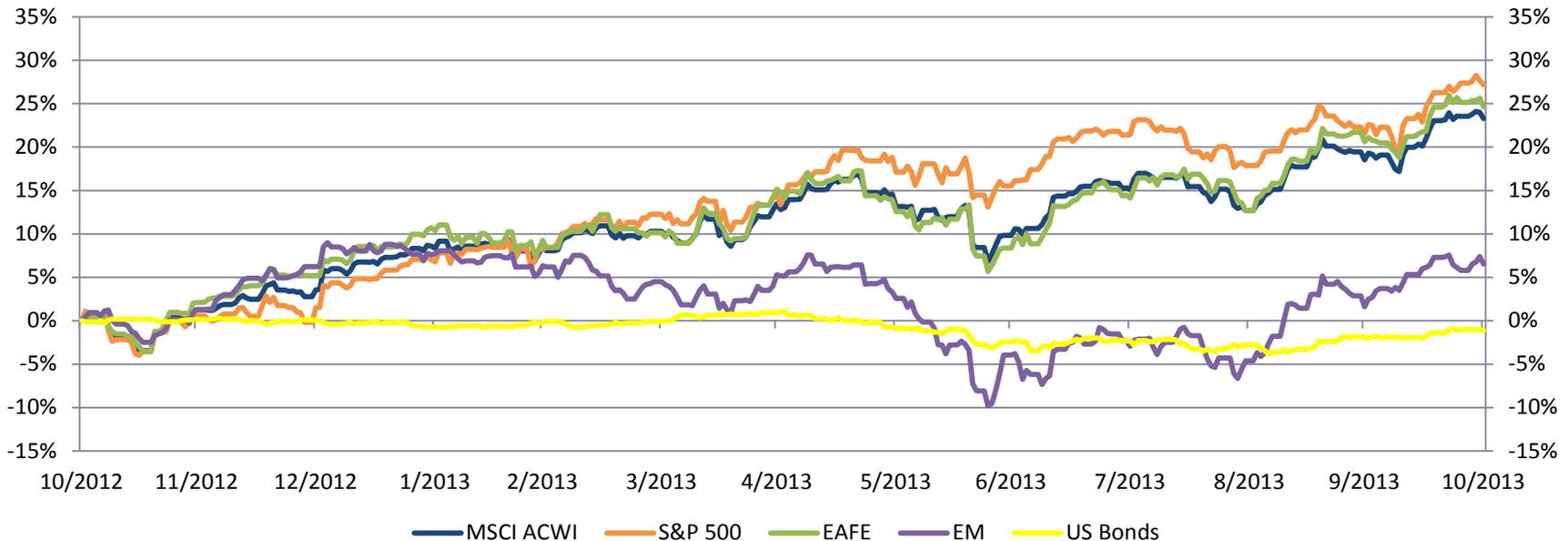


Average Student Loan Balance (all age groups)



# Stock Market is Booming and Rates are Rising

## One Year Returns as of 10/31/13



- Global index up 23%
- S&P 500 up almost 30%, Small Cap more
- EAFE up 25% - Japan 34%, Europe 28%
- Emerging Markets lag, up 7%
- Bonds are down 1%

Source: Bloomberg

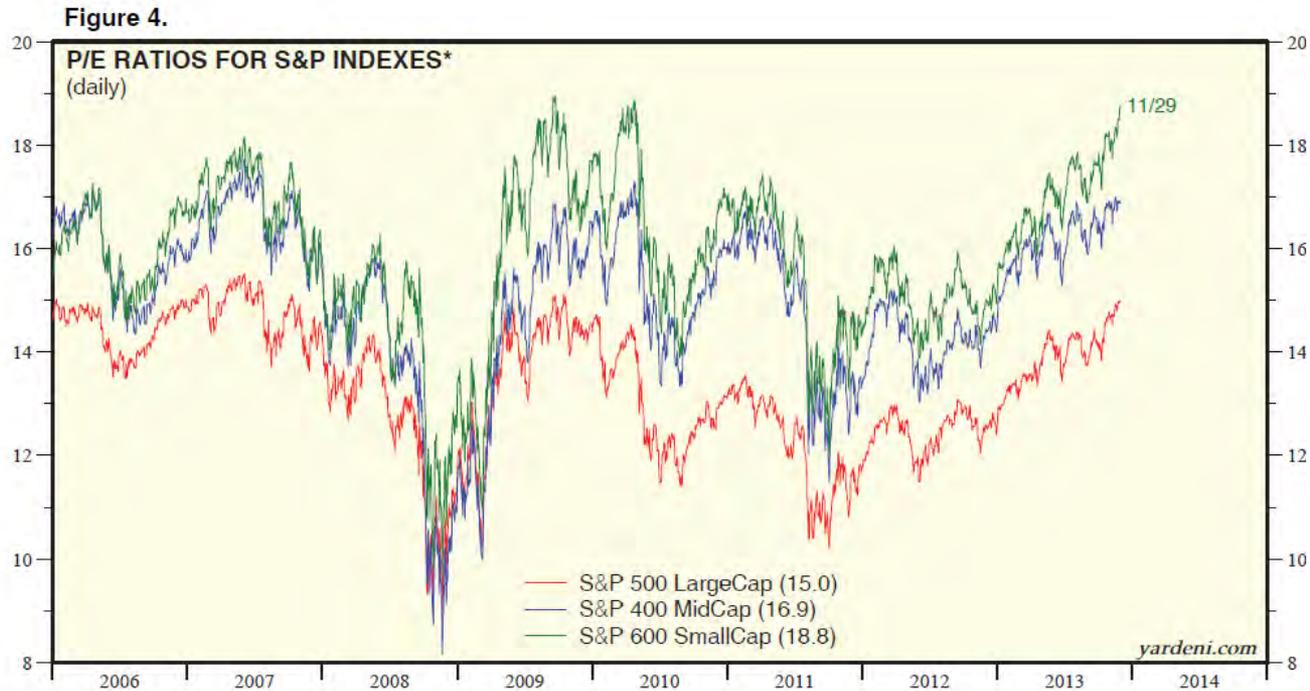
# Why is the Market Up?



- P/E Multiple Expansion
- Share Buybacks
- High Profit Margins
- Not Much Earnings Growth

Source: Yardeni Research

# US Equity Valuation



\* Price divided by 52-week forward consensus expected operating earnings per share.  
Source: Thomson Reuters I/B/E/S.

- US markets now near fair valuation at current interest rates
- Moving into overshoot
- If rates rise, earnings will need to grow more
- Profit margins already near peaks

# Stock Market Cycles

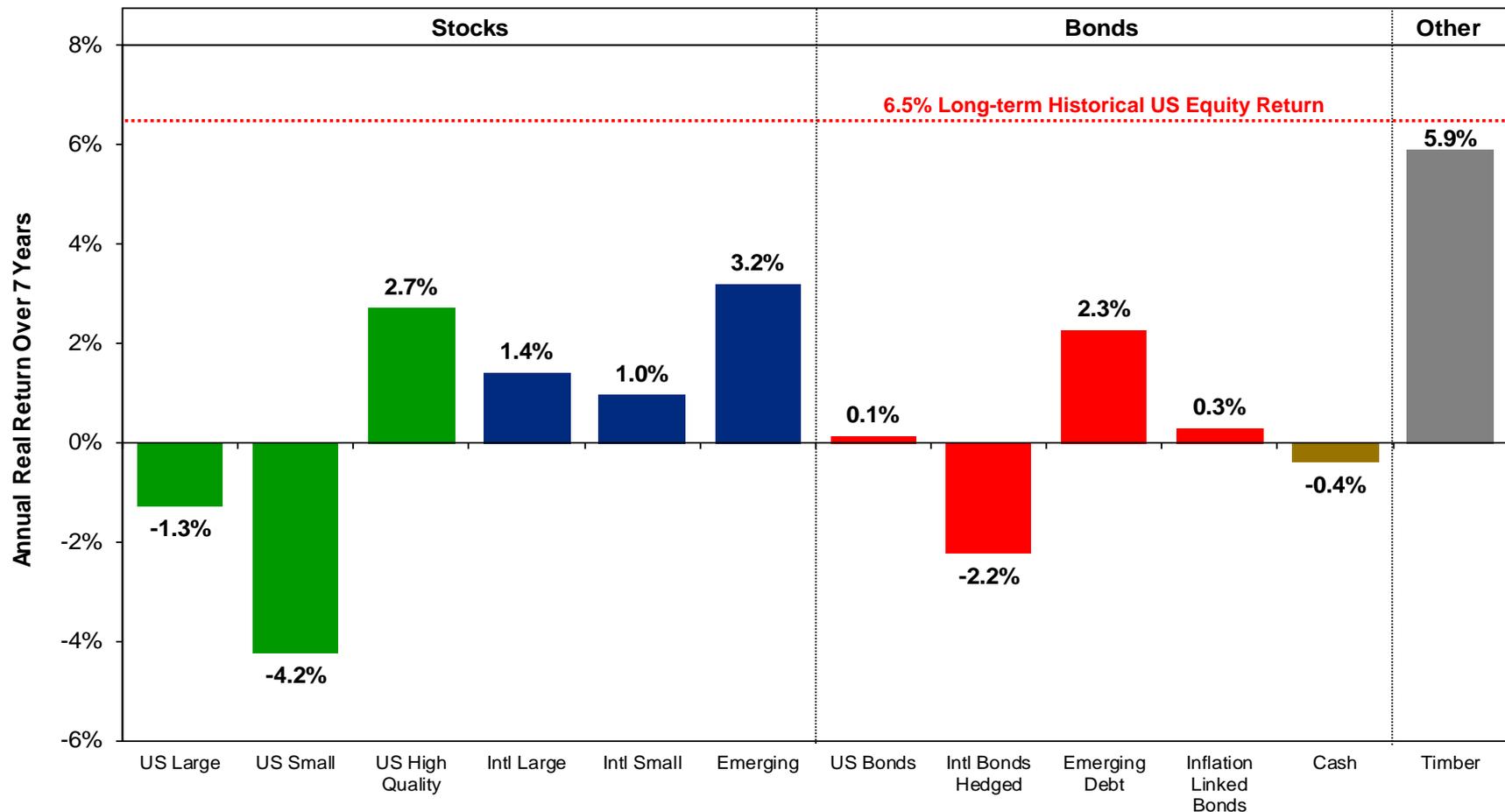
## United States

US: Cycles Based on S&P 500 Stock Market Levels							
Previous Peak	Trough	Quarters in Recession	Recovery	Quarters in Recovery	Expansion	Quarters in Expansion	Distance Past Prior Market Peak (Cum.)
Q2 1948	Q2 1949	4	Q4 1949	2	Q4 1952	12	59%
Q4 1952	Q3 1953	3	Q1 1954	2	Q1 1956	8	82%
Q1 1956	Q4 1957	7	Q3 1958	3	Q4 1961	13	48%
Q4 1961	Q2 1962	2	Q3 1963	5	Q4 1965	9	29%
Q4 1965	Q3 1966	3	Q3 1967	4	Q4 1967	1	4%
Q4 1967	Q1 1968	1	Q2 1968	1	Q4 1968	2	8%
Q4 1968	Q2 1970	6	N/A--recovered 97% of prior peak		-	-	-
Q1 1971	Q3 1971	2	Q4 1971	1	Q4 1972	4	18%
Q4 1972	Q3 1974	7	N/A--recovered 85% of prior peak		-	-	-
Q2 1977	Q1 1978	3	Q3 1978	2	Q3 1979	4	9%
Q3 1979	Q1 1980	2	Q2 1980	1	Q1 1981	3	24%
Q1 1981	Q2 1982	5	Q4 1982	2	Q2 1983	2	24%
Q2 1983	Q2 1984	4	Q1 1985	3	Q4 1993	35	177%
Q4 1993	Q2 1994	2	Q1 1995	3	Q1 2000	20	221%
Q1 2000	Q1 2003	12	Q2 2007	17	Q3 2007	1	2%
Q3 2007	Q1 2009	6	Q2 2013	16	Q2 2013	2+	18%+
<b>Average</b>		<b>4</b>		<b>4</b>		<b>9</b>	<b>54%</b>
<b>Median</b>		<b>4</b>		<b>3</b>		<b>4</b>	<b>24%</b>

*\*Recession defined as 2 consecutive quarters negative stock market growth*  
*Average, Medians and Quartiles presented include only complete cycles.*

# GMO 7-Year Asset Class Real Return Forecasts

As of October 31, 2013



\*The chart represents real return forecasts for several asset classes and not for any GMO fund or strategy. These forecasts are forward-looking statements based upon the reasonable beliefs of GMO and are not a guarantee of future performance. Forward-looking statements speak only as of the date they are made, and GMO assumes no duty to and does not undertake to update forward-looking statements. Forward-looking statements are subject to numerous assumptions, risks, and uncertainties, which change over time. Actual results may differ materially from those anticipated in forward-looking statements. US inflation is assumed to mean revert to long-term inflation of 2.2% over 15 years.

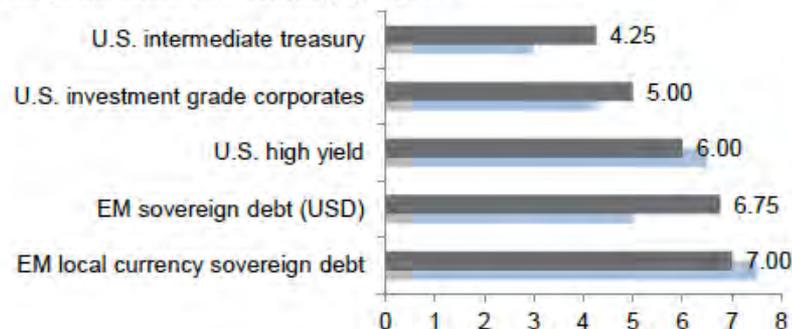


Source: GMO

# JP Morgan Long Term Capital Market Assumptions

## Fixed Income

Compound annual total returns (%) – USD

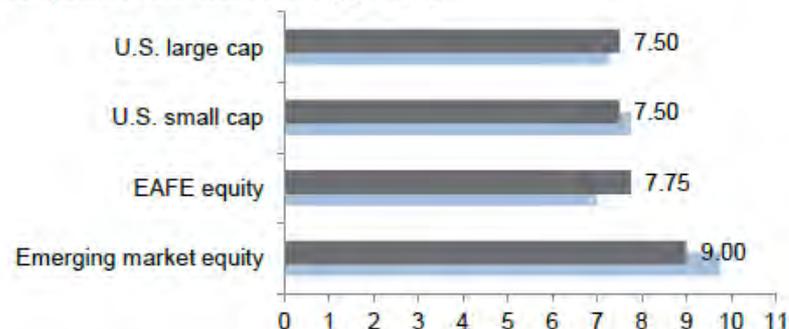


## Equilibrium fixed income assumptions (USD)

	Yields/ Spread	Returns (%)
U.S. cash	2.75%	2.00
U.S. 10-year Treasury	4.75%	4.50
U.S. TIPS (real yield)	1.50%	4.75
U.S. municipal	3.25%	3.75
U.S. corporate bonds	125 bps	5.00
U.S. high yield bonds	475 bps	6.00
Emerging market debt	250 bps	6.75
Local sovereign emerging market debt	7.50%	7.00
Corporate emerging market debt	325 bps	6.25

## Equity

Compound annual total returns (%) – USD



## Equity returns

	(%)
U.S. core inflation	2.25
U.S. real GDP	2.50
U.S. large cap	7.50
U.S. small cap	7.50
EAFE (USD)	7.75
Europe ex UK (local)	8.00
Japan (local)	4.75
UK (local)	8.25
Emerging markets (USD)	9.00

# Discounted Earnings Growth



- Due to increasing P/E multiples and rising bond yields, US equity market now discounting 2% real earnings growth (vs. near 0% early this year)
- Roughly in line with long-term potential growth levels, but does not account for potential declines in profit margins

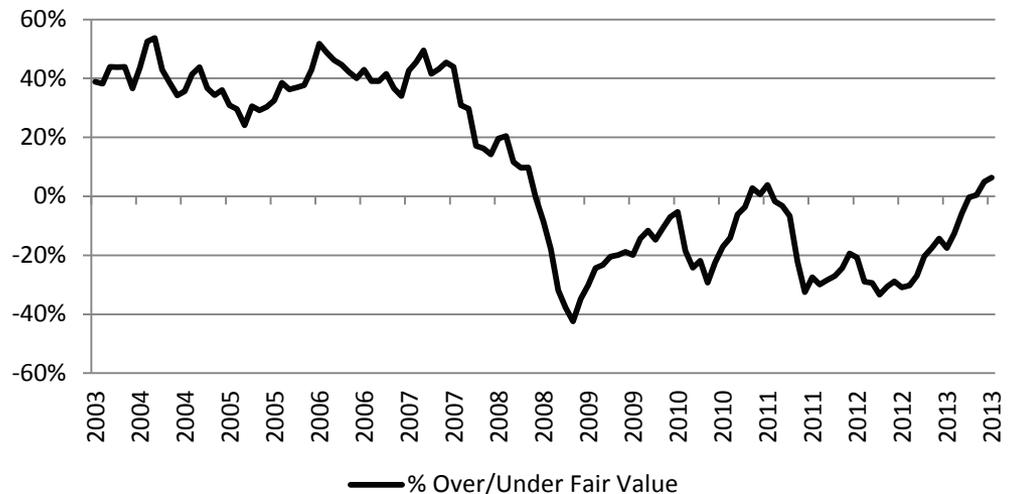
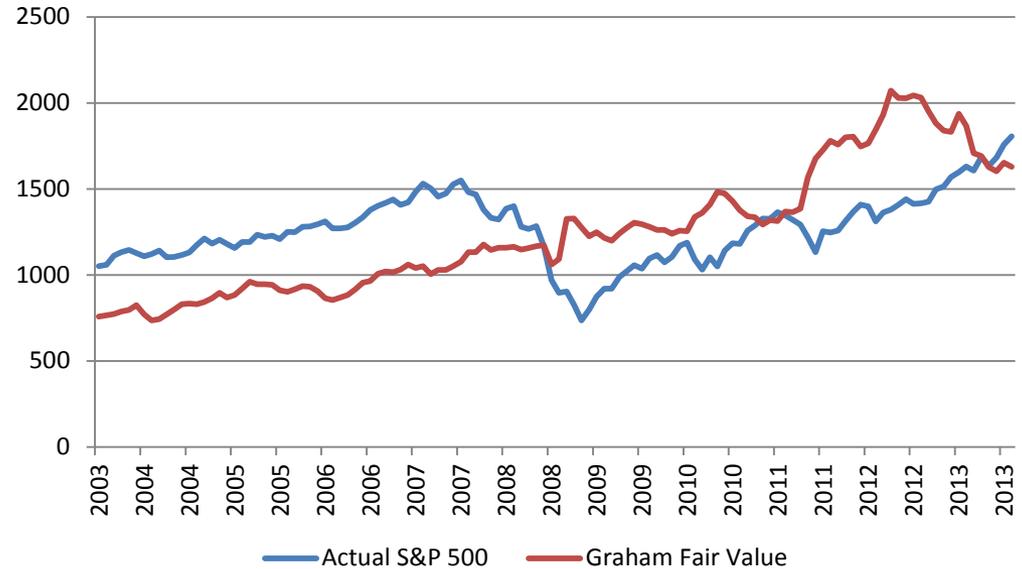
# Ben Graham Intrinsic Value Model

## Graham's Modified Intrinsic Value Model

$$\text{Intrinsic Value} = \frac{\text{EPS} \times (8.5 + 2g) \times 4.4}{\text{AAA Bond Yield}}$$

- where:
- EPS = Trailing 12-mo. earnings per share
  - 8.5 = Graham's estimated P/E for a company with zero EPS growth
  - g = Long-term earnings growth estimate
  - 4.4 = Adjustment factor for the average yield of high grade corporate bonds in 1962, when Graham first introduced model

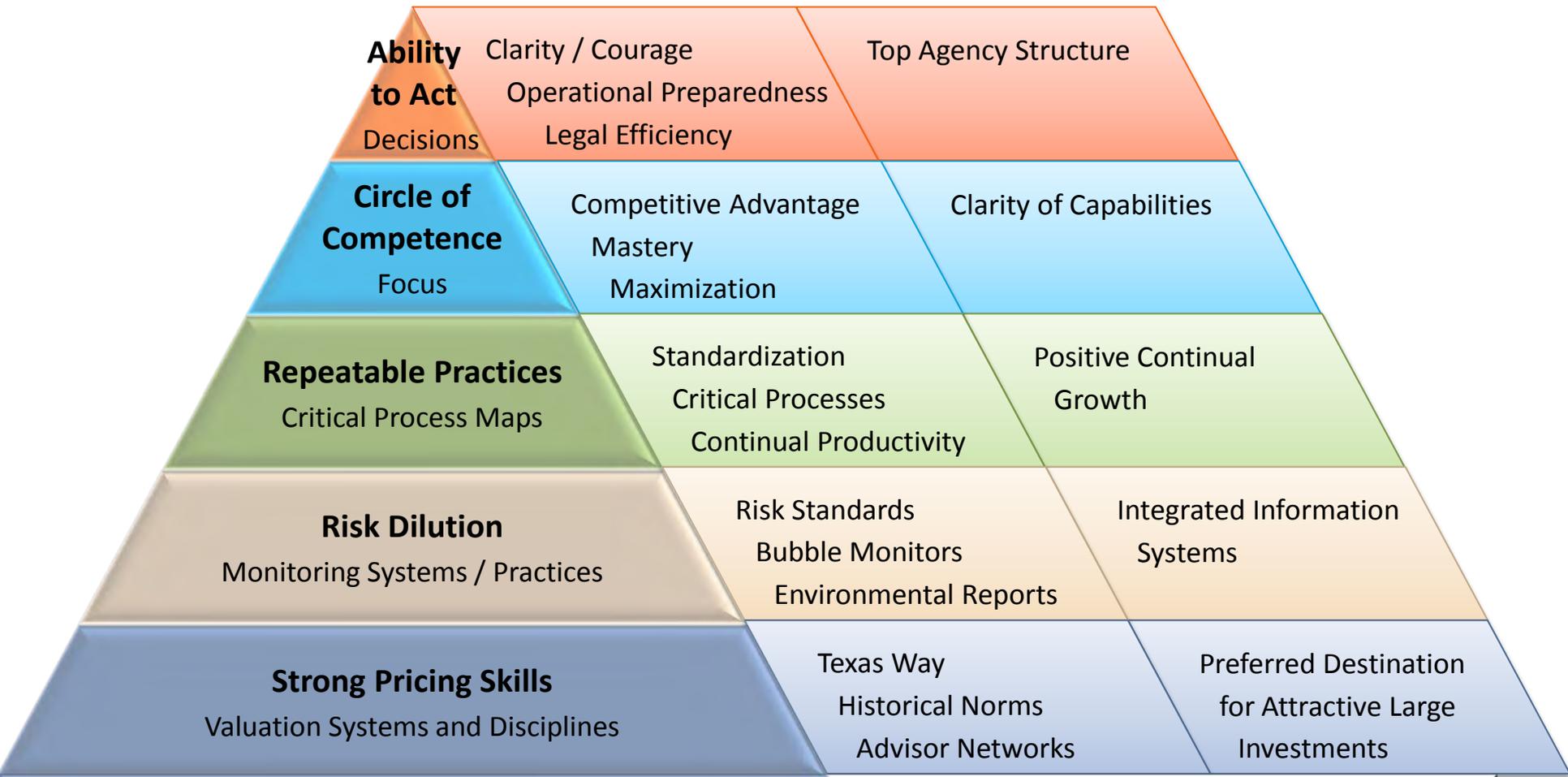
- S&P 500 was 27% undervalued at the beginning of 2013
- Due to price gains, sluggish earnings growth and rising yields, the market is 6% overvalued as of 10/31/13



Source: Leuthold Weeden, Bloomberg

# Future Priorities

## *Continual Advancement*



**Tab 6 D**



# Strategic Partnerships & Research (SPR) Update

David T. Veal  
Director  
December 2013

# Public Markets SPN

## Performance and Positioning as of September 30, 2013

Program	Assets		Q3 2013		Annualized Return %			Annualized Alpha %			Tracking Error			Information Ratio		
	NAV (\$m)	% of Trust	Return	Alpha	1 Year	3 Year	Since Incept.	1 Year	3 Year	Since Incept.	1 Year	3 Year	Since Incept.	1 Year	3 Year	Since Incept.
Barclays*	595.2	0.5%	4.6%	-0.2%	9.5	n/a	7.8	1.3	n/a	0.1	1.6	n/a	1.4	0.8	n/a	0.1
BlackRock	1,375.9	1.1%	5.3%	0.5%	9.3	9.2	6.0	1.0	0.0	0.6	1.8	1.6	2.0	0.6	0.0	0.3
JP Morgan	1,483.1	1.2%	5.0%	0.2%	13.5	10.1	7.3	5.3	0.9	2.0	1.6	2.6	2.4	3.4	0.4	0.8
Morgan Stanley	1,420.1	1.2%	5.1%	0.3%	12.4	11.0	6.6	4.2	1.9	1.3	2.2	1.8	1.6	1.9	1.1	0.8
Neuberger Berman	1,432.0	1.2%	5.2%	0.3%	9.0	9.0	6.6	0.7	-0.1	1.3	1.3	2.0	2.2	0.6	-0.1	0.6
<b>Total Public SPN</b>	<b>6,306.3</b>	<b>5.3%</b>	<b>5.0%</b>	<b>0.2%</b>	<b>10.9</b>	<b>9.8</b>	<b>6.6</b>	<b>2.7</b>	<b>0.6</b>	<b>1.3</b>	<b>1.1</b>	<b>1.4</b>	<b>1.4</b>	<b>2.3</b>	<b>0.5</b>	<b>0.9</b>

Asset Allocation as of 09/30/13													
Benchmark	Global Equity					Stable Value				Real Return			
	Total	US		Non-US		Total	US Long	Non \$		Total	Inflation-		
		LC	SC	EAFE	EM	Treasury		Sov Debt	Credit	Linked	Commodities	REITs	
Neutral	68%	28%	6%	20%	14%	20%	20%	0%	0%	12%	7%	3%	2%
Minimum	53%	8%	-4%	10%	4%	-10%	-5%	-5%	-5%	-5%	-3%	-2%	-3%
Maximum	83%	48%	16%	30%	24%	40%	30%	10%	10%	25%	17%	8%	7%
Barclays	4.2%	3.1%	0.2%	-0.4%	1.2%	3.4%	2.1%	1.3%	0.0%	-2.1%	-1.3%	-0.6%	-0.1%
BlackRock	3.8%	2.0%	0.7%	3.8%	-2.7%	-2.3%	-8.3%	0.0%	6.0%	-4.0%	-1.1%	-0.9%	-2.0%
JP Morgan	11.9%	3.0%	3.2%	5.3%	0.3%	4.6%	-1.2%	-3.9%	9.7%	-3.9%	-2.9%	-0.6%	-0.5%
Morgan Stanley	1.0%	-5.6%	0.0%	6.1%	0.5%	6.7%	9.8%	-3.0%	0.0%	-4.0%	-2.4%	-1.5%	0.0%
Neuberger Berman	4.0%	1.1%	-0.1%	0.8%	2.3%	1.0%	-6.7%	1.8%	5.9%	-0.5%	0.2%	-0.7%	-0.1%
Average	5.0%	0.7%	0.8%	3.1%	0.3%	2.7%	-0.9%	-0.8%	4.3%	-2.9%	-1.5%	-0.8%	-0.6%

Change in Allocation since 06/30/13													
Barclays	-1.8%	-3.1%	0.2%	4.1%	-3.0%	-10.2%	2.6%	-12.8%	0.0%	1.0%	0.8%	0.3%	-0.2%
BlackRock	-2.9%	-7.5%	0.3%	4.4%	-0.2%	-4.9%	-1.9%	0.0%	-3.1%	1.2%	-0.2%	1.4%	0.0%
JP Morgan	3.7%	1.6%	1.2%	0.8%	0.1%	0.7%	6.2%	-5.1%	-0.5%	-0.6%	-0.2%	0.0%	-0.4%
Morgan Stanley	-1.2%	-11.2%	0.2%	7.6%	2.2%	9.0%	11.8%	-2.8%	0.0%	2.8%	-0.2%	3.0%	0.1%
Neuberger Berman	3.6%	0.2%	-1.1%	1.7%	2.8%	-7.3%	-10.9%	2.7%	0.8%	-0.2%	0.1%	-0.2%	-0.1%
Average	0.3%	-4.0%	0.2%	3.7%	0.4%	-2.6%	1.6%	-3.6%	-0.6%	0.8%	0.0%	0.9%	-0.1%

\*Barclays inception date is July 1, 2011; all others were July 1, 2008

**Tab 7 B**



## Legal Services

# Memorandum

**DATE:** November 26, 2013  
**TO:** TRS Policy Committee and Board of Trustees  
**FROM:** TRS Legal Services  
**COPY:** TRS Executive Office  
**RE:** Completion of Chapter 53 Rule Review (403(b) Rules)

---

### Summary of Item

Staff recommends that the board complete the statutory review of the 403(b) program rules in Chapter 53 of TRS' rules.

### Background

Every four years TRS reviews and considers for readoption each of its rules under section 2001.039 of the Government Code. The statutory rule review assesses whether the reasons for initially adopting a rule continue to exist. After reviewing a rule, TRS may then readopt it with or without changes or repeal it. In accordance with the statute and the rules of the Texas Secretary of State, TRS normally conducts statutory rule reviews by chapter rather than section for purposes of efficiency and thoroughness in addressing the subject matter covered by a group of rules.

TRS has been reviewing Chapter 53 of TRS' rules relating to the 403(b) company certification and product registration program. The board completed the last review of Chapter 53 on March 4, 2010, and is scheduled to complete the current review at the December 2013 meeting.

The Policy Committee began the recent statutory review of the rules in Chapter 53 at its June 2013 meeting. The Committee authorized public-comment publication of a plan to review and notice of intention to review Chapter 53 in the *Texas Register*. The plan and notice were published on July 5, 2013 (38 TexReg 4391). The Proposed Rule Review Notice informed the public of TRS' intention to review Chapter 53 and to consider the

chapter for re-adoption, amendment, or repeal. It noted that the review would include, at a minimum, an assessment as to whether the reasons for adopting the rules in Chapter 53 continue to exist. The notice also informed the public of the opportunity to comment on the rule review in writing and at meetings of the policy committee and board. To date, TRS has received no public comments related to the review of Chapter 53.

Staff has drafted a proposed board order completing the review process for Chapter 53. The order would readopt Chapter 53 without changes to any of the 403(b) rules and would find that the reasons for initially adopting Chapter 53 continue to exist. If the board adopts the order, staff will submit it with a notice of the readoption of Chapter 53 to the *Texas Register*. Filing the order and notice with the *Register* would complete this review of the 403(b) rules and restart the clock for the next review in four years.

### **Action**

Staff asks the policy committee to recommend that the board adopt the proposed order completing the review of Chapter 53 of TRS' rules and authorize the board chair to sign the order on behalf of the board.

### ***SUGGESTED COMMITTEE MOTION LANGUAGE:***

"I move that the committee recommend that the board adopt the proposed order completing the statutory review of Chapter 53 of TRS' rules and authorizing the board chair to sign the order on behalf of the board."

**THE BOARD OF TRUSTEES  
OF THE  
TEACHER RETIREMENT SYSTEM OF TEXAS**

**ORDER**

Adopting the Statutory Rule Review of Chapter 53 of TRS' Rules,  
Concerning Certification by Companies Offering Qualified Investment Products  
(34 TEX. ADMIN. CODE §§ 53.1–53.20)

Under section 2001.039 of the Texas Government Code, the Board of Trustees of the Teacher Retirement System of Texas has reviewed Chapter 53 of its rules, §§53.1–53.20, concerning the Certification by Companies Offering Qualified Investment Products (403(b) program). The proposed notice of review was published in the July 5, 2013 issue of the *Texas Register* (38 TexReg 4391). No public comments were received.

The rules in Chapter 53 relate to the administration of TRS' 403(b) program, under which an eligible company may certify to TRS that it offers qualified investment products that meet the requirements of section 403(b) of the Internal Revenue Code of 1986 and comply with applicable federal and state insurance and securities laws, regulations, and rules. Eligible companies may also register their qualified investment products with TRS. To offer qualified investment products to employees of a school district or an open-enrollment charter school, eligible companies must certify to and register the products with TRS under Article 6228a-5 of the Revised Civil Statutes and TRS' rules in Chapter 53.

The board determined at its December 12-13, 2013 meeting that the reasons for adopting the rules in Chapter 53 without changes continue to exist because state law under Article 6228a-5 of the Texas Revised Civil Statutes continues to require TRS to administer the 403(b) program and to adopt rules as necessary to do so.

This action of the board concludes the review of Chapter 53.

NOW, THEREFORE, BE IT

ORDERED, That, under section 2001.039 of the Texas Government Code, the Board of Trustees of the Teacher Retirement System of Texas adopts the four-year statutory review of the rules in Title 34, Part 3, Chapter 53 of the Texas Administrative Code, concerning Certification by Companies Offering Qualified Investment Products (403(b) program);

ORDERED, That, as a result of the review of the 403(b) program rules, the board readopts without changes the following sections of Chapter 53:

§53.1 (Definitions);

§53.2. (Applicability);

- §53.3. (Maximum Fees, Costs, and Penalties);
- §53.4. (Qualifications for Certification by Companies Offering Qualified Investment Products that are Annuity Contracts);
- §53.5. (Qualifications for Certification by Companies Offering Qualified Investment Products Other than Annuity Contracts);
- §53.6. (Procedure for Certification);
- §53.7. (Certification Fee);
- §53.8. (List of Certified Companies);
- §53.9. (Notice to Potential Purchaser);
- §53.11. (Coordination with Regulatory and Enforcement Agencies);
- §53.12. (Company Notification of Non-compliance);
- §53.13. (Suspension or Revocation of Certification);
- §53.14. (Re-certification);
- §53.15. (Product Registration Requirement);
- §53.16. (Procedure for Product Registration);
- §53.17. (Product Registration Fee);
- §53.18. (List of Registered Products);
- §53.19. (Proceedings to Suspend or Revoke Certification or Registration); and
- §53.20. (Administrative Service Providers);

ORDERED, That the board authorizes TRS staff to prepare and to file with the *Texas Register* in proper form this Order and the notice of readoption of the rules in Chapter 53, including preparing and filing the necessary documents as required for publication;

ORDERED, That the board authorizes TRS staff to work with the *Texas Register* office in filing the materials required for publication of this Order and notice of readoption and to make any technical changes needed to publish them;

ORDERED, That the notice of readoption and applicable board and committee materials and deliberations considered in the review and readoption of Chapter 53 are adopted by reference and made part of this Order; and

ORDERED, That the board authorizes its chair to sign this Order on behalf of the board.

SIGNED THIS \_\_\_\_ DAY OF DECEMBER 2013.

---

R. David Kelly, Chair  
TRS Board of Trustees

ATTEST:

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Brian K. Guthrie  
TRS Executive Director

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Carolina de Onís  
TRS General Counsel

**Tab 7 C**



# Proposed Modifications to Proxy Voting Policy

Janis W. Hydak  
Managing Director  
December 2013

# Modification

*Update the Proxy Voting Policy (the “Policy”) to adjust to issues as they arise while increasing succinctness and readability*

## Background Information

- The right to vote proxies is a Trust asset and informed proxy voting can enhance long-term shareholder returns
- The current policy is consistent with the guidelines of the independent advisory service in cases where the policy addresses a proxy issue
- The current practice uses the guidelines of the independent advisory service for proxy issues where the TRS policy is silent, lacks detail, or does not address the proxy issue

## Proposal

- Establish an internal Proxy Committee to oversee proxy voting
- Clarify that TRS will use an independent advisory service relating to proxy matters
- Clarify that TRS generally votes in accordance with the recommendations (guidelines) of the independent advisory service
- Clarify that in special situations, TRS may opt not to vote in accordance with the recommendations of the independent advisory service
- Provide prior notice to the Policy Committee Chair, Executive Director, and CIO of a vote not in accordance with the independent advisory service’s recommendation
- Clarify content of the Proxy Exceptions Report (reported to the Board quarterly)

### Reviewed by:

<input checked="" type="checkbox"/> HEK	<input checked="" type="checkbox"/> Audit
<input checked="" type="checkbox"/> Keith Brown	<input checked="" type="checkbox"/> Legal

# Proxy Committee

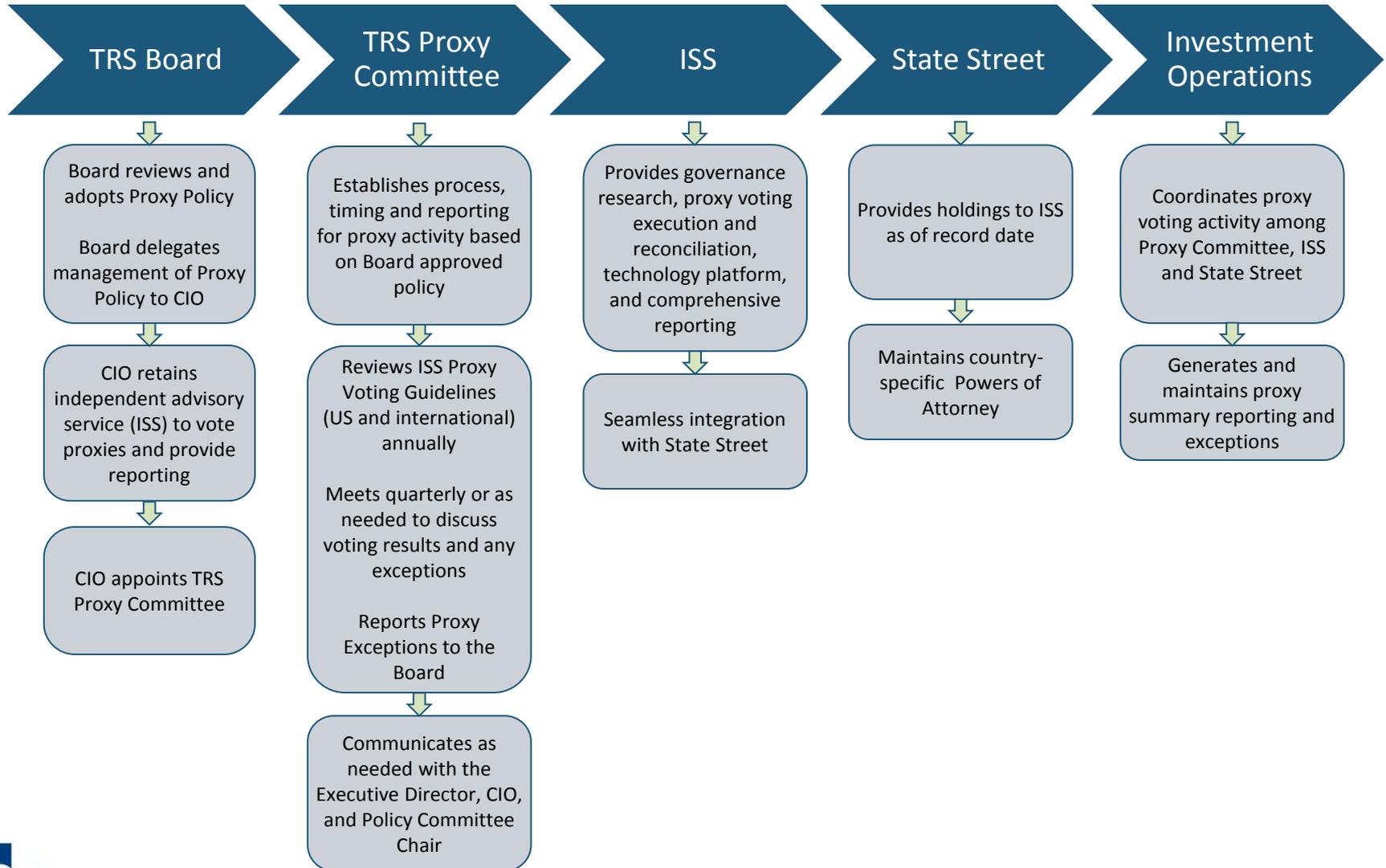
## Members

- Appointed by CIO
- Meets quarterly and as needed
- Proposed Committee Members (5)
  - Janis Hydak, Internal Public Markets
  - Kay Cuclis, Internal Public Markets
  - Susanne Gealy, External Public Markets
  - One non-voting representative each from Investment Operations and Legal Services Division

## Functions

- Oversee the independent advisory service
- Keep current on independent advisory service standards
- Review proxy voting standards annually and as needed
- Coordinate “matters of special importance” and provide notification to the Policy Committee Chair, the Executive Director and the CIO, as needed
- Maintain records of proxy voting
- Maintain the Proxy Exceptions Report and present to the Board on a quarterly basis

# Proposed Proxy Process





# PROXY VOTING POLICY

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## OBJECTIVE

Corporate governance and shareholder proposals can directly affect shareholder values. The right to vote shareholder proxies is therefore a trust asset. Informed proxy voting can enhance long-term shareholder returns in all markets. Accordingly, the purpose of this policy is to ensure that the TRS proxies are voted in the best interests of TRS so as to maximize portfolio values over time.

## DELEGATION

The Board hereby delegates to the Chief Investment Officer (“CIO”) the responsibility for proxy voting and administration. To manage TRS’ proxy voting prudently, the CIO shall retain a reputable, independent advisory service to analyze proxy issues, to make prudent voting recommendations to TRS in proxy matters, and to vote proxies.

The CIO shall further appoint a committee (the “Proxy Committee”) of qualified, professional members of the Investment Management Division (the “IMD”) to oversee the independent advisory service. The Proxy Committee shall also have two non-voting members, one from the Legal Services Division and one from Investment Operations. The Proxy Committee shall keep current on voting guidelines recommended by the independent advisory service. As needed, but at least on an annual basis, the Proxy Committee shall review any voting guidelines recommended by the independent advisory service to ensure that they are appropriate for TRS. When appropriate, the CIO or Proxy Committee should consult with staff in other departments and with consultants or advisors to TRS under contract with TRS.

## GENERAL VOTING GUIDELINES

Generally, the Proxy Committee shall cause TRS proxies to be voted in accordance with the recommendations of the independent advisory service. Recommendations are based on their guidelines. On matters of special importance to TRS, however, the Proxy Committee may decide that TRS proxies be voted differently than recommended by the independent advisory service.

## REPORTING & RECORD-KEEPING

The Proxy Committee shall provide prior notice to the Chair of the Board’s Policy Committee, the Executive Director, and the CIO of proxy votes where TRS votes other than in accordance with the independent advisory service’s recommendation.

The Proxy Committee shall maintain, or cause to be maintained, a record of votes on all proxy

issues. As described above, if a proxy item is voted other than in accordance with the independent advisory service's recommendation or if a proxy item is voted for which the independent service does not provide a recommendation, such "exception votes" shall be described in a Proxy Exceptions Report presented to the Board by the Proxy Committee at the Board's next quarterly meeting. The Proxy Exceptions Report must document the exception votes, the reasons supporting each such vote, the number of shares voted, and the date of each corporate meeting at which exception votes were cast.

Proxy voting will be handled so as to permit review for compliance with this policy. The Proxy Committee shall maintain, or cause to be maintained, the following items in readily accessible records for the retention period required by an approved records retention policy:

- a. a record of all proxies voted that contains company name, number of shares voted, date of each corporate meeting at which votes were cast, issues voted upon and the corresponding TRS vote, along with any necessary supporting documentation,
- b. the Proxy Exceptions Report referenced above, and
- c. a record of any proxies received but not voted due to special circumstances, including untimely receipt, re-registration, or blocking.

### **LOANED SECURITIES**

Because TRS conducts a securities lending program, securities may be on loan during the time when proxies must be voted. Loaned securities will be recalled for purposes of voting proxies only when the CIO or the Proxy Committee as the CIO's designee determines that the proxy issue interest clearly outweighs the securities lending interest. Recalling loaned securities for proxy voting purposes is expected to represent the exception rather than the general rule.

### **USE OF THIRD PARTY INVESTMENT MANAGERS TO VOTE PROXIES**

The CIO or the CIO's designee(s) may delegate to third party external managers proxy voting authority related to the securities managed by such manager, provided that the delegation of proxy voting authority is reasonably related to the investment strategy set forth in that manager's investment guidelines in the investment management agreement. Any proxy votes cast by an external manager pursuant to a delegation of proxy voting authority must be cast (1) in accordance with the applicable investment guidelines governing such external manager and (2) in the external manager's reasonable judgment as a fiduciary to TRS, in the best long-term interest of TRS. External managers must maintain records of any proxy votes cast on behalf of TRS and annually provide TRS reports of such votes or deliver reports of proxy votes cast upon request.

## **Memo**

To: **Board of Trustees, Teacher Retirement System of Texas**

From: Steve Voss, Brady O'Connell

Date: November 26<sup>th</sup>, 2013

Re: Review of Proposed Modifications to Proxy Voting Policy

### **Summary**

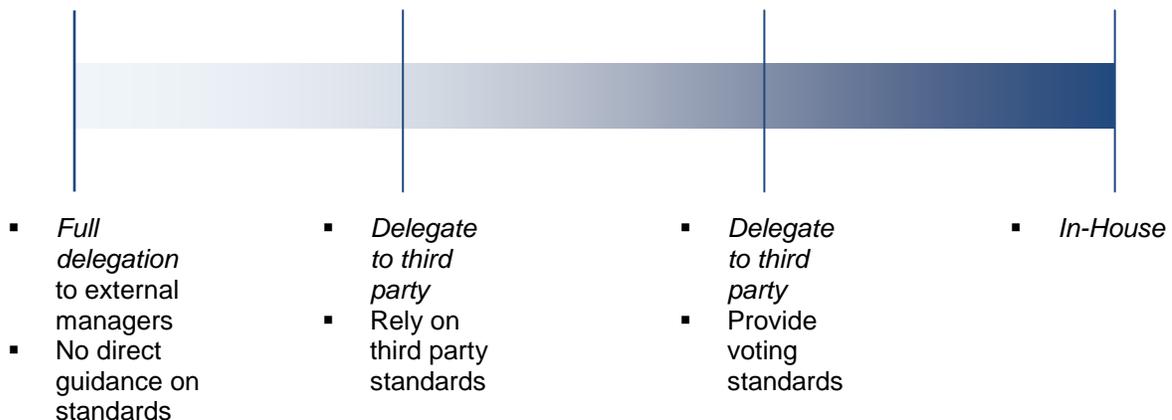
From time to time the Board reviews the policy and practices surrounding Proxy Voting. Voting proxies is the primary means by which TRS can influence the companies in which it has an equity interest. The goal of voting proxies is to enhance value to TRS.

Given proxies are an asset with implicit value to TRS it is an important responsibility of the Board to periodically review the Proxy Voting Policy and to engage in an on-going review and monitoring of the proxy voting process.

The Investment Management Division is proposing modifications to the Proxy Voting Policy moving from a somewhat rules based policy to a policy that 1) recognizes the role of the third party voting agent; 2) creates a Proxy Committee; and maintains a robust reporting and monitoring system enabling Board oversight. We have reviewed the policy; held discussions with members of IMD and TRS' legal team and compared TRS practices with that of other institutional investors. We are comfortable with the proposed policy, but suggest the Board receive an annual overview of the third party voting agent's proposed voting guidelines. Doing so will ensure the agent's guidelines are in keeping with the Board's standards and expectations.

### General Practices of Other Institutional Investors

While there is no “right approach” for all institutional investors, we do see most entities falling within a spectrum as it relates to their proxy voting practices. The exhibit below represents the level of delegation; from fully delegated responsibilities on the far left to an entity that brings all proxy voting responsibilities in house. The proposed and current TRS approach falls in the middle of this spectrum.



While dated, The Council of Institutional Investors (CII) conducted a broad study of proxy voting practices across its members in 2010. The Council received 21 responses with the following breakdown: 12 (57%) fully delegate to a third party advisory firm and / or their investment managers; 4 (19%) delegate to a third party and maintain some in-house voting; and 5 (24%) vote proxies in-house. Clearly, where an entity falls on this spectrum is a function of resources available and how active it wishes to be as a shareholder.

In looking at the spectrum above and considering the practices of other large institutional investors, IMD’s proposed policy does not change current practices associated with proxy voting. TRS will continue to use an independent proxy advisory firm to manage and vote its proxies.

### Proposed Change to Policy

The changes proposed by IMD move the policy from a document that was seemingly “rules based” to one that is more principles based. TRS will rely on the established voting standards of a third party agent and create an oversight committee of professionals within IMD charged with overseeing the agent and reviewing its recommended voting guidelines. In practice, TRS has long followed such an approach and as such the resulting modifications of the policy reflect current practices and the practical limitations of providing a third party a complete set of rules-based voting standards.

The Board continues to retain monitoring and oversight of proxy voting and will receive exception reports as described in the proposed policy.

We find that the Policy includes all critical elements of a well written proxy voting policy: 1) objective / purpose; 2) clarity on delegation of responsibilities; 3) standards for voting guidelines; 4) reporting and monitoring criteria and; 5) consideration of treatment of securities on loan.

We suggest that the Board receive annual updates from the Proxy Committee on the third party agent's guideline recommendations. The purpose of such a review is to ensure the guidelines of the agent are in keeping with the Board's standards and expectations.

**Tab 7 D**



## Memorandum

Investment Management Division

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To: TRS Policy Committee  
Brian Guthrie, Executive Director  
Britt Harris, Chief Investment Officer  
Jerry Albright, Deputy Chief Investment Officer

From: Sylvia Bell, Director of Investment Operations  
Dennis Gold, Assistant General Counsel

Cc: Amy Barrett, Chief Audit Officer

Date: 11/18/2013

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Soft Dollar refers to the use of “credits” to pay for goods, services or investment research that are related to the investment management function. These credits are generated via additional commissions paid for securities or futures trades by the TRS internally managed portfolios. For FY 2014, the program has a budget of \$24.7 million which is primarily allocated to investment research and data services and information systems such as Bloomberg and Factset.

The TRS Soft Dollar Policy outlines general principles and guidelines for the program in order to comply with applicable securities laws. These principles and guidelines include ensuring best efforts are made to obtain optimal trade execution, that Soft Dollar arrangements are properly documented and approved by TRS Legal Services, and all applicable laws are followed. The policy also outlines the types of services which may be purchased under Soft Dollar arrangements including investment research, data services, seminars and conferences, professional services such as consultants, and information systems used to support the investment management function.

Based on a review of the Soft Dollar program, we are not proposing any changes to the Soft Dollar Policy at this time.

## Memo

To: **Board of Trustees, Teacher Retirement System of Texas**

From: Brady O'Connell, Steve Voss

Date: November 20<sup>th</sup>, 2013

Re: Review of Securities Lending and Soft Dollar Policies

### Summary

We spend a considerable amount of time with the Board reviewing TRS's Investment Policy Statement, and rightly so, this document governs the vast bulk of TRS's investment activities. Several ancillary policies are also reviewed regularly, but generally on a less frequent basis. We are comfortable reviewing these other policies less frequently, as changes are not as common as with the IPS. We would note, however, that should the need arise these policies could be revisited at any time.

While no changes are being proposed to the Securities Lending and Soft Dollar policies, we did have a few comments to share with the Board.

### Securities Lending Policy

The phrase below has been included in our reviews of securities lending policy in 2003, 2006, 2010, and we feel it is worth repeating yet again here.

*We view securities lending predominantly as a way to offset some of the plan's custody and other expenses, not as a source to add value to an investment program. The focus of a securities lending program should be on controlling risk, not maximizing returns. In an agency-based securities lending program, the agent participates in the returns, without any risk sharing.*

We believe securities lending programs should be conservative and the global financial crisis provided several examples of the risks inherent in certain aspects of these programs. We are comfortable with TRS continuing to lend securities under the policy as it currently stands but note that these programs should be very conservative in nature. The policy's Objections are very clearly stated in the policy that risks are to be controlled and the impact on the broader investment activities of TRS minimized while conservatively reinvesting collateral.

HEK has no recommendations for changes to the Securities Lending Policy at this time.

**Soft Dollar Policy**

Several modifications to this policy were put forth in 2012 and we do not see a need for further adjustments at this time. While we have expressed broad industry concerns about soft dollar practices in the past (they suggest inefficient resource allocation, potential for misuse), we note that TRS has taken steps to ensure soft dollars are not abused or misused. Section 3.3 describes the budgeting, accounting, controls, and reporting in place for the soft dollar program which will help ensure these assets are used to the further benefit of the investment program at TRS.

We are comfortable with the Soft Dollar Policy as it currently stands.



# SOFT DOLLAR POLICY

(rev. June 7, 2012)

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## 1. Introduction

The Board hereby approves the expenditure of soft dollars (including cash held in a commission sharing account pursuant to commission sharing arrangements) based on this Policy.

In this Policy, (a) “soft dollars” refers to the use of a credited portion of brokerage commissions incurred for securities or futures trade execution to obtain goods, services, or research through a securities or futures broker or futures commission merchant (each, a “broker”), and (b) “commission sharing arrangements” (“CSAs”) refers to the use of a cash account managed by a TRS custodian or broker which is funded by an executing securities or futures broker sharing a portion of securities and/or futures trading commissions with such custodian or broker so that such custodian or broker may obtain, at TRS’ instruction, investment research services from such broker or custodian, an executing broker and/or other third parties.

Fiduciary prudence requires that TRS investment staff, when deciding whether to use soft dollars or CSAs, must determine in good faith that the commissions that will be incurred are reasonable in light of the value of the goods, services, and research (as applicable) that will be received under the arrangement and that TRS will realize its benefits. The generation of any soft dollars or CSA credits shall be incidental to the securities and futures transactions originating such amounts

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## 2. General Principles

**2.1. Background.** Section 28(e) of the Securities and Exchange Act of 1934 (“Section 28(e)”) provides a “safe harbor” for fiduciary investment advisers who incur higher commissions for discretionary client accounts they manage in order to receive brokerage and research services that may or may not benefit those clients. Since Section 28(e) is a safe harbor, it cannot be violated. Although TRS is not an investment adviser having clients and does not manage accounts for others, it must still take care to receive best value and execution when trading securities and futures. Thus, Section 28(e) and SEC releases and publications under Section 28(e) can provide useful guidance for TRS soft dollar arrangements and CSAs (see also Section 3.1(b)).

**2.2. General Principles.** Research, goods and services acquired using soft dollars and CSA credits must support the investment decision-making function of TRS. Research, goods and services may be provided by the soft dollar broker, another broker or by a third party compensated by the soft dollar broker. If the research, goods and services are provided by a third party, a TRS broker must be the primary payment obligor. Section 28(e) guidance refers to “brokerage and research services” as qualifying for the safe harbor. Under Section 28(e)(3), brokerage and research services generally includes (see also Section 3.2):

- a. Analysis and advice, either directly or through publications or writings, as to the value of securities, the advisability of investing in or purchasing or selling securities, or the availability of securities or purchasers or sellers of securities;
- b. Analyses and reports concerning issuers, industries, securities, economic factors and trends, portfolio strategy and the performance of accounts; or
- c. Services affecting securities transactions and performing functions pertaining to securities transactions (such as clearance, settlement and custody) or required in connection with securities transactions by rules of the SEC or a self-regulatory organization such as a stock exchange.

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### **3. SOFT DOLLAR & CSA GUIDELINES**

#### **3.1. Requirements**

- a. Soft dollar and CSA acquisitions must be budgeted in separate items in an addendum to the TRS annual budget or in a budget amendment adopted by the Board of Trustees, unless the Board provides otherwise by resolution.
- b. In determining what goods and services or research should be acquired by TRS using soft dollars or CSA arrangements, the investment staff shall be mindful of SEC releases and guidelines issued by the SEC under Section 28(e). TRS Legal Services will assist the investment staff in analyzing specific questions regarding industry practices and SEC guidelines. Departures from the SEC guidelines with respect to soft dollars and CSAs from securities transactions are permitted only when they are consistent with TRS fiduciary requirements, applicable law, and TRS policies and procedures. In addition, TRS will use the SEC releases and guidelines relating to Section 28(e) with respect to expenditures of soft dollars and CSAs from securities transactions as if such guidance applied to soft dollars and CSAs from futures transactions, with any appropriate adjustments.
- c. Trades may not be created solely to generate soft dollar credits or CSA rebates.
- d. Best trade execution must not be sacrificed. Investment staff must use its best efforts to ensure that all TRS transactions are executed in such a manner that the total cost or proceeds (including market impact costs and the value of any research to be acquired) in each transaction is the most favorable under the circumstances and benefits TRS exclusively. In placing trades with brokers, investment staff shall match the trade to the broker, taking into account trade characteristics, the full range and quality of the broker's services, including but not limited to the broker's execution capabilities, the value of the research, services or goods to be acquired (if any), commission rate, financial responsibility, and responsiveness to TRS.
- e. Soft dollar arrangements will be documented and approved in accordance with policies, guidelines and procedures approved by the Executive Director or his designee. CSA allocations and disbursements for research shall be made in accordance with internal guidelines and procedures approved by the Chief Financial Officer (or, in the absence of the CFO, the Executive Director or his

designee). The investment staff shall provide copies of the internal guidelines and procedures for soft dollars and CSAs to the Board as part of TRS's annual budget process.

- f. To the extent feasible and not inconsistent with the status of a soft dollar broker as the provider of the research, goods, or services, any acquisition using soft dollar credits for which TRS normally employs competitive procedures will be handled using the procedures that will ensure that TRS will obtain best value, taking all factors into account, including trade execution. The investment staff shall use reasonable procedures when acquiring research using CSA balance disbursements to ensure that TRS obtains best value, taking all factors into account, including trade execution.
- g. Except as required or permitted by other TRS policies, guidelines or procedures, all soft dollar and CSA contracts shall be established in writing and reviewed by TRS Legal Services prior to execution

### 3.2. Examples of Eligible Research, Goods and Services

Notwithstanding any other provision of this Policy, CSA cash balances and Soft dollar credits may be expended for any eligible research, goods, or services under this Policy.

- a. **Investment Research:** furnished either directly by a broker's investment research department, through subscription-based publications, or by an independent research or advisory firm; includes advice as to the value of securities or futures; the advisability of investing in, purchasing or selling securities or futures; the availability of securities or futures or purchasers or sellers of securities or futures; and analyses and reports concerning issuers, industries, securities, futures, economic factors and trends, portfolio strategy, and portfolio performance.
- b. **Data Services, Magazines, Journals, Reference Materials:** subscriptions to electronic data feeds, exchanges, data services, databases, magazines (including popular magazines relevant to securities analysis), professional journals and reference materials.
- c. **Seminars/Conferences:** fee-paid attendance at investment seminars or conferences and other fees or study materials for investment staff, provided, that soft dollars may not be used for travel and lodging.
- d. **Portfolio Management Assistance, Professional Services, and Institutional Memberships:** third-party services or institutional memberships that support TRS investment processes and portfolio management by providing TRS with direct advice, assistance or support, including without limitation pricing or valuation services and performance measurement services.
- e. **Information Systems:** communications equipment or access (including high bandwidth services) that supports the investment decision-making process or portfolio management, including trading and investment accounting systems.
- f. Any other items useful in aiding in the investment decision-making process.

### 3.3. Annual Soft Dollar and CSA Budget

- a. **Annual Budget:** An annual soft dollar and CSA budget will be developed and presented to the Board for approval with the TRS annual fiscal operating budget. The budget will include all anticipated uses of commissions to acquire research, goods and services during the following fiscal year. Soft dollar uses shall be stated separately from CSA uses in the annual budget. The CSA budget line item may aggregate the total estimated amount to be expended for research during the applicable fiscal year.
- b. **Value Comparisons:** Whenever feasible and appropriate, the soft dollar budget will include a comparison of the soft dollar price relative to a non-soft dollar price for all goods and services.
- c. **Soft Dollar and CSA Credit and Debit Balances:** Soft dollar credit and debit balances may be maintained with each soft dollar broker with whom TRS has an on-going relationship to allow the TRS trading desk to operate without unnecessary constraints. Credit balances may be used as needed in accordance with the annual soft dollar budget. Only one CSA account may be established to hold cash rebates received pursuant to a commission sharing arrangement and to expend funds for investment research authorized in accordance with this Policy. No other funds may be commingled with the CSA funds in the CSA account, nor may such funds be used for any other purpose.
- d. **Soft Dollar Internal Accounting & Control:** Soft dollar expenditures will be made under the same general internal controls as operating budget expenditures. A Soft Dollar Approval form, and Purchase and Expenditure Authorization (form TRS 146), signed by the Chief Investment Officer, or his designee and the appropriate Managing Director in the Investment Division, will be forwarded to the TRS General Accounting Department. The appropriate person in the General Accounting Department will issue a purchase order that will be the broker's authorization to provide and pay for the goods and services for the benefit of TRS. The soft dollar broker will forward copies of invoices for the goods and services acquired and a monthly statement of account including commissions received, expenditures made for the benefit of TRS and the commission allocations balance to the Investment Division.
- e. **Reporting and Disclosure:** The custodian of the CSA account or an authorized TRS broker shall deliver monthly and annual statements to the Investment Division and the Investment Accounting group indicating the account balance, deposits and disbursements since the last statement, and an aging report of past-due deposits. A report of expenditures for goods and services will be included with all financial and budget information presented to the Board. The Comprehensive Annual Financial Report will disclose fiscal year soft dollar and CSA expenditures.



## Memorandum

Investment Management Division

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To: TRS Policy Committee  
Brian Guthrie, Executive Director  
Britt Harris, Chief Investment Officer  
Jerry Albright, Deputy Chief Investment Officer

From: Sylvia Bell, Director of Investment Operations  
Dennis Gold, Assistant General Counsel  
Mohan Balachandran, Managing Director of SAA/SV

Cc: Amy Barrett, Chief Audit Officer

Date: August 6, 2013

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The securities lending program is a program through which TRS earns incremental revenue by lending a portion of its securities to approved borrowers in exchange for collateral. State Street Bank and Trust Company, the TRS custodian, acts as securities lending agent. The collateral is managed in a separate trust account for the benefit of TRS. Investments of cash collateral must comply with the TRS Securities Lending Policy. A portion of the revenue generated from the program is used to compensate TRS' custodian bank (State Street) for custodial and ancillary services in connection with trade settlement, asset servicing, accounting, performance measurement, collateral management, valuations, risk, and compliance services.

The TRS Securities Lending Policy outlines the objectives, controls, guidelines, restrictions and reporting required by TRS in order to manage the program. The objective of the program is to earn a competitive market return through a conservative lending program that seeks to preserve capital, minimize risk, and seamlessly integrate with the management of TRS portfolios. The TRS Board has ultimate authority over selection of the securities lending agent. The securities lending agent agrees to conduct the program with the skill and prudence of a professional securities lending agent and in accordance with applicable federal and state law. The remainder of the policy outlines the investment guidelines and restrictions in the collateral account including minimum collateral delivery and maintenance requirements and the types, credit quality, maturity, and interest rates requirements of investments in the account. As required by Section 825.303, Government Code, the lending agent is obligated to fully indemnify TRS against loss resulting from borrower default or the failure of the bank to properly execute its responsibilities under the securities lending agreement.

Based on a review of the securities lending program, we are not proposing any changes to the Securities Lending Policy at this time.

## Memo

To: **Board of Trustees, Teacher Retirement System of Texas**

From: Brady O'Connell, Steve Voss

Date: November 20<sup>th</sup>, 2013

Re: Review of Securities Lending and Soft Dollar Policies

### Summary

We spend a considerable amount of time with the Board reviewing TRS's Investment Policy Statement, and rightly so, this document governs the vast bulk of TRS's investment activities. Several ancillary policies are also reviewed regularly, but generally on a less frequent basis. We are comfortable reviewing these other policies less frequently, as changes are not as common as with the IPS. We would note, however, that should the need arise these policies could be revisited at any time.

While no changes are being proposed to the Securities Lending and Soft Dollar policies, we did have a few comments to share with the Board.

### Securities Lending Policy

The phrase below has been included in our reviews of securities lending policy in 2003, 2006, 2010, and we feel it is worth repeating yet again here.

*We view securities lending predominantly as a way to offset some of the plan's custody and other expenses, not as a source to add value to an investment program. The focus of a securities lending program should be on controlling risk, not maximizing returns. In an agency-based securities lending program, the agent participates in the returns, without any risk sharing.*

We believe securities lending programs should be conservative and the global financial crisis provided several examples of the risks inherent in certain aspects of these programs. We are comfortable with TRS continuing to lend securities under the policy as it currently stands but note that these programs should be very conservative in nature. The policy's Objections are very clearly stated in the policy that risks are to be controlled and the impact on the broader investment activities of TRS minimized while conservatively reinvesting collateral.

HEK has no recommendations for changes to the Securities Lending Policy at this time.

**Soft Dollar Policy**

Several modifications to this policy were put forth in 2012 and we do not see a need for further adjustments at this time. While we have expressed broad industry concerns about soft dollar practices in the past (they suggest inefficient resource allocation, potential for misuse), we note that TRS has taken steps to ensure soft dollars are not abused or misused. Section 3.3 describes the budgeting, accounting, controls, and reporting in place for the soft dollar program which will help ensure these assets are used to the further benefit of the investment program at TRS.

We are comfortable with the Soft Dollar Policy as it currently stands.



# SECURITIES LENDING POLICY

(rev. December 9, 2010)

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This Securities Lending Policy is adopted by the Board of Trustees of the Teacher Retirement System of Texas (the "Board") pursuant to section 825.303 of the Texas Government Code. The staff shall include the provisions of this Policy in any contract with a securities lending agent engaged to lend TRS securities under Tex. Gov't Code section 825.303.

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## 1. Objectives

The TRS securities lending program is designed to achieve the following objectives:

- 1.1.** Earn a competitive market return on securities lending through conservative securities lending practices, consistently with the preservation of capital.
- 1.2.** Minimize risk to a reasonable and acceptable level with respect to both the broker/borrower and the collateral.
- 1.3.** Operate the securities lending program so that it will not interfere with the management of the TRS portfolios.

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## 2. Controls

- 2.1.** The Executive Director will assure that the responsibilities for the securities lending program are appropriately allocated and implemented as between the Chief Investment Officer and the Chief Financial Officer.
- 2.2.** The Chief Investment Officer and his or her designated staff are responsible for implementing and monitoring the securities lending program to insure compliance with TRS policy and guidelines and restrictions by the lending agent(s). Such monitoring will include at least an annual review of the creditworthiness of the lending agent(s). The Chief Financial Officer is responsible for monitoring the program and providing accurate and timely accounting for the securities lending program.
- 2.3.** The Board will select the lending agent(s) that will perform the securities-lending function. The selection will be made in accordance with applicable statutory requirements and any other factors deemed appropriate pursuant to a competitive evaluation process and due diligence by the staff.
- 2.4.** Staff will negotiate and execute a contract with the lending agent(s) selected by the Board consistent with this policy and applicable law.

**2.5** The lending agent(s) selected by the Board shall agree to conduct securities lending activities pursuant to the following minimum requirements. Only the Board may determine whether to waive any such requirement.

**2.5.1** The lending agent will not take actions that would cause TRS to engage in a non-exempt transaction prohibited by section 503 of the Internal Revenue Code ("Code").

**2.5.2** The lending agent shall assist TRS staff to monitor the creditworthiness of all borrowers and shall obtain the most recent audited statement of a borrower's financial condition (or the most recent unaudited statement, if more recent) as part of this process.

**2.5.3** The lending agent shall perform its responsibilities in a manner consistent with that of a professional securities lending agent with the care, skill prudence and diligence under the circumstances then prevailing that a professional securities lending agent acting in like capacity and familiar with such matters would use, all in accordance with applicable federal and state laws.

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### 3. Guidelines

The TRS securities lending program will include the following types of loan collateral, short-term cash collateral investments, and loan terms:

- 3.1. Securities eligible for lending.** Domestic and international equity and fixed income securities held by a bank custodian may be loaned. TRS securities held by a prime broker are not eligible for securities lending by the prime broker.
- 3.2. Compliance monitoring.** Except as specifically provided in these guidelines with respect to maintaining the required market value of collateral for loaned securities, compliance with these guidelines shall be determined as of the time of the investment of cash collateral.
- 3.3. Collateral received.** Collateral received from borrowers should be delivered in the form of cash or government securities eligible for book entry in either the Federal Reserve System or the Participants Trust Company, or their respective successors.
- 3.4. Cash collateral collective investments authorized.** Cash collateral may be invested in (a) any collective trust fund the assets of which are invested in compliance with these guidelines, is qualified for exemption from taxation under Internal Revenue Service Ruling 81-100, 1981-1 C.B. 326, or any successor ruling, regulation or similar pronouncement (the "qualified trust fund exemption"), and of which the current TRS bank custodian or securities lending agent is the trustee; or (b) if approved by the Chief Investment Officer, (1) any open-ended money market mutual fund managed by a registered investment advisor or (2) any short-term money market investment collective trust fund that has the qualified trust fund exemption and of which the current TRS bank custodian or securities lending agent is the trustee. No more than 10% of cash collateral may be invested in funds authorized in subsection (b)(2) of the preceding sentence.
- 3.5. Cash collateral authorized portfolio investments.** All investments of cash collateral must be denominated in U.S. dollars. When the borrower of a TRS security delivers cash collateral to secure its obligations to redeliver the borrowed security, such cash collateral shall be invested only in the following types of instruments in accordance with these guidelines:

- 3.5.1 U.S. Government Securities and GSE Securities.
- 3.5.2 Money market instruments including but not limited to commercial paper, master notes, time deposits, bank certificates of deposit and bankers' acceptances.
- 3.5.3 Repurchase agreement, either deliverable or triparty, that are fully collateralized by collateral determined by the lending agent consistently with its established practices and in its reasonable discretion, which collateral may include, but not be limited to, any of the following: U.S. Treasuries, U.S. Treasury STRIPS, Federal Agency Obligations, Mortgage Backed Securities, Agency REMICS/CMOs, Commercial Paper, Corporates, Asset Backed Securities, Equities, Whole Loans, or any combination thereof. The lending agent shall notify TRS when other types of collateral are used. The market value of collateral received under any repurchase agreement must exceed the market value of the cash distributed by a margin of not less than two percent.
- 3.5.4 Fixed or floating rate debt obligations, including, but not limited to, automobile loans (including dealer inventory financing), credit card receivables, student loans, home equity, and residential and commercial mortgage issues. Any floating rate obligation must meet the following criteria:
  - 3.5.4.1 Interest must be based upon a coupon formula that resets at least quarterly.
  - 3.5.4.2 The coupon formula must be tied to one of the following: the Federal Funds Effective Rate, the U.S. prime lending rate, the three-month U.S. Treasury Bill rate, the one- or three-month London Interbank Offered Rate (LIBOR), or a published composite index for interest rates on commercial paper or certificates of deposit.
  - 3.5.4.3 The coupon formula must be based upon a constant spread relationship between the security coupon rate and the reference rate. Step-up or -down floaters are permitted. Prohibited floaters include, but are not limited to, complex derivative structures such as inverse floating rate notes, and defined range floating rate notes. No investment may be made in any instrument for which a negative coupon interest rate is possible. Zero coupon securities such as commercial paper, short term discount notes, original issue discount notes, and Treasury bills purchased at prevailing market yields are acceptable for purchase.
- 3.5.5 All other fixed and floating rate obligations, including but not limited to, corporate and medium term notes.
- 3.5.6 Derivative instruments, including but not limited to, futures contracts and options on futures, interest rate swaps, credit default swaps, total return swaps, and options on securities and securities indices. No individual derivative instrument may exceed applicable guideline limits, and no derivative exposure, either individually or in the aggregate, may cause the collateral fund to exceed applicable guideline limits. All derivatives exposure shall be measured on a net basis.

**3.6. Maturity limits for individual cash collateral investments.**

- 3.6.1 At the time of purchase, the expected final maturity of any individual fixed-rate instrument (expected weighted-average life in the case of amortizing fixed-rate investments) may not exceed 36 months.
- 3.6.2 At the time of purchase, the expected final maturity of any individual floating-rate instrument (expected weighted-average life in the case of amortizing floating-rate investments) may not exceed seven years.

**3.7. Portfolio maturity limits for cash collateral investments.**

**3.7.1** The par value, dollar-weighted average maturity of the collective cash collateral investment portfolio may not exceed 120 days. For purposes of this calculation, the maturity of any floating rate obligation may be considered the remaining time to the instrument's next coupon reset. Additionally, for the purpose of this calculation, the weighted-average life of any amortizing, fixed-rate obligation may be substituted for the instrument's maturity.

**3.8. Minimum credit quality ratings for individual cash collateral investments.**

**3.8.1** Each instrument having a maturity at the time of purchase of less than 13 months must qualify as "first tier securities" within Rule 2a-7 under the Investment Company Act of 1940.

**3.8.2** Each instrument having a maturity at the time of purchase greater than 13 months must be rated at the time of purchase within the highest major, long-term rating category of an NRSRO (e.g., Moody's A3 or Standard & Poor's A-), or, if unrated, be determined to be of comparable quality by the collective trust fund's trustee.

**3.9. Downgraded Securities.** If, subsequent to purchase, a security is downgraded by an NRSRO such that the security no longer meets the minimum rating requirements prescribed in Section 8 above, the securities lending agent shall inform one or more of the TRS Chief Investment Officer, Deputy Chief Investment Officer, or Director of Risk Management of the downgrade in writing or through electronic transmittal within 72 hours of the action. Upon receipt of such a notice, the Director of Risk Management, or his or her designee, will conduct a review of the downgraded security and submit a recommended action to the CIO or the Deputy CIO within 72 hours of the receipt of written notice from the securities lending agent. Within 48 hours of the receipt of this recommendation, the CIO or his or her designee will instruct the securities lending agent as to how to administer the downgraded security.

**3.10. Initial collateral; marking to market.** Loaned securities and initial collateral delivered by the borrower of TRS securities shall be marked to current market value at the close of each business day, as "business day" may be defined in an applicable securities lending authorization agreement between TRS and the securities lending agent.

**3.10.1 Domestic securities.** For purposes of this policy, domestic securities are securities denominated in U.S. dollars and whose primary trading markets are in the United States. The initial collateral delivered to secure a loan of domestic securities must have a market value of at least 102% of the initial market value of the loaned securities. If, while the loan is outstanding, the current market value of the collateral initially delivered by the borrower is less than 100% of the current market value of the loaned securities, the securities lending agent must require the borrower to deliver additional collateral to restore the value of the collateral to 102% of the market value of the loaned securities.

**3.10.2 International securities.** For purposes of this policy, international securities are securities not denominated in U.S. dollars or whose primary trading markets are not in the United States. The initial collateral delivered to secure a loan of international securities must have a market value of at least 105% of the initial market value of the loaned securities. If, while the loan is outstanding, the current market value of the collateral initially delivered by the borrower is less than 105% of the current market value of the loaned securities, the securities lending agent must require the borrower to

deliver additional collateral to restore the market value of the collateral to 105% of the current market value of the loaned securities.

**3.10.3 Invested cash collateral.** When cash collateral is invested for the account of TRS, the borrower is not required to deliver additional collateral based on a drop in the market value of such investments except as provided in the applicable securities loan agreement.

**3.11.** Loans must be callable by TRS or the lending agent so as to make timely delivery on the applicable trade settlement date if the loaned security is sold by a TRS portfolio. Any term loans that are not callable must be approved in advance by the Chief Investment Officer or his or her designee.

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## 4. Restrictions

4.1. Collectively, the maturity limits established for individual securities and the weighted average limits for the entire cash collateral portfolio, as specified in paragraphs 3.6.1 and 3.6.2, respectively, coupled with the parameters defined for floating rate securities in paragraph 3.5.4, are intended to control the market-value sensitivity of the portfolio to overall changes in interest rates. In addition to these parameters, the cash collateral portfolio will be constructed in a manner that will limit the sensitivity of the fair market value of the portfolio to changes in interest rates as follows:

**4.1.1.** "Change in interest rates" is defined as an instantaneous, parallel shift in yield curves affecting the entire term structure of interest rates, as indicated by the yields on U.S. Treasury securities, and the interest rate indices referenced in paragraph 3.5.4.2.

**4.1.2.** The fair market value sensitivity of the portfolio and individual investments will be calculated as the percentage change in the fair market value of the portfolio or investment per 1 basis point change in interest rates paid per annum. Additionally, the fair market value sensitivity limit will be applied to changes in interest rates of any and every magnitude (i.e., the ratio of the percentage change in the fair market value of the portfolio to a 1 basis point change in interest rates must remain within the specified limits if interest rates change by any amount).

**4.1.3.** The fair market value of the portfolio must not decline by more than .0035 percent per 1 basis point change in interest rates.

4.2. The maximum market value of TRS securities on loan at any one time shall not exceed 30% of the market value of the total TRS investment portfolio.

4.3. No mortgages or mortgage-backed securities may be loaned in "dollar roll" transactions in which the identical borrowed securities are not returned to TRS.

4.4. On at least an annual basis, the lending agent will furnish a list of potential borrowers and corresponding dollar loan limits. The Chief Investment Officer or his/her designee has the discretion to remove any name from the potential borrower list and may obtain an updated list of potential borrowers on request.

4.5. Securities lending agreements entered into by the securities lending agent will be covered by written contracts consistent with this policy and applicable law.

4.6. Diversification requirements.

- 4.6.1** No more than 10% of total cash collateral investments may be made in issues of any one non-governmental entity. There are no concentration limits for U.S. Treasury and Agency securities. The single counterparty exposure on a repurchase agreement may not exceed 5% of the total cash collateral account unless those transactions are covered by an indemnification agreement that is sponsored by an organization that bears a long-term NRSRO rating of A- or better and is enhanced by acceptable collateral as specified by section 5.3 of the guidelines. For purposes of this requirement, counterparty includes the counterparty's subsidiaries.
- 4.6.2** Exclusive of approved money market funds, no more than 40% of cash collateral investments may be made in asset-backed commercial paper.
- 4.6.3** Exclusive of approved money market funds, no more than 50% of cash collateral investments may be made in foreign debt obligations.
- 4.7.** Investments in structured notes are prohibited with the exception of those listed in Section 3.5 of the guidelines.

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## 5. Reports

Staff will review the progress of the securities lending program, including an overall evaluation of the performance of the lender(s) and the program, with the Risk Committee of the Board of Trustees at least annually. This review will include a written report on the lending volume, income generated, and the most-recent maximum broker loan limits.

**Tab 7 E**



## Legal Services

# Memorandum

**DATE:** December 2, 2013

**TO:** Policy Committee of the Board of Trustees

**FROM:** Carolina de Onís, General Counsel  
Timothy P. Wei, Assistant General Counsel

**COPY:** Board of Trustees  
Steven Huff, Fiduciary Counsel

**RE:** Proposed Changes to the Trustee Ethics Policy

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In the last legislative session, the Legislature amended TRS' ethics statute, Gov't Code § 825.212. The new legislation affected the Trustee Ethics Policy, in particular limitations on Trustees' personal investments. Attached please find a red-lined version of proposed changes to the Trustee Ethics Policy (Exhibit A), a clean copy of the Policy with proposed revisions (Exhibit B), and a Board resolution adopting the revised Policy (Exhibit C).

The proposed revisions implement changes made possible by the new legislation. They also harmonize the gift restrictions under the Trustee Ethics Policy with those imposed on employees under the Employee Ethics Policy.

Legal Services worked closely with fiduciary counsel in preparing the proposed revisions to the Trustee Ethics Policy. IMD and Internal Audit were provided drafts of the revisions and the opportunity to comment upon them.

# Exhibit A

# Teacher Retirement System of Texas

## Board of Trustees

### Ethics Policy

Adopted December 8, 2011; Revised December \_\_\_\_\_, 2013

The Board of Trustees of the Teacher Retirement System of Texas (TRS) has adopted this Ethics Policy so that high ethical standards are followed by the TRS Board of Trustees. This Policy is based upon the duty of loyalty that all Trustees, as fiduciaries, owe to the members and retirees of TRS. This Policy also affirms the Board's commitment to fairness, openness, and transparency in its operations. It is important to the Board that it preserves the confidence of the membership, the employers, government officials, and the general public by avoiding even the appearance of impropriety.

Every Trustee has not only the obligation to follow the provisions of the Texas State Constitution, Texas statutes, and federal law applicable to TRS but also has the obligation to adhere to and promote high ethical principles, including those set forth below.

- Act solely in the best interest of the fund and the TRS members, retirees, and beneficiaries.
- Act with prudence, competence, independence, and objectivity.
- Adhere to laws, rules, regulations, bylaws, and policies adopted by the Board in overseeing investments, pension and healthcare benefits administration, and general operations of TRS.
- Act in a transparent manner in Board and Committee meetings when deliberations of official business take place.
- Maintain confidentiality when required to do so by law or by contract.
- Cooperate fully if questioned about an ethical matter related to TRS.

This Ethics Policy is a guide, not a complete statement of all fiduciary responsibilities; therefore, compliance with this Policy does not necessarily ensure compliance with all legal requirements. The provisions below are to aid Trustees in identifying conflicts of interest, avoiding them, disclosing them in a proper way, and managing them if they cannot be avoided. A "conflict of interest" is where a Trustee has, or reasonably could be perceived to have, an incentive to decide a matter or provide a recommendation for a reason that would be inconsistent with acting solely in the interest of TRS, or that would provide a financial benefit to the Trustee. It also includes a personal or business relationship or interest that could reasonably be expected to diminish the Trustee's independence of judgment in the performance of the Trustee's responsibilities to TRS. The provisions are also meant to assist Trustees in identifying prohibited conduct and circumstances that cannot be managed through disclosure or recusal from voting on issues.

This Policy applies only to the Board, and the TRS staff has a separate ethics policy applicable to them.

#### **1. PERSONAL ADVANTAGE**

Trustees ~~will~~shall not use their position on the Board for financial gain, obtaining privileges, avoiding the consequences of illegal acts, or for obtaining more favorable terms on loans, investments, or TRS benefits that are not available to others. This prohibition applies whether the Trustees seek a personal advantage or gain for themselves or for a third party.

#### **2. GIFTS**

A Trustee shall not solicit or accept any gifts (e.g., objects, services, favors, entertainment, preferential treatment, vacations, or property) from any donor, except as provided below. Such gifts cannot be accepted by Trustees for themselves or for their families or business partners. While this standard ~~is~~may be stricter than what is required by law, the Board has decided it is best practice to place limitations on gifts.

The following are allowed under this Policy as long as the Trustee is not influenced by the gift or does not have knowledge that it was offered with intent to influence the Trustee in the discharge of the Trustee's official duties to TRS:

- Gifts conferred on account of kinship or a personal, professional, or business relationship independent of the official status of the Trustee;
- Gifts having a value of less than \$50 (but in no event cash, negotiable instruments, or cash equivalents such as gift cards), including the following examples:
  - Tokens of nominal value that are distributed to all attendees at conferences, seminars, meetings, and receptions;
  - Meals, transportation, lodging, or entertainment, regardless of whether the donor is present;
  - Modest food items and other perishable items given on a holiday or other infrequent occasions;
- ~~Ground transportation~~ Transportation valued at \$50 or more, ~~if provided by~~ in connection with a business meeting, business meal, business conference or reception that serves a TRS vendors who are in good standing or by an existing general partner or representative of a private investment fund in which TRS has an existing investment, as long as purpose and the vendor, general partner, or representative of the fund ~~donor~~ is present at the meeting, meal, conference or reception;
- Meals valued at \$50 or more, ~~if provided by TRS vendors who are in good standing and who are~~ in connection with a business meeting, business meal, business conference or reception, and the donor is present;
- Lodging valued at \$50 or more, if provided in connection with a business meeting, business meal, business conference or reception that serves a TRS purpose and the donor is present at the meeting, meal, conference or reception.
- Gifts given on special occasions between Trustees or between Trustees and TRS employees;
- Food and entertainment included in the conference or seminar fee;
- Travel expenses paid for by another governmental entity or a non-profit organization related to the public retirement industry, provided there are no prohibitive circumstances as determined after consultation pursuant to Section 11~~3~~.

To avoid not only improper conduct but also the appearance of impropriety, Trustees should consider whether the circumstances associated with an expense payment or a courtesy by another would draw unfavorable public criticism. If this appears to be the case, Trustees should modify their behavior even if their acceptance of an expense payment, a courtesy, or gift is otherwise allowed.

### **3. USE OF TRS RESOURCES**

Trustees shall not use TRS facilities, equipment, or staff for their personal benefit or for any commercial or political purposes. Trustees may use TRS resources that are reasonably necessary to support them in their role on the Board or that facilitate their attendance at Board meetings, if the use of TRS resources involves only an insignificant cost, does not impede TRS business, and does not create an appearance of impropriety.

### **4. PERSONAL INVESTMENTS**

Trustees shall take care that their personal investments do not create a conflict of interest that impacts their loyalty to TRS and their ability to function as a Trustee. While serving on the TRS Board, Trustees, their spouses, and dependents shall not make personal investments ("co-invest"), directly or indirectly, in private investment funds in which TRS has invested. ~~If~~ However, a Trustee becomes aware that such, a co-investment Trustee's spouse or dependent may continue to hold an investment in a private investment fund if the investment was held prior to TRS' investment or prior to the date the individual became a Trustee. If a Trustee becomes aware that any co-investment, or potential co-investment, exists, the Trustee shall disclose the investment and date of purchase to the Executive Director. If a Trustee becomes aware that TRS is considering an investment in a private investment fund in which the Trustee, or the Trustee's spouse or dependent already has invested, in accordance with the procedure set forth in

Section 9. The Trustee shall ~~notify~~ not receive any non-public or confidential information from TRS related to the Executive Director promptly. ~~co-investment unless the Board provides a waiver as set forth in Section 9.~~ A Trustee shall not make a new personal investment in a private investment fund if TRS has informed the Trustee that TRS is considering investing in the fund.

In addition, Trustees, their spouses, and dependents may ~~not~~ hold direct ownership interests (e.g., stock or partnership interests) in entities that contract with TRS, provided that the ownership interest arose prior to the individual becoming a Trustee or prior to the entity becoming a TRS contractor. A Trustee who holds the foregoing preexisting investments must disclose his or her interest in accordance with the procedure set forth in Section 9. In addition, a Trustee who holds the foregoing preexisting investments must disclose and recuse him- or herself from (1) discussions and decisions involving contracts or potential contracts with contractors in which the Trustee holds such interests and (2) discussions and decisions involving delegations to, or selection of, staff assigned to award or negotiate contracts or potential contracts with contractors in which the Trustee holds such interests. The Trustee shall not receive any non-public or confidential information from TRS related to the contract or potential contract unless the Board provides a waiver as set forth in Section 9. Notwithstanding the above, a Trustee is ineligible, and must resign, if the Trustee or the Trustee's spouse owns or controls, directly or indirectly, more than a 10% interest in a business entity or other organization receiving funds from TRS. TRS will furnish to the Trustees a list of its contractors from time to time. Mutual funds ~~and~~ exchange-traded funds and other similar funds are not affected by this ~~prohibition.~~ provision.

Although the Board has largely delegated the selection of investment managers and securities to the staff, Trustees should not use their personal knowledge of upcoming TRS investments or material developments regarding TRS investments, about which the general public is not aware, for the financial gain of themselves or their family, business associates, or friends.

#### **5. REFERRALS**

If approached by persons seeking to do business with TRS, Trustees shall make a referral and any follow up inquiries to the Executive Director or, for investment matters, to the Chief Investment Officer. The Executive Director shall inform the other Trustees of any follow-up communications made by a referring Board member if they are repetitive or otherwise create concerns.

#### **6. BLACKOUT PERIODS**

Decisions made by the Board are to be free from improper or undisclosed influence. From time to time, in the ordinary course of business, TRS will issue requests for proposals, information or qualifications (RFPs, RFIs, and RFQs) for goods and services. If the request is one that involves a decision by the Board or a recommendation of a Board Committee, Trustees shall not privately communicate or meet with potential vendors on the subject of the request during the procurement period. Similarly, if the Board is considering an investment in a private investment fund, Trustees shall not privately communicate or meet with representatives of the investment opportunity on the subject of the investment during the decision-making period. Obvious exceptions to this are communications and meetings the Board or a Committee participates in as part of due diligence in the selection process. Notice will be provided by the Executive Director to Trustees regarding the applicable procurement period or the decision-making period in accordance with procedures developed by the Executive Director.

#### **7. HONESTY**

In their role on the TRS Board, Trustees ~~will~~ shall conduct themselves with utmost honesty and not intentionally provide false or misleading information or intentionally conceal information that should be disclosed.

## 8. DISCLOSURES

Before the Board or a Board Committee discusses a matter where a Trustee has, or is likely to have, a conflict of interest, the Trustee is to disclose any conflict of interest or potential conflict to the Executive Director. Potential conflicts could arise from such things as a Trustee's, spouse's, or dependent's:

- Business relationships or interests;
- Campaign contributions or solicitations;
- Ownership or financial interests;
- Family relationships;
- Close personal friendships;
- Employment by a TRS business vendor.

The Executive Director, in consultation with legal counsel, will assist the Trustee in determining whether a conflict exists and whether further disclosure is required.

Trustees are also to disclose to the Executive Director the financial information as required by state law, any legal proceedings they are involved with that affects or could impact their ability to serve on the Board, and matters relating to co-fiduciary responsibility.

## 9. RECUSALS AND CURING CONFLICTS OF INTEREST

Trustees should make reasonable efforts to avoid conflicts of interest and appearances of conflicts of interest. If a conflict cannot be avoided, a Trustee should attempt to cure the conflict. If a conflict cannot be cured, a Trustee with a conflict of interest ~~must~~ shall comply with one of the following procedures.

### Standard Procedure

- Disclose the conflict of interest to the Executive Director.
- If the source of the Trustee's conflict is to be discussed at a meeting, disclose the conflict at an open meeting and recuse him- or herself from discussing or voting on the matter.

### Optional Waiver Request

- Disclose the conflict of interest to the Executive Director.
- If the source of the Trustee's conflict is to be discussed at a meeting, request the Board of Trustees to waive the conflict at an open meeting. In determining whether to waive the conflict, the non-conflicted Trustees shall consider at a minimum the following factors, as applicable:
  - The number of Trustees with the conflict;
  - The nature of the conflict;
  - The materiality of the conflict; and
  - Whether the Trustee has a personal or private interest, as defined in Texas Government Code section 572.058, in the measure, proposal or decision pending before the Board.

If the non-conflicted Trustees determine the Trustee has a personal or private interest, the conflict may not be waived and the conflicted Trustee must recuse him- or herself according to the Standard Procedure.

Upon a Trustee's disclosure of a conflict of interest, the conflicted Trustee shall not receive any non-public or confidential information from TRS on that matter that gave rise to the conflict, unless the non-conflicted Trustees have voted to waive the conflict for that individual.

In some instances, however, recusal or waiver is not sufficient to avoid violations of law. For example, recusal or waiver does not cure a violation of Texas conflict of interest law that results from (1)-a gift, (2)-employment or compensation, or (3)-a personal investment that might reasonably be expected to affect the ~~Trustee's~~ Trustee's independence of judgment in the performance of TRS duties. Similarly,

recusal or waiver does not cure a violation of Texas conflict of interest law that results from having accepted employment that a Trustee might reasonably expect would require or induce the Trustee to disclose TRS' TRS' confidential information. Trustees may ask the Executive Director or General Counsel for guidance on these matters.

#### **10. ADVICE ABOUT THE ETHICS POLICY**

The Board recognizes that, at times, ethical issues might fall into a "gray" area where the acceptable ethical conduct is not obvious. In such circumstances, Trustees are to seek advice from the Executive Director, General Counsel or fiduciary counsel and, based on this advice, use their best judgment to uphold the highest ethical standards of behavior.

#### **11. EVENTS THAT MAY MERIT LEGAL CONSULTATION**

This Policy reflects general ethical principles and does not attempt to cover every conceivable situation where a Trustee may face an ethical dilemma or violate a law that could result in civil damages or criminal prosecution (see, e.g., Texas Government Code Chapters 572, 825, and 2203; and Texas Penal Code Chapters 36 and 39). Therefore, in addition to the specific circumstances that are covered in other sections of this Policy, the following checklist sets forth common events that might merit consultation with the TRS General Counsel or outside fiduciary counsel.

- Change in employment of yourself or spouse.
- Change in your marital status.
- Children become employed by someone doing business or likely to do business with TRS.
- A family member is considering employment at TRS.
- Sale of all or a part of your business.
- Start of a new business.
- Being asked to serve in another governmental office.
- Being contacted about litigation involving TRS.
- Information about an alleged violation of law or ethics.
- Request from third parties for favors, accommodations, or disclosure of information.
- A benefit or gift from a TRS vendor, potential vendor, or member.
- An invitation to speak on behalf of TRS at a conference, meeting, or seminar.
- Someone offers to pay or waive your expenses in connection with a conference or meeting.

#### **12. CO-FIDUCIARY RESPONSIBILITY**

If a Trustee is aware of illegal activity, a breach of fiduciary duty by another Trustee or by someone else serving as a fiduciary to TRS, or a violation of this Policy, the Trustee ~~is to~~ promptly disclose such activity or breach to the Executive Director and the Chair of the Ethics Committee of the Board. No retaliatory action will be taken toward any individual who, in good faith, makes a report or takes action in response to a violation or suspected violation of applicable ethical laws, standards, or policies.

#### **13. TRAINING AND ANNUAL ACKNOWLEDGEMENT**

Annually, every Trustee shall attend ethics training provided by TRS and acknowledge in writing that he or she understands the Ethics Policy, has abided by it, and will abide by it. New Trustees are to make this written acknowledgment when they take office.

#### **14. CONSEQUENCES FOR VIOLATIONS**

For Trustees who violate this Ethics Policy, the Board may impose sanctions including public reprimand, removal from service on Committees, censure, requests for resignation from the Board, or other appropriate parliamentary measures.

## Exhibit B

# Teacher Retirement System of Texas Board of Trustees Ethics Policy

Adopted December 8, 2011; Revised December \_\_\_\_\_, 2013

The Board of Trustees of the Teacher Retirement System of Texas (TRS) has adopted this Ethics Policy so that high ethical standards are followed by the TRS Board of Trustees. This Policy is based upon the duty of loyalty that all Trustees, as fiduciaries, owe to the members and retirees of TRS. This Policy also affirms the Board's commitment to fairness, openness, and transparency in its operations. It is important to the Board that it preserves the confidence of the membership, the employers, government officials, and the general public by avoiding even the appearance of impropriety.

Every Trustee has not only the obligation to follow the provisions of the Texas State Constitution, Texas statutes, and federal law applicable to TRS but also has the obligation to adhere to and promote high ethical principles, including those set forth below.

- Act solely in the best interest of the fund and the TRS members, retirees, and beneficiaries.
- Act with prudence, competence, independence, and objectivity.
- Adhere to laws, rules, regulations, bylaws, and policies adopted by the Board in overseeing investments, pension and healthcare benefits administration, and general operations of TRS.
- Act in a transparent manner in Board and Committee meetings when deliberations of official business take place.
- Maintain confidentiality when required to do so by law or by contract.
- Cooperate fully if questioned about an ethical matter related to TRS.

This Ethics Policy is a guide, not a complete statement of all fiduciary responsibilities; therefore, compliance with this Policy does not necessarily ensure compliance with all legal requirements. The provisions below are to aid Trustees in identifying conflicts of interest, avoiding them, disclosing them in a proper way, and managing them if they cannot be avoided. A "conflict of interest" is where a Trustee has, or reasonably could be perceived to have, an incentive to decide a matter or provide a recommendation for a reason that would be inconsistent with acting solely in the interest of TRS, or that would provide a financial benefit to the Trustee. It also includes a personal or business relationship or interest that could reasonably be expected to diminish the Trustee's independence of judgment in the performance of the Trustee's responsibilities to TRS. The provisions are also meant to assist Trustees in identifying prohibited conduct and circumstances that cannot be managed through disclosure or recusal from voting on issues.

This Policy applies only to the Board, and the TRS staff has a separate ethics policy applicable to them.

## **1. PERSONAL ADVANTAGE**

Trustees shall not use their position on the Board for financial gain, obtaining privileges, avoiding the consequences of illegal acts, or for obtaining more favorable terms on loans, investments, or TRS benefits that are not available to others. This prohibition applies whether the Trustees seek a personal advantage or gain for themselves or for a third party.

## **2. GIFTS**

A Trustee shall not solicit or accept any gifts (*e.g.*, objects, services, favors, entertainment, preferential treatment, vacations, or property) from any donor, except as provided below. Such gifts cannot be accepted by Trustees for themselves or for their families or business partners. While this standard may be stricter than what is required by law, the Board has decided it is best practice to place limitations on gifts.

The following are allowed under this Policy as long as the Trustee is not influenced by the gift or does not have knowledge that it was offered with intent to influence the Trustee in the discharge of the Trustee's official duties to TRS:

- Gifts conferred on account of kinship or a personal, professional, or business relationship independent of the official status of the Trustee;
- Gifts having a value of less than \$50 (but in no event cash, negotiable instruments, or cash equivalents such as gift cards), including the following examples:
  - Tokens of nominal value that are distributed to all attendees at conferences, seminars, meetings, and receptions;
  - Meals, transportation, lodging, or entertainment, regardless of whether the donor is present;
  - Modest food items and other perishable items given on a holiday or other infrequent occasions;
- Transportation valued at \$50 or more if provided in connection with a business meeting, business meal, business conference or reception that serves a TRS purpose and the donor is present at the meeting, meal, conference or reception;
- Meals valued at \$50 or more, if provided in connection with a business meeting, business meal, business conference or reception, and the donor is present;
- Lodging valued at \$50 or more, if provided in connection with a business meeting, business meal, business conference or reception that serves a TRS purpose and the donor is present at the meeting, meal, conference or reception.
- Gifts given on special occasions between Trustees or between Trustees and TRS employees;
- Food and entertainment included in the conference or seminar fee;
- Travel expenses paid for by another governmental entity or a non-profit organization related to the public retirement industry, provided there are no prohibitive circumstances as determined after consultation pursuant to Section 11.

To avoid not only improper conduct but also the appearance of impropriety, Trustees should consider whether the circumstances associated with an expense payment or a courtesy by another would draw unfavorable public criticism. If this appears to be the case, Trustees should modify their behavior even if their acceptance of an expense payment, a courtesy, or gift is otherwise allowed.

### **3. USE OF TRS RESOURCES**

Trustees shall not use TRS facilities, equipment, or staff for their personal benefit or for any commercial or political purposes. Trustees may use TRS resources that are reasonably necessary to support them in their role on the Board or that facilitate their attendance at Board meetings, if the use of TRS resources involves only an insignificant cost, does not impede TRS business, and does not create an appearance of impropriety.

### **4. PERSONAL INVESTMENTS**

Trustees shall take care that their personal investments do not create a conflict of interest that impacts their loyalty to TRS and their ability to function as a Trustee. While serving on the TRS Board, Trustees, their spouses, and dependents shall not make personal investments ("co-invest"), directly or indirectly, in private investment funds in which TRS has invested. However, a Trustee, a Trustee's spouse or dependent may continue to hold an investment in a private investment fund if the investment was held prior to TRS' investment or prior to the date the individual became a Trustee. If a Trustee becomes aware that any co-investment, or potential co-investment, exists, the Trustee shall disclose the investment and date of purchase in accordance with the procedure set forth in Section 9. The Trustee shall not receive any non-public or confidential information from TRS related to the co-investment unless the Board provides a waiver as set forth in Section 9. A Trustee shall not make a new personal investment in a private investment fund if TRS has informed the Trustee that TRS is considering investing in the fund.

Trustees, their spouses, and dependents may hold direct ownership interests (e.g., stock or partnership interests) in entities that contract with TRS, provided that the ownership interest arose prior to the

individual becoming a Trustee or prior to the entity becoming a TRS contractor. A Trustee who holds the foregoing preexisting investments must disclose his or her interest in accordance with the procedure set forth in Section 9. In addition, a Trustee who holds the foregoing preexisting investments must disclose and recuse him- or herself from (1) discussions and decisions involving contracts or potential contracts with contractors in which the Trustee holds such interests and (2) discussions and decisions involving delegations to, or selection of, staff assigned to award or negotiate contracts or potential contracts with contractors in which the Trustee holds such interests. The Trustee shall not receive any non-public or confidential information from TRS related to the contract or potential contract unless the Board provides a waiver as set forth in Section 9. Notwithstanding the above, a Trustee is ineligible, and must resign, if the Trustee or the Trustee's spouse owns or controls, directly or indirectly, more than a 10% interest in a business entity or other organization receiving funds from TRS. TRS will furnish to the Trustees a list of its contractors from time to time. Mutual funds, exchange traded funds and other similar funds are not affected by this provision.

Although the Board has largely delegated the selection of investment managers and securities to the staff, Trustees should not use their personal knowledge of upcoming TRS investments or material developments regarding TRS investments, about which the general public is not aware, for the financial gain of themselves or their family, business associates, or friends.

#### **5. REFERRALS**

If approached by persons seeking to do business with TRS, Trustees shall make a referral and any follow up inquiries to the Executive Director or, for investment matters, to the Chief Investment Officer. The Executive Director shall inform the other Trustees of any follow-up communications made by a referring Board member if they are repetitive or otherwise create concerns.

#### **6. BLACKOUT PERIODS**

Decisions made by the Board are to be free from improper or undisclosed influence. From time to time, in the ordinary course of business, TRS will issue requests for proposals, information or qualifications (RFPs, RFIs, and RFQs) for goods and services. If the request is one that involves a decision by the Board or a recommendation of a Board Committee, Trustees shall not privately communicate or meet with potential vendors on the subject of the request during the procurement period. Similarly, if the Board is considering an investment in a private investment fund, Trustees shall not privately communicate or meet with representatives of the investment opportunity on the subject of the investment during the decision-making period. Obvious exceptions to this are communications and meetings the Board or a Committee participates in as part of due diligence in the selection process. Notice will be provided by the Executive Director to Trustees regarding the applicable procurement period or the decision-making period in accordance with procedures developed by the Executive Director.

#### **7. HONESTY**

In their role on the TRS Board, Trustees shall conduct themselves with utmost honesty and not intentionally provide false or misleading information or intentionally conceal information that should be disclosed.

#### **8. DISCLOSURES**

Before the Board or a Board Committee discusses a matter where a Trustee has, or is likely to have, a conflict of interest, the Trustee is to disclose any conflict of interest or potential conflict to the Executive Director. Potential conflicts could arise from such things as a Trustee's, spouse's, or dependent's:

- Business relationships or interests;
- Campaign contributions or solicitations;
- Ownership or financial interests;
- Family relationships;
- Close personal friendships;
- Employment by a TRS business vendor.

The Executive Director, in consultation with legal counsel, will assist the Trustee in determining whether a conflict exists and whether further disclosure is required.

Trustees are also to disclose to the Executive Director the financial information as required by state law, any legal proceedings they are involved with that affects or could impact their ability to serve on the Board, and matters relating to co-fiduciary responsibility.

## **9. CURING CONFLICTS OF INTEREST**

Trustees should make reasonable efforts to avoid conflicts of interest and appearances of conflicts of interest. If a conflict cannot be avoided, a Trustee should attempt to cure the conflict. If a conflict cannot be cured, a Trustee with a conflict of interest shall comply with one of the following procedures.

### Standard Procedure

- Disclose the conflict of interest to the Executive Director.
- If the source of the Trustee's conflict is to be discussed at a meeting, disclose the conflict at an open meeting and recuse him- or herself from discussing or voting on the matter.

### Optional Waiver Request

- Disclose the conflict of interest to the Executive Director.
- If the source of the Trustee's conflict is to be discussed at a meeting, request the Board of Trustees to waive the conflict at an open meeting. In determining whether to waive the conflict, the non-conflicted Trustees shall consider at a minimum the following factors, as applicable:
  - The number of Trustees with the conflict;
  - The nature of the conflict;
  - The materiality of the conflict; and
  - Whether the Trustee has a personal or private interest, as defined in Texas Government Code section 572.058, in the measure, proposal or decision pending before the Board.

If the non-conflicted Trustees determine the Trustee has a personal or private interest, the conflict may not be waived and the conflicted Trustee must recuse him- or herself according to the Standard Procedure.

Upon a Trustee's disclosure of a conflict of interest, the conflicted Trustee shall not receive any non-public or confidential information from TRS on that matter that gave rise to the conflict, unless the non-conflicted Trustees have voted to waive the conflict for that individual.

In some instances, however, recusal or waiver is not sufficient to avoid violations of law. For example, recusal or waiver does not cure a violation of Texas conflict of interest law that results from (1) a gift, (2) employment or compensation, or (3) a personal investment that might reasonably be expected to affect the Trustee's independence of judgment in the performance of TRS duties. Similarly, recusal or waiver does not cure a violation of Texas conflict of interest law that results from having accepted employment that a Trustee might reasonably expect would require or induce the Trustee to disclose TRS' confidential information. Trustees may ask the Executive Director or General Counsel for guidance on these matters.

## **10. ADVICE ABOUT THE ETHICS POLICY**

The Board recognizes that, at times, ethical issues might fall into a "gray" area where the acceptable ethical conduct is not obvious. In such circumstances, Trustees are to seek advice from the Executive Director, General Counsel or fiduciary counsel and, based on this advice, use their best judgment to uphold the highest ethical standards of behavior.

**11. EVENTS THAT MAY MERIT LEGAL CONSULTATION**

This Policy reflects general ethical principles and does not attempt to cover every conceivable situation where a Trustee may face an ethical dilemma or violate a law that could result in civil damages or criminal prosecution (see, e.g., Texas Government Code Chapters 572, 825, and 2203; and Texas Penal Code Chapters 36 and 39). Therefore, in addition to the specific circumstances that are covered in other sections of this Policy, the following checklist sets forth common events that might merit consultation with the TRS General Counsel or outside fiduciary counsel.

- Change in employment of yourself or spouse.
- Change in your marital status.
- Children become employed by someone doing business or likely to do business with TRS.
- A family member is considering employment at TRS.
- Sale of all or a part of your business.
- Start of a new business.
- Being asked to serve in another governmental office.
- Being contacted about litigation involving TRS.
- Information about an alleged violation of law or ethics.
- Request from third parties for favors, accommodations, or disclosure of information.
- A benefit or gift from a TRS vendor, potential vendor, or member.
- An invitation to speak on behalf of TRS at a conference, meeting, or seminar.
- Someone offers to pay or waive your expenses in connection with a conference or meeting.

**12. CO-FIDUCIARY RESPONSIBILITY**

If a Trustee is aware of illegal activity, a breach of fiduciary duty by another Trustee or by someone else serving as a fiduciary to TRS, or a violation of this Policy, the Trustee shall promptly disclose such activity or breach to the Executive Director and the Chair of the Ethics Committee of the Board. No retaliatory action will be taken toward any individual who, in good faith, makes a report or takes action in response to a violation or suspected violation of applicable ethical laws, standards, or policies.

**13. TRAINING AND ANNUAL ACKNOWLEDGEMENT**

Annually, every Trustee shall attend ethics training provided by TRS and acknowledge in writing that he or she understands the Ethics Policy, has abided by it, and will abide by it. New Trustees are to make this written acknowledgment when they take office.

**14. CONSEQUENCES FOR VIOLATIONS**

For Trustees who violate this Ethics Policy, the Board may impose sanctions including public reprimand, removal from service on Committees, censure, requests for resignation from the Board, or other appropriate parliamentary measures.

# Exhibit C



**December 12-13, 2013**

**Teacher Retirement System of Texas**

**Board of Trustees**

**Resolution Approving Certain Changes to the Board of Trustees Ethics Policy**

**Whereas**, In December 2011, the Board of Trustees of the Teacher Retirement System of Texas (the "Board") adopted the Board of Trustees Ethics Policy; and

**Whereas**, It is now necessary and prudent to adopt certain changes to the Board of Trustees Ethics Policy to implement changes made possible by 2013 revisions to TRS' ethics statute, Gov't Code § 825.212, and to conform it, in part, to the Employee Ethics Policy; and now, therefore be it

**Resolved**, That the Board hereby adopts the revisions to the Board of Trustees Ethics Policy, as presented by the staff to the Policy Committee. [with the following changes, if any, to the recommended revisions:

- \_\_\_\_\_
- \_\_\_\_\_ ]

*[optional language bracketed]*

**Tab 7 F**



Legal Services

## Memorandum

**DATE:** December 2, 2013

**TO:** Policy Committee of the Board of Trustees

**FROM:** Carolina de Onís, General Counsel  
Timothy P. Wei, Assistant General Counsel

**COPY:** Board of Trustees  
Steven Huff, Fiduciary Counsel

**RE:** Proposed Changes to the Employee Ethics Policy and Related Materials

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In the last legislative session, the Legislature amended TRS' ethics statute, Gov't Code § 825.212. The new legislation affected the Employee Ethics Policy, in particular the definition of conflict of interest and matters related to key employees and related forms. Attached please find

- A red-lined version of proposed changes to the Employee Ethics Policy (Exhibit A);
- A clean copy of the Policy with proposed revisions (Exhibit B);
- A red-lined version of proposed revisions the Ethics Compliance Statement For Employees and Certain Contractors (Exhibit C);
- A clean copy of the Ethics Compliance Statement For Employees and Certain Contractors with proposed revisions (Exhibit D);
- A proposed Key Employee Enhanced Disclosure Form (Exhibit E);
- A proposed Board resolution adopting the revised Policy and related forms (Exhibit F);
- A red-lined version of proposed revisions to the Board resolution adopting revised determinations of Key Employees (Exhibit G); and
- A clean copy of the Board resolution adopting revised determinations of Key Employees with proposed revisions (Exhibit H).

The proposed revisions implement changes made possible by the new legislation. They also propose changes that the Board may find prudent.

Legal Services worked closely with fiduciary counsel in preparing the proposed revisions to the Employee Ethics Policy. IMD and Internal Audit were provided drafts of the revisions and the opportunity to comment upon them.

# Exhibit A



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## I. Overview

The Teacher Retirement System of Texas (“TRS”) is charged by the Texas Constitution and state law with the administration of pension assets held in trust for the exclusive benefit of active or retired TRS members and their beneficiaries, and assets may not be diverted. Certain Employees are subject to fiduciary duties of prudence and loyalty. The duty of prudence compels Employees to exercise the judgment and care under the circumstances then prevailing that persons of ordinary prudence, discretion, and intelligence exercise in the management of their own affairs when making investment decisions. The duty of loyalty requires Employees to have an undivided loyalty to the participants of the trust and to exclude all other interests. All operations and activities of TRS must be undertaken solely to advance and protect the interests of the members, retirees, and beneficiaries of the pension plan and must be conducted in a prudent manner. Similarly, TRS is trustee of other trusts that must be administered according to their terms and TRS, as trustee, is subject to fiduciary responsibilities under trust law with regard to those assets and the participants of each particular trust. These other trusts include the TRS-Care health benefits program, the TRS-ActiveCare health benefits program, and the 403(b) Certification Program. Accordingly, Employees have fiduciary duties commonly associated with pensions and other trusts, and each Employee must exercise an independent judgment on behalf of each trust. These duties extend not only to the investment activities but also to the application of TRS benefit provisions, the establishment of actuarial assumptions, the collection of amounts owed TRS, and the general administration of TRS.

TRS is a public entity. Consequently, Employees have the special responsibilities for honesty and integrity applicable to public servants. Texas Government Code, Chapters 572, 825, and 2203, along with Texas Penal Code, Chapters 36 and 39, describe specific standards of conduct that the TRS Employees must follow.

This Employee Ethics Policy (the “Policy”) specifies standards of conduct expected of Employees in view of these responsibilities. Although many of its provisions are based upon legal and fiduciary concepts, this Policy should not be interpreted as an exclusive and complete statement of legal and fiduciary responsibilities and its provisions should not necessarily be construed as only statements of legal and fiduciary responsibility. This Policy does not supersede any applicable federal or Texas law or administrative rule. All Employees must abide by all applicable federal and Texas law, including applicable fiduciary duties; administrative rules; and TRS conduct policies, including this Policy.

Adherence to this Policy will allow Employees to meet any applicable fiduciary obligations, comply with statutory mandates, and facilitate mutual respect and public confidence.

Any ambiguity in this Policy generally will be resolved in accordance with applicable legal or fiduciary standards.

In fulfilling the Board's roles and responsibilities and pursuant to requirements of applicable statutes, the Board has delegated to the Executive Director the responsibilities outlined in the Bylaws, including management of the day-to-day operations of TRS. Through the Bylaws, the Board has also delegated authority for some matters to the Executive Director or the staff, in accordance with Board actions or applicable law, including the following: certain investment decisions, contracts, payments and other releases of assets, and litigation decisions. Further, the Board has delegated authority to staff in various other policies, such as the investments policies adopted by the Board.

Capitalized terms are defined in Appendix A, attached hereto and incorporated herein for all purposes, if not otherwise described in the text of this Policy. Therefore, the definitions in Appendix A shall apply unless the context requires otherwise.

## II. General Conduct Guidelines

Employees shall fulfill the following fiduciary duties and abide by the general conduct guidelines detailed below:

- A. Exercise undivided loyalty to the ~~fund beneficiaries~~<sup>1</sup> trust participants;
  - An Employee must exercise care and caution always to place the interests of trust participants and TRS ahead of the Employee's own interest and to act exclusively in the interest of the respective participants of each trust. No Employee may represent any person in any action or proceeding before or involving the interests of TRS except as a duly authorized representative or agent of TRS.
  - On all matters related to or involving TRS, an Employee's actions must benefit the interests of trust participants and trust funds.
  
- B. Dissociate one's personal viewpoints from the objective requirements of the Employee's fiduciary obligations to ~~fund beneficiaries~~<sup>2</sup> trust participants;
  - An Employee must act with integrity, competence, diligence, respect, and in a transparent and an ethical manner in all matters related to or involving TRS, including all dealings with the participants of a TRS trust, TRS Trustees, other TRS staff, and the public.
  
- C. Exercise care, skill, prudence, and diligence appropriate to the prevailing circumstances<sup>3</sup>;

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<sup>1</sup> ~~Stanford, Best Practices, supra note 2 at 6; Missouri State Employee Retirement System, Governance Policy at 25 (2008) [hereinafter Missouri, Governance Policy].~~

<sup>2</sup> ~~Stanford, Best Practices, supra note 2 at 8.~~

<sup>3</sup> ~~Id. at 8; State Retirement and Pension System of Maryland, Charters, at 1 (2003) [hereinafter Maryland, Charters]; Virginia Retirement System, Board of Trustees Code of Ethics and Conduct, at 2 (2005) [hereinafter Virginia, Code of Ethics].~~

- D. An Employee must abide by all applicable laws, rules, and regulations, including the terms of the pension plan and, as applicable, the specific laws and rules governing other programs administered by TRS;
- E. Avoid unreasonable favoritism toward one beneficiary group over another<sup>4</sup>;
  - An Employee must deal fairly, objectively, and impartially with all participants.
- F. Refrain from prohibited or conflicted actions<sup>5</sup>.
  - An Employee must maintain independence and objectivity with respect to the execution of the Employee's responsibilities to TRS and to trust participants and must avoid actions or activities that create an appearance of bias or that bring into question the Employee's own independence of judgment. This includes avoiding conflicts of interest, refraining from self-dealing, and refusing any gift that could reasonably be expected to affect an Employee's loyalty.
  - No Employee may influence the investment decision-making process of TRS, either for personal gain or private advantage or in a manner detrimental to the interests of TRS.
  - An Employee must maintain the confidentiality of TRS and trust participant information and must never use such information for personal gain or for the gain of third parties.

### III. Specific Legal Standards of Conduct

The following specific legal standards of conduct apply to Employees:<sup>6</sup>

- A. An Employee shall not:
  - 1. accept or solicit any gift, favor, or service that might reasonably tend to influence the Employee in the discharge of official duties, or that the Employee knows or should know is being offered with the intent to influence the Employee's official conduct;
  - 2. intentionally or knowingly solicit, accept, or agree to accept any benefit for having exercised his or her official powers or performed his or her official duties in favor of another;

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<sup>4</sup>~~Stanford, Best Practices, supra note 2 at 8; Colorado, Governance Manual, supra note 10 at 17-2; State Retirement and Pension System of Maryland, Governance Policies at 9 (2007) [hereinafter Maryland, Governance Policies]; Virginia, Code of Ethics, supra note 5 at 1.~~

<sup>5</sup>~~Stanford, Best Practices, supra note 2 at 8.~~

<sup>6</sup>~~Unless otherwise noted, all of these legal standards are located in the Texas Government Code or Texas Penal Code. The language found in subsection III. A. 3. is taken substantially from the model ethics policy created by the Office of the Attorney General ("OAG"). The language found in subsection III. A. 4. and 6. are taken in their entirety from the same OAG model ethics policy.~~

3. disclose confidential information, information that is excepted from public disclosure under the Texas Public Information Act<sup>7</sup>, or information that has been ordered sealed by a court, that was acquired by reason of the Employee's official position except when the Executive Director, or his designee, determines such disclosure is either permitted or required by law;
4. accept other employment, including self-employment, or engage in a business, charity, nonprofit organization, or professional activity that the Employee might reasonably expect would require or induce the Employee to disclose confidential information, information that is excepted from public disclosure under the Texas Public Information Act, or information that has been ordered sealed by a court, that was acquired by reason of the Employee's official position;
5. have a direct or indirect interest, including financial and other interests, or engage in a business transaction or professional activity, or incur any obligation of any nature that is in substantial conflict with the proper discharge of the Employee's duties in the interest of TRS;
6. accept other employment, including self-employment, or compensation or engage in a business, charity, nonprofit organization, or professional activity that could reasonably be expected to impair the Employee's independence of judgment in the performance of the Employee's official duties;
7. make personal investments, or have a personal or financial interest, that could reasonably be expected to create a substantial conflict between the Employee's private interest and the public interest;
8. use TRS or state personnel time (*i.e.*, time for which you or other Employees are being paid by TRS or the state), information, property, facilities, equipment or other resources, or information or resources paid for by TRS, for any purpose other than official TRS business. Notwithstanding the above, use of an Employee's own TRS or state personnel time, or use of TRS or state information, property, facilities, equipment and other resources is acceptable if such use
  - does not result in any direct cost to TRS or the state,
  - does not impede TRS functions,
  - is not for private commercial purposes,
  - is reasonable and incidental, and
  - does not violate applicable TRS policies.Likewise, a person may not entrust TRS or state information, property, facilities, equipment or other resources, or information or resources paid for by TRS or the

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<sup>7</sup> ~~V.T.C.A., Texas Government Code, Title 5, Chapter 552.~~

state, to any other person if the information, property, facilities, equipment or other resources are not to be used for TRS purposes;

9. use his or her official position for financial gain, obtaining privileges, or avoiding consequences of illegal acts, including but not limited to:
  - accepting, under any circumstances, offers by reason of their position with TRS to trade in any security or other investment on terms more favorable than available to the general investing public;
  - borrowing from Contractors unless such entities are normally engaged in such lending in the usual course of their business, and then only on customary terms offered to others under similar circumstances to finance proper and usual activities;However, this should not be interpreted to forbid communicating to others the fact that a relationship with TRS exists, provided that no misrepresentation is involved;
10. with intent to obtain a benefit or with intent to harm or defraud another, intentionally or knowingly:
  - violate a law relating to the Employee's position with TRS; or
  - misuse TRS time, property, services, personnel, or any other thing of value belonging to TRS that has come into the Employee's custody or possession by virtue of the Employee's position with TRS;
11. knowingly make misleading statements, either oral or written, or provide false information, in the course of official state business;
12. use TRS or, as applicable, state resources for any political activity;
13. contract on behalf of TRS with any entity, or an affiliate controlled by such entity, that employs or is represented by a former Trustee or former Employee if such employment or representation would violate the prohibitions on employment of or representation by former public servants contained in Section 572.054 of the Texas Government Code. Notwithstanding the provisions of Section 572.054, the Board may authorize such a contract if the Board determines that the contract would be prudent for TRS. TRS contracts must provide for a termination option, whereby TRS may terminate a contract with an entity, or an affiliate controlled by such entity, in the event that such entity or controlled affiliate employs or uses the services of a former Trustee or former Employee in violation of this Policy;

Section 572.054 of the Texas Government Code prohibits a former Trustee or former Executive Director from making any communication to or appearance before an officer or Employee of TRS before the second anniversary of the date the

Trustee or Executive Director ceased being a member of the Board or the Executive Director if the communication or appearance is made:

- with the intent to influence; and
- on behalf of any person in connection with any matter on which the person seeks official action.

Also pursuant to Section 572.054, at no time in the future may a former Trustee or former Employee<sup>8</sup> represent any person or receive compensation for services rendered on behalf of any person regarding a particular matter in which the Trustee or Employee participated, either through personal involvement or because the matter was within the Trustee's or Employee's official responsibility;

14. except for an interest in TRS assets as a member of TRS, have a direct or indirect interest in the gains from investments made with TRS assets and shall not receive any compensation for service other than designated salary and authorized expenses;
15. advise or make decisions about matters affected by a conflict of interest as defined and provided in subsection IV. A. of this Policy; or
16. participate in or be the beneficiary of, directly or indirectly, a loan, commitment to lend, a guarantee or endorsement to lend, or investment by TRS or a contract to advise TRS or manage property or investments for TRS, except this prohibition does not apply to actions taken by an Employee within the scope of the Employee's official duties for TRS, if the actions do not involve a relationship that the Employee must disclose. An Employee must disclose a relationship if the Employee or a person related within the Second Degree by Consanguinity or Affinity to the Employee has a business or commercial relationship that could reasonably be expected to diminish the Employee's independence of judgment in the performance of the Employee's responsibilities to TRS. The Employee shall disclose such a relationship in writing to *the Executive Director or his designee*.

- B. An Employee in a "bona fide executive, administrative, or professional capacity," as that phrase is used for purposes of establishing an exemption to the overtime provisions of the federal Fair Labor Standards Act of 1938 (29 U.S.C. Section 201 et seq.) and the spouse of

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~~<sup>8</sup>Pursuant to Ethics Advisory Opinion No. 397, issued by the Texas Ethics Commission in 1998, this part of Section 572.054 only applies to Employees who were compensated, as of the last date of state employment, at or above the amount prescribed by the General Appropriations Act for step 1, salary group A17, of the position classification salary schedule, including an Employee who is exempt from the state's position classification plan. At the time of the adoption of this Policy, the applicable salary threshold is \$35,651.~~

the Employee shall not be a paid officer, employee, or consultant of a Texas trade association<sup>9,10</sup> in the field of investment or insurance.

- C. The General Counsel shall not be registered, or be required to be registered, as a lobbyist under Chapter 305 of the Texas Government Code because of the person's activities for compensation on behalf of a business or an association related to the operation of the Board.

#### **IV. Conflicts of Interest**

- A. In addition to conflicts that may arise under circumstances addressed in section III. above, a conflict of interest exists for an Employee whenever the Employee has a ~~personal, commercial (including private commercial), or business~~ relationship or interest that could reasonably be expected to diminish the Employee's independence of judgment in the performance of the Employee's responsibilities to TRS.
- B. No Employee may take action personally (*e.g.*, in the establishment of personal, employment, or business relationships or interests) or on behalf of TRS that will result in a reasonably foreseeable conflict of interest. Should there be action which an Employee believes to be in the best interest of TRS but which could foreseeably result in a personal conflict of interest, the Employee must disclose such fact to the Executive Director prior to taking such action.
- C. No Employee may participate in a matter before TRS that involves a business, contract, property or investment held by the Employee if it is reasonably foreseeable that TRS action on the matter would confer a Benefit to the Employee by or through the business, contract, property or investment. This prohibition on participation in matters involving Benefits for an Employee's own interest does not apply if the Benefit is merely incidental to the Employee's membership in a large class such as the class of TRS members.
- D. No Employee may recommend or cause discretionary TRS business to be transacted with or for the benefit of a Relative.
- E. If an Employee is uncertain whether he has or would have a conflict of interest under a particular set of circumstances then existing or reasonably anticipated to be likely to occur, or if an Employee is uncertain whether the common-law or statutory law prohibits the

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~~<sup>9</sup> A Texas trade association means a cooperative and voluntarily joined association of business or professional competitors in Texas designed to assist its members and its industry or profession in dealing with mutual business or professional problems and in promoting their common interest.~~

<sup>10</sup> A Texas trade association means a cooperative and voluntarily joined association of business or professional competitors in Texas designed to assist its members and its industry or profession in dealing with mutual business or professional problems and in promoting their common interest.

Employee from having a direct or indirect interest or relationship, such Employee should promptly inform the Executive Director, who shall evaluate whether a conflict of interest exists under the circumstances presented or whether a prohibition exists under applicable common-law and statutory law. If the Executive Director determines that the Employee does not or would not have a conflict under the facts presented and no statutory or common-law prohibition exists, the Employee is not required to make a disclosure pursuant to subsection IV. F. If the Executive Director determines that a conflict or prohibition may exist under the facts and circumstances presented, the Executive Director will advise and discuss the evaluation with the Employee in order to assist the Employee in determining whether a conflict or prohibition actually exists. If a conflict exists, the Employee must make a disclosure pursuant to subsection IV. F. and cure the conflict. Also, if it is determined that a conflict would exist upon the occurrence of the anticipated circumstances and they later do occur, the Employee must make a disclosure pursuant to subsection IV. F. upon the occurrence of such events and cure the conflict.

If the Executive Director determines that the Employee's proposed cure of an existing conflict is not appropriate and sufficient under the standards in subsection IV. G., the Executive Director shall consult with the General Counsel regarding the viability of a waiver under applicable law, and shall so inform the Ethics Committee of the Board. The Employee will take appropriate action to respond to any statutory or common-law prohibitions that exist, including the prohibition addressed in Section IV. H. below.

- F. An Employee must promptly
- disclose his own conflicts of interest in writing to the Executive Director through the Conflict of Interest Disclosure Statement, and
  - disclose conflicts of interest involving others of which the Employee becomes aware, either in writing to the Executive Director through the Conflict of Interest Disclosure Statement or verbally by contacting the TRS "hot" line for anonymous ethics reporting.

Other than the Executive Director, should an Employee with a duty to disclose conflicts of interest have reasonable cause to believe disclosure to the Executive Director will be ineffective, the Employee should file any written disclosure made through the Conflicts of Interest Disclosure Statement with the General Counsel.

In complying with this subsection, any Conflict of Interest Disclosure Statement filed by the Executive Director shall be filed with the General Counsel. Should the Executive Director have reasonable cause to believe disclosure to the General Counsel will be ineffective, the Executive Director shall file any written disclosure made through the Conflicts of Interest Disclosure Statement with the Deputy Director.

The Executive Director will report to the Ethics Committee of the Board regarding the Conflict of Interest Disclosure Statements and the verbal reports via the TRS "hot" line that are received by TRS, and provide a copy of the report to the General Counsel.

If the conflict of interest being reported by an Employee involves a Contractor, the Executive Director shall provide notice of the reported conflict of interest to the TRS personnel who supervise or monitor the Contractor, unless the Executive Director reasonably believes that such disclosure would be detrimental to the resolution of the conflict.

- G. Employees who become aware, or reasonably should have become aware, of a personal conflict of interest, have a duty not only to disclose that conflict, but also to cure it. An Employee normally cures a conflict of interest by promptly eliminating it. An Employee who cannot or does not wish to eliminate the conflict must terminate his or her relationship with TRS as quickly as responsibly and legally possible.

If an Employee may prudently withdraw from action on a particular matter in which a conflict exists, he or she may cure the conflict in that manner provided that

- 1. The Employee may be and is effectively separated from influencing the action taken,
- 2. The action may properly be taken by others, and
- 3. The nature of the conflict is not such that the Employee must regularly and consistently withdraw from decisions that are normally his or her responsibility with respect to TRS.

- H. An Employee who files a Conflict of Interest Disclosure Statement must refrain from giving advice or making decisions about matters affected by the conflict of interest. The Board hereby delegates to the Executive Director the authority to waive this prohibition. This prohibition concerning the Employee's actions continues in place unless the Executive Director, after consultation with the General Counsel, expressly waives this prohibition, thereby effectively waiving the conflict of interest for that matter. To assist it in deciding whether to grant waivers, the Board may develop criteria for determining the kinds of relationships that do not constitute material conflicts of interest. Records of all waivers granted with the supporting reasons will be maintained by the General Counsel. The Executive Director will advise the Ethics Committee of the Board of his decision to grant or deny a waiver.

- I. It shall not be considered a conflict solely because

- 1. An Employee is a member, retiree, or beneficiary of the system or has an interest no greater than a large class of its members, retirees, or beneficiaries, or

2. An Employee has an investment in the stock of a publicly traded corporation which is owned, purchased, or sold by TRS, provided that the Employee's interest in the stock is not more than ten (10) percent of any class of stock of the corporation.

J. Employees should become familiar with the TRS Code of Ethics for ~~Consultants, Agents, Financial Providers and Brokers~~ Contractors (the "Code of Ethics"), and any reporting responsibilities placed on such Employees.

K.<sup>44</sup> With respect to each proposed, pending, or closed transaction by TRS concerning a Private Investment, and except as disclosed in writing pursuant to this subsection IV. K., each Employee who actively participates in the decision-making process (an "Active Employee") on behalf of TRS with regard to a given Private Investment, including the review, evaluation or recommendation of a TRS investment, represents that:

1. The Active Employee has not solicited or accepted any direct or indirect Benefit or interest, or received or agreed to accept any Benefit or interest from any individual or entity in connection with the Private Investment, and is not aware of any personal Benefit or interest that may result or arise from TRS's investment or decision to invest in the Private Investment.

2. To the best of the Active Employee's knowledge, no Relative of the Active Employee has received any direct or indirect Benefit or interest or any promise of a Benefit or interest relating to or arising from TRS's investment or decision to invest in the Private Investment, and the Active Employee is not aware of any Benefit to or interest of a Relative that may result or arise from TRS's investment or decision to invest in the Private Investment.

3. Neither the Active Employee nor, to the best of the Active Employee's knowledge, any Relative of the Active Employee, has acquired or has any current intention of acquiring any Benefit or interest, including an ownership interest in the same Private Investment and, so long as the Active Employee holds the position of an Active Employee, neither the Active Employee nor a Relative of the Active Employee will acquire such an interest.

4. Neither the Active Employee nor, to the best of the Active Employee's knowledge, any Relative of the Active Employee has or will have an economic or beneficial interest in a general partner, managing member, servicer, underwriter, sponsor, investment adviser, or investment manager of the Private Investment as identified by TRS staff; and so long as the Active Employee holds the position of

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<sup>44</sup> ~~The language of this subsection IV. K. is taken from the existing document entitled: Procedures and Representations of TRS Trustees and Certain Employees Regarding Private Equity Investments of TRS.~~

an Active Employee, neither the Active Employee nor a Relative of the Active Employee will knowingly acquire an economic or beneficial interest in any such entity.

5. The Active Employee has no business relationship with the TRS consultant or adviser recommending the Private Investment, or with any other consultant identified by TRS staff as giving advice or assistance to TRS with regard to the particular Private Investment.
6. The Active Employee is unaware of any existing relationships, interests, or other facts that could reasonably be expected to diminish the Active Employee's independence of judgment as an Active Employee and thereby constitute a conflict of interest in connection with the Active Employee's actions as an Active Employee relating to the Private Investment.

If an Active Employee is unable to make all the representations immediately above in this subsection IV. K. with regard to a Private Investment, then the Active Employee should notify the Executive Director in writing immediately upon receipt of information regarding the Private Investment so that a determination of the appropriate course of action can be made prior to authorization by TRS or, in any event, prior to TRS's becoming contractually bound to fund the Private Investment.

## V. Trading

- A. The Executive Director, or his designee, shall develop and implement a trading policy (the "Trading Policy") that addresses policies, procedures, and standards of conduct applicable to Employees in the conduct of each Employee's personal trading activities and trading activities undertaken on behalf of TRS. Additionally, the Executive Director, or his designee, is authorized to amend the Trading Policy from time to time as the Executive Director deems advisable and to issue or modify forms to fully implement the provisions of the Trading Policy, as amended from time to time. Employees shall comply with ~~both the letter and spirit of~~ the Trading Policy.
- B. Restricted List. No Employee or spouse of the Employee may have or borrow a Security (or a Derivative thereof) or other ownership or profit sharing interest in a Contractor with which TRS does business, except as permitted below.

This prohibition applies to a Security (or a Derivative thereof) or other ownership or profit sharing interest held for an Employee's own account or an account in which he or she has a Beneficial Ownership.

If an Employee or a spouse of an Employee ~~holds or (1) has borrowed an interest~~ prohibited ~~Security (or a Derivative thereof) or other ownership or profit sharing interest in a Contractor~~ by this

~~Section prior to the time becoming an employee or prior to the entity becoming a TRS commences doing business with contractor, or (2) receives an interest prohibited by this Section by inheritance or gift, the firm (Scenario 1), or if a new Employee or a spouse of a new may hold but not add to the interest. The Employee holds or has borrowed a prohibited Security (or a Derivative thereof) or such other ownership or profit sharing or spouse, in his or her discretion, may dispose of the interest at the time of his or her choosing, provided the Employee is hired (Scenario 2), or if an or spouse complies with all applicable laws and policies. The Employee or a spouse of an Employee thereafter receives a prohibited Security (or a Derivative thereof) or such other ownership or profit sharing interest by inheritance or gift or via a business transaction that occurred prior to the time shall evaluate whether holding the Employee is hired (Scenario 3), interest creates a conflict of interest, and if so, will handle the Employee or a spouse of an Employee has a reasonable period conflict of time to dispose of the prohibited Security (or a Derivative thereof) or such other ownership or profit sharing interest interest as required by this Policy.~~

~~Up to sixty days is deemed a reasonable period of time. If the Employee or a spouse of an Employee believes that more time to take action under the circumstances is reasonable, then upon written request to the Executive Director, the Executive Director will evaluate the matter and, if applicable, determine a deadline for the disposition of the prohibited interest. In the case of the Executive Director, the General Counsel (with notice to the Ethics Committee of the Board) will evaluate the matter and, if applicable, determine a deadline for the disposition of the prohibited interest.~~

## **VI. Nepotism**

- A. TRS may not employ a person who is a Relative of a Trustee. This does not prevent the continued employment of a person who has already been working for TRS for thirty consecutive days prior to the date of a related Trustee's appointment.
- B. No Employee may exercise discretionary authority to hire, evaluate or promote a Relative. No Employee may supervise a Relative, either directly or indirectly. As used herein, "supervise" means to oversee, with the powers of direction and decision-making, the implementation of one's own or another's intentions. Supervision normally involves assigning duties, overseeing and evaluating work, and approving leave.

## VII. Benefits

- A. An Employee shall not solicit, accept, or agree to accept from any donor:
1. a Benefit that the Employee knows or should know is consideration for the Employee's decision, opinion, recommendation, vote, or other exercise of discretion as an Employee, or for having exercised the Employee's official powers or performed the Employee's official duties in favor of another<sup>12</sup>;
  2. a Benefit that the Employee knows or should know is consideration for a violation of a duty imposed by law on the Employee<sup>13</sup>;
  3. a Benefit that might reasonably tend to influence the Employee in the discharge of official duties or that the Employee knows or should know is offered with the intent to influence the Employee's official conduct<sup>14</sup>;
  4. a Benefit if the source of the Benefit is not identified or if the Employee knows or has reason to know that the Benefit is being offered through an intermediary; or
  5. a Benefit that creates a reasonably foreseeable conflict of interest or an actual conflict of interest as defined in subsection IV. A. or that could reasonably be expected to impair the Employee's independence of judgment in the performance of the Employee's official duties.
- B. Except as provided in this subsection VII. B., in subsection VII. C., or in subsection VII. D., an Employee shall not solicit, accept or agree to accept (or offer, give, or agree to give) any Benefit from (to) a Restricted Donor.
- C. As long as the prohibitions in subsection VII. A. are not violated, an Employee may accept or agree to accept from a Restricted Donor:
1. gifts given on special occasions between Trustees and/or Employees;
  2. an item with a value of less than \$50, received from the same donor or employees of the same donor on infrequent occasions, excluding cash, cash equivalents, or a negotiable instrument as described by Section 3.104, Business & Commerce Code;

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~~<sup>12</sup>Section 36.02(a)(1) of the Texas Penal Code and Section 572.051(a)(5) of the Texas Government Code.~~

~~<sup>13</sup>Section 36.02(a)(3) of the Texas Penal Code.~~

~~<sup>14</sup>Section 572.051(a)(1) of the Texas Government Code.~~

3. a fee prescribed by law to be received by the Employee or any other Benefit to which the Employee is lawfully entitled or for which he gives legitimate consideration in a capacity other than as an Employee of TRS<sup>15</sup>; or
4. a Benefit conferred on account of kinship or a personal, professional, or business relationship independent of the official status of the Employee<sup>16</sup>.

D. Food, Lodging, Transportation and Entertainment. The following apply to items of food, lodging, transportation and entertainment offered by or accepted from a Restricted Donor:

1. No standard set forth in subsection VII. A. may be violated when acting under subsections VII. D. 2. through 5. immediately below.
2. Modest items of food (with a value less than \$50 per person) are permissible only if given or accepted on infrequent occasions.<sup>17</sup>
3. Food items (with a value of \$50 or more per person) are permissible only if
  - provided in connection with a business meeting, business meal, business conference, or reception; and
  - the donor or a representative of the donor is present<sup>18</sup>.
4. Lodging, transportation, or entertainment are permissible only if (i) approved by the Executive Director; (ii) in connection with receptions, business meals, business meetings, or business conferences that serve a TRS purpose and (iii) the donor or a representative of the donor will be present at the reception, business meal, business meeting, business conference, or entertainment<sup>19</sup>. The Executive Director shall provide notice to the Chair of the Board's Audit Committee of any approvals for Restricted Donors to pay for any expenses related to business conferences under this section.
5. If the Employee is required by law to report any items of food, lodging, transportation, and entertainment, such must be reported by the Employee<sup>20</sup>.

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<sup>15</sup> ~~Section 36.10(a)(1) of the Texas Penal Code.~~

<sup>16</sup> ~~Section 36.02(a)(2) of the Texas Penal Code.~~

<sup>17</sup> ~~This is a departure from the current Ethics Policy by allowing acceptance of food items that could be entirely social in nature, not "tied" to a business function.~~

<sup>18</sup> ~~Section 36.10(b) of the Texas Penal Code.~~

<sup>19</sup> ~~Section 36.10(b) of the Texas Penal Code. The current Ethics Policy does not allow for the acceptance of lodging and air transportation.~~

<sup>20</sup> ~~Section 36.10(b) of the Texas Penal Code. Section 572.021 et seq., Government Code, requires state officers to file verified financial statements.~~

- E. If otherwise permitted by this Policy, lodging and transportation may not be accepted from a person registered as a lobbyist in Texas unless in connection with a fact-finding trip or to a seminar or conference at which the Employee will provide services, such as speaking, and the services are more than merely perfunctory<sup>2122</sup>. Entertainment provided by a lobbyist may not exceed the cumulative value of \$500 in a calendar year. Benefits provided by a lobbyist, other than food, lodging, transportation and entertainment, may not exceed the cumulative value of \$500 in a calendar year.
- F. If an unsolicited Benefit that violates any provision of this section VII. is received by an Employee, he or she should attempt to return the Benefit to its source. ~~If that is not possible or feasible, donate~~ the Benefit ~~should be donated~~ to charity.

### VIII. Outside Employment and Certain Other Outside Activities

- A. Employees may not engage in outside employment, business, or other activities, whether compensated or uncompensated, that detract from the ability to fulfill their full-time responsibilities to TRS. Employees must obtain advance written approval from the Executive Director for any outside employment or business. The Executive Director may delegate authority to approve outside employment to appropriate executive staff members.
- B. Employees who work in the TRS Investment Management Division or who in the course of their regular duties for TRS have access to current information concerning investment recommendations or decisions of TRS, may not, without advance approval from the Executive Director, advise, manage, or oversee an investment function for any entity, whether profit or nonprofit, or person even if such activity would not detract from the ability to fulfill their full-time responsibilities to TRS. This prohibition applies whether the activity is compensated or uncompensated. An investment function means management of or investment advice with respect to a portfolio of investments. This prohibition does not extend to advice or management relating to individual transactions for family members or to functions normally viewed as those of a treasurer such as investing in certificates of deposit or other money market instruments. The Executive Director shall inform the Chair of the Board's Audit Committee of any approvals granted under this section. C.
- ~~C. Key Employees must obtain advance written approval from the Executive Director for any outside employment or business.~~

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<sup>21</sup> ~~Section 305.025 of the Texas Government Code.~~

<sup>22</sup> ~~Section 305.025 of the Texas Government Code.~~

~~DC.~~ Any outside employment or business undertaken by the Executive Director must be approved in advance by the Board.

### IX. Key Employees

A. The Board shall designate by position the Employees who exercise ~~either~~ significant ~~decision-making or~~ fiduciary authority ~~or both~~. By virtue of their position with TRS, these persons are “Key Employees.” Employees with fiduciary authority have a strict duty of loyalty and care to TRS, and its members and beneficiaries.

B. Employees designated as Key Employees must acknowledge their Key Employee status in writing through the annual Ethics Compliance Statement.

~~C. Requirements of this Policy that are exclusively applicable to Key Employees are the following:~~

~~1. personal financial disclosure,~~

~~2. additional disclosures if a Key Employee is a director, officer, or more than 5% owner (by shares, stock, or otherwise) of a corporation or other business entity, as follows:~~

~~(a) the nature of the business of the entity; and~~

~~(b) the identity of the persons and/or entities that are the owners, directors, and officers of the business,~~

~~3. disciplinary action disclosure, and~~

~~4. advance approval of outside employment.~~

### X. Training

Employees shall ~~attend~~ participate in annual ethics training.<sup>23</sup>

### XI. Trustee-Staff Relations and Communications

The Board has articulated the role and responsibility of Trustees and staff<sup>24</sup> by developing and implementing policies that clearly separate the policy-making responsibilities of the Board and the management responsibilities of the Executive Director and the staff of TRS<sup>25</sup>. Significantly, the

~~<sup>23</sup> This has been added to comply with one of the SAO recommendations.~~

~~<sup>24</sup> Stanford, Best Practices, supra note 2 at 8~~

~~<sup>25</sup> Texas Government Code, Chapter 825.113; Colorado, Governance Manual, supra note 10 at 3-1; Maryland, Governance Policies, supra note 11 at ii; Virginia, Code of Ethics, supra note 5 at 5.~~

Board has delegated certain responsibilities to the Executive Director in Article 4.1 of the Bylaws. Additionally, the Board has delineated significant authority of staff in TRS rules and in policies adopted by the Board, including the Investment Policy Statement, the Proxy Voting Policy, and the Securities Lending Policy.

It is important that the Trustees and staff have an open and productive working relationship to accomplish the goals of TRS for members, beneficiaries and retirees.

The following will assist staff with its interactions with Trustees.

A. The Board and staff recognize the distinctively separate policymaking and implementation roles that each plays in fund governance<sup>26</sup>.

B. Providing ~~Direction~~direction to TRS Staff, Consultants and Agents:

The Board collectively is empowered to direct TRS's management, staff, and consultants on policy matters of TRS operations. Conversely, no individual Trustee speaks for or binds the Board or TRS. Staff, Consultants and agents should not interpret communications from individual Trustees as direction.

C. Staff shall keep the Executive Director and the Deputy Director informed of contacts from a Trustee related to a TRS Matter.

D. Referrals of Potential Investments or Third-Party Service Providers:

If a Trustee makes a referral, the Trustee will make a referral and any follow-up inquiries to the Executive Director or, for investment matters, to the Chief Investment Officer. The Executive Director shall inform the other Trustees of any follow-up communications made by a referring Board member if they are repetitive or otherwise create concern.

With regard to all referrals, including those from a Trustee, the staff will evaluate the referred party or opportunity under then existing operating standards and procedures, without regard to the source of the referral.

## **XII. Compliance With Professional Standards**

A. Employees who are members of professional organizations that promulgate standards of conduct must comply with those standards.

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<sup>26</sup> ~~Stanford, Best Practices, supra note 2 at 18.~~

- B. Employees in the TRS Investment Management Division must comply with the CFA Institute's Code of Ethics and Standards of Professional Conduct (together, the "Standards") as amended from time to time by the CFA Institute. The Standards constitute Appendix B to this Policy.

### XIII. Financial and Compliance Disclosures

- A. The Executive Director must annually file a verified Personal Financial Statement with the Texas Ethics Commission in compliance with Subchapter B of Chapter 572 of the Texas Government Code. Copies of this Personal Financial Statement can be obtained from the Texas Ethics Commission. In addition, at the same time the Executive Director files a copy of his or her verified financial statement with the Texas Ethics Commission, the Executive Director shall file an identical copy of the verified financial statement with the General Counsel and the Chief Audit Executive.<sup>27</sup>

- B. Key Employees must file financial enhanced disclosure statements with the Executive Director, or his designee. The content of these statements ~~must comply with the requirements for personal financial statements for state officers governed by Chapter 572 of the Texas Government Code shall disclose a key employee's, a key employee's spouse's, and a key employee's dependent child(ren)'s and other dependent's private investments, material debts, non-TRS fiduciary positions, non-TRS employment, and material Benefits received from Restricted Donors.~~

Key Employees must file ~~a financial~~the enhanced disclosure statement within 30 days of their date of employment as a Key Employee. The Key Employee's first such financial enhanced disclosure statement must address the calendar year immediately prior to their date of employment as a Key Employee. Thereafter, ~~a financial~~an enhanced disclosure statement must be filed by April 30th of each year covering the preceding calendar year. Notwithstanding anything to the contrary, in no event shall a Key Employee be required to file a second financial enhanced disclosure statement covering the same calendar year. The Executive Director may postpone a filing deadline for not more than 60 days on written request or for an additional period for good cause, as determined by the Chairman of the Board. ~~A financial disclosure statement must be maintained by TRS for at least five (5) years after the date of its filing.~~

- C. In addition to disclosures required in other provisions of this Policy (e.g., subsections IV. F.), Employees with knowledge of a violation of this Policy, the Trustee Ethics Policy, or of the Code of Ethics must promptly
- report his own violation of this Policy in writing to the Executive Director, and
  - report violations, of which he becomes aware, of this Policy, the Trustee Ethics Policy, or of the Code of Ethics by any other individual or entity, either in writing to the

<sup>27</sup> ~~This has been added to comply with one of the SAO recommendations.~~

Executive Director or verbally by contacting the TRS “hot” line for anonymous ethics reporting.

- D. Within sixty (60) days of the date of employment, in the case of new Employees, and within sixty (60) days of the date of employment in a position as a new Key Employee, the Employee or Key Employee, as the case may be, must file a completed ethics compliance statement that he has received and read this Policy, that he will comply with its provisions, and that it is his duty to report any acts by Trustees, other Employees, or Contractors when he has knowledge of violations of this Policy. This statement will also include a reminder that he is required to update his ethics compliance statement if a change in circumstances occurs that would require reporting under this Policy.

~~Persons employed by TRS on the date of the adoption of this Policy must file a completed ethics compliance statement within sixty (60) days of the adoption of this Policy.~~

Employees must annually file a completed ethics compliance statement. These annual ethics compliance statements are due by April 30 of each year for the preceding calendar year.

Except for the Executive Director, Employees must file their completed ethics compliance statements with the Executive Director, or his or her designee. The Executive Director must file his or her compliance statement with the General Counsel. The General Counsel will provide a copy of the Executive Director’s compliance statement to the Chairman of the Ethics Committee of the Board only if the Executive Director (i) has anything to report under the four questions found in the compliance statement or (ii) checks either the third or fourth “blank” of the box labeled “Only for Key Employees.” These annual compliance statements are due by April 30 of each year.

- ~~E. If a Key Employee is a director, officer, or more than 5% owner (by shares, stock, or otherwise) of a corporation or other business entity, he or she must also disclose (1) the nature of the business of the entity and (2) the identity of the persons and/or entities that are the owners, directors, and officers of the business.~~

- FE. Except for the Executive Director, within sixty (60) days of the date of employment in a position as a new Key Employee, the Key Employee must file a completed Disciplinary Action Disclosure Statement with the Executive Director. Within sixty (60) days of the date an individual becomes the Executive Director, he must file a Disciplinary Action Disclosure Statement with the General Counsel. The General Counsel will provide a copy of the Executive Director’s Disciplinary Action Disclosure Statement to the Chairman of the Ethics Committee of the Board only if the Executive Director responds with a “yes” to any of the questions in this statement. A Key Employee must promptly file an updated,

complete Disciplinary Action Disclosure Statement if any action occurs that would cause any answers to change on this form.

F. The Executive Director may implement an electronic system through which Employees submit required disclosures.

#### **XIV. Custodians of Disclosures and Waivers**

The Executive Director shall be the custodian for open records purposes of disclosures required under this Policy. The General Counsel shall be the custodian for open records purposes of waivers of conflicts of interest, if any, granted by the Executive Director.

#### **XV. Enforcement**

- A. The Board will enforce this Policy through the Executive Director, who is responsible for its implementation with respect to Employees.
- B. The full range of disciplinary options under TRS personnel policies and practices may be used with respect to Employees who violate this Policy, up to and including termination. Employees shall cooperate with any investigation under this Policy.
- C. Employees who are fiduciaries shall take appropriate action as co-fiduciaries in the event a violation of this Policy would involve or does involve a breach of fiduciary duties, including using reasonable care to prevent a co-fiduciary from committing a breach of trust or to compel a co-fiduciary to redress a breach of trust.
- D. No retaliatory action will be taken toward any individual who, in good faith, makes a report of or takes action in response to a violation or suspected violation of applicable ethical laws, standards, or policies.
- E. A list will be maintained of the Contractors whose contract or relationship with TRS has been terminated because they were found to be in violation of the Code of Ethics. The custodian of this list is the Executive Director. Termination of a contract or relationship because of a violation of the Code of Ethics can preclude another contract or relationship with TRS for a period of time up to ten years, as determined by the Executive Director or his designee, commencing from the date of the termination of the contract or relationship.
- F. The Executive Director will report to the Ethics Committee of the Board in writing by May 31 of each year, covering the immediately prior twelve-month period from May 1 to April 30, of the following:
  - 1. any approval given for outside employment by Key Employees, including the nature of the employment;
  - 2. any disciplinary action disclosed by Key Employees;

3. any Conflict of Interest Disclosure Statements and verbal reports via the TRS “hot” line that are received by TRS; and
4. any written or verbal reports of violations of this Policy, the Trustee Ethics Policy, or of the Code of Ethics.
5. any decision to grant or deny a waiver pursuant to Section IV. H.

#### **XVI. Conflict with Other TRS Policies**

The provisions of this Policy are intended to be read in conjunction with other TRS policies regarding ethics. To the extent that this Policy imposes obligations on Employees that are greater than those imposed in other TRS policies, these obligations are deemed to be in addition to, and not in conflict with, the obligations set forth in other TRS policies. Employees should seek the advice of the Executive Director if they have any questions about possible conflicts between this Policy and other TRS policies.

## Appendix A

### Definitions

1. **“Affinity”** means a relation which one spouse, because of marriage, has to the blood relatives of the other spouse. In other words, affinity is the connection existing in consequence of a marriage, between each of the married persons and the kindred of the other. Affinity is distinguished from “consanguinity,” which is the connection between two individuals that exists by kinship or by blood.
2. **“Beneficial Ownership”** means the true ownership of a Security or an interest in a Security as opposed to any stated legal title to ownership provided in documents or oral representations. The beneficial owner is the person that receives or has the right to receive proceeds or other advantages as a result of the ownership without regard to the nominal owner. In this Policy, Beneficial Ownership includes all types of beneficial ownership interests, such as community property or joint tenancies, the power to vote shares, profit-sharing arrangements, interests in self-directed retirement arrangements, and beneficial interests in trusts and estates, and includes, in addition to a person’s own direct beneficial ownership, an indirect beneficial interest through immediate family members (spouse, minor children, or other dependents).
3. **“Benefit”** means any gift, item, favor, payment, or service, including a promised future benefit, whether or not such gift, item, favor, payment, or service has a pecuniary value, and includes, without limitation, any gift, item, favor, payment, or service given to or accepted by a person in whose welfare an Employee has a direct and substantial interest. A Benefit does not include a gift, item, favor, payment, or service for which TRS has given due consideration.
4. **“Board”** means the Board of Trustees of TRS.
5. **“Consanguinity”** means a relation by kinship or by blood. Individuals are related by consanguinity if the individuals are descended from the same stock or common ancestor. Consanguinity is distinguished from “affinity,” which is the connection existing in consequence of a marriage, between each of the married persons and the kindred of the other.
6. **“Consultant”** means an entity or person, other than an Employee or Trustee, (i) who provides advice to TRS intended to affect or form a basis for significant TRS decisions, including but not limited to an actuary or insurance and health care plan advisor, or (ii) who provides advice to TRS and may reasonably be expected to receive for its services more than \$10,000 in compensation from TRS during a fiscal year (September 1 to August 31). For purposes of this Policy, the term “Consultant” does not include an entity or person defined in the Code of Ethics as a Broker or as a Financial Provider. However, if an entity

or person defined as a Consultant would also fall within the definition of a Financial Provider, the entity or person will be considered a Financial Provider for all purposes. If any question exists regarding who constitutes a Consultant for purposes of this Policy, the Executive Director or his designee shall make that determination.

7. **“Contractor”** is a collective term used to reference all individuals or entities that fall within any one or more of the definitions for an Agent, a Broker, a Consultant, or a Financial Provider, as each separate term is defined in the Code of Ethics.
8. **“Derivative”** means a financial product whose value or return is based on, derived from, or linked to the value of a reference rate, exchange rate, interest rate, index, or currency or an underlying Security, asset, commodity, or any combination of underlying rates, indices, currencies or securities (*i.e.*, futures contracts, forward contracts and options), but does not include mutual funds.
9. **“Employee”** means a person working for TRS in an employer-employee relationship and not in an independent contractor capacity, and includes the Executive Director and Chief Investment Officer of TRS.
10. **“Ethics Committee of the Board”** means the standing Ethics Committee of the Board established pursuant to the Bylaws of the Board, as amended from time to time.
11. **“General Counsel”** means the Employee of TRS serving in the position of chief legal advisor for TRS.
12. **“Policy”** means this Employee Ethics Policy.
13. **“Private Investment”** means an investment or decision to invest, regardless of form, made or under consideration by TRS in a private, non-publicly traded security pursuant to limited offerings of securities exempt from registration under the securities laws.
14. **“Relative”** means a person related in the Third Degree by Consanguinity (blood relative) or Affinity (marriage) determined in accordance with Sections 573.021-025, Texas Government Code. Examples of Relatives by consanguinity are a child, grandchild, great-grandchild, parent, grandparent, great-grandparent, brother, sister, uncle, aunt, niece or nephew. A person adopted into a family is considered a relative on the same basis as a natural born family member. Examples of Relatives by affinity are a spouse, any person related to the spouse within the third degree by consanguinity, or any spouse of a Relative by consanguinity or affinity. A person is considered a spouse even if the marriage has been dissolved by death or divorce if there are surviving children of that marriage.
15. **“Restricted Donor”** means (1) persons or entities with which TRS does business, (2) persons or entities seeking to do business with TRS or with whom TRS is considering

doing business, (3) non-publicly traded entities in which TRS invests or is considering investing, (4) publicly traded entities in which TRS invests or is considering investing, but only if the Employee knows that the publicly traded entity is interested in or likely to become interested in a TRS contract, purchase, payment, claim or transaction, (5) persons or entities seeking official action from TRS, or (6) any other person or entity who gives the Benefit because of the Employee's official position with TRS. Persons employed by the same entity, and entities with common ownership or control, shall be considered to be a single donor.

16. **“Second Degree by Consanguinity or Affinity,”** as determined in accordance with Sections 573.021-025, Texas Government Code, includes the following persons related to the Employee: (1) by consanguinity (blood relative) - a child, grandchild, parent, grandparent, brother, and sister; and (2) by affinity (marriage) – a spouse and the spouse's child, grandchild, parent, grandparent, brother, and sister. A person adopted into a family is considered a relative on the same basis as a natural born family member. A person is considered a spouse even if the marriage has been dissolved by death or divorce if there are surviving children of that marriage.
17. **“Security” or “Securities”** means, for purposes of this Policy, (a) all types of publicly traded equity and debt securities of companies listed on a domestic or foreign exchange, including without limitation, any equity security included in a TRS policy benchmark, common stocks, preferred stocks, bonds convertible into equities, rights, warrants, units, depositary receipts and (b) Derivatives of equity securities, including without limitation, swaps, futures, options, and the functional equivalents of such instruments. The terms “Security” or “Securities” do not include: (i) open-ended mutual fund investment companies registered under the Investment Company Act of 1940; (ii) U.S. Government-issued securities; (iii) municipal debt obligations; (iv) money market instruments (*i.e.*, bankers' acceptances, bank certificates of deposit, commercial paper, repurchase agreements and other high quality short-term debt instruments); and (v) any exchange traded fund (“ETF”) of sufficient size that TRS trades are unlikely to affect the fair market value of the ETF's shares, as determined by the Compliance Officer in consultation with TRS Investment Management Division staff.
18. **“Third Degree by Consanguinity or Affinity,”** as determined in accordance with Sections 573.021-025, Texas Government Code, includes the following persons related to the Employee: (1) by consanguinity (blood relative) - a child, grandchild, great-grandchild, parent, grandparent, great-grandparent, brother, sister, uncle, aunt, niece or nephew; and (2) by affinity (marriage) – a spouse and the spouse's child, grandchild, great-grandchild, parent, grandparent, great-grandparent, brother, sister, uncle, aunt, niece or nephew. A person adopted into a family is considered a relative on the same basis as a natural born family member. A person is considered a spouse even if the marriage has been dissolved by death or divorce if there are surviving children of that marriage.

19. **“TRS”** means the Teacher Retirement System of Texas.
20. **“TRS Matter”** means any transaction, event, occurrence, situation, or state of affairs relating to TRS business and responsibilities, including policies, administration of benefits or programs or operations, current or prospective contracts, procurements or contracting opportunities, employees or employment opportunities, proceedings such as rule making and appeals, investments and investment opportunities, and legislation relating to or affecting TRS.
21. **“Trustee”** means a member of the Board of TRS.

## CFA Institute

### Code of Ethics and Standards of Professional Conduct

As amended and restated in the  
*Standards of Practice Handbook*, 9th edition

#### *The Code of Ethics*

Members of the CFA Institute (including Chartered Financial Analyst [CFA] charterholders) and candidates for the CFA designation (“Members and Candidates”) must:

- Act with integrity, competence, diligence, respect, and in an ethical manner with the public, clients, prospective clients, employers, employees, colleagues in the investment profession, and other participants in the global capital markets.
- Practice the integrity of the investment profession and the interests of clients above their own personal interests.
- Use reasonable care and exercise independent professional judgment when conducting investment analysis, making investment recommendations, taking investment actions, and engaging in other professional activities.
- Practice and encourage others to practice in a professional and ethical manner that will reflect credit on ourselves and the profession.
- Promote the integrity of, and uphold the rules governing, capital markets.
- Maintain and improve their professional competence and strive to maintain and improve the competence of other investment professionals.

#### *Standards of Professional Conduct*

##### **I. PROFESSIONALISM**

**A. Knowledge of the Law.** Members and Candidates must understand and comply with all applicable laws, rules, and regulations (including the CFA Institute Code of Ethics and Standards of Professional Conduct) of any government, regulatory organization, licensing agency, or professional association governing their professional activities. In the event of conflict, Members and Candidates must comply with the more strict law, rule, or regulation. Members and Candidates must not knowingly participate or assist in and must dissociate from any violation of such laws, rules, or regulations.

**B. Independence and Objectivity.** Members and Candidates must use reasonable care and judgment to achieve and maintain independence and objectivity in their professional activities. Members and Candidates must not offer, solicit, or accept any gift, benefit, compensation, or

consideration that reasonably could be expected to compromise their own or another's independence and objectivity.

**C. Misrepresentation.** Members and Candidates must not knowingly make any misrepresentations relating to investment analysis, recommendations, actions, or other professional activities.

**D. Misconduct.** Members and Candidates must not engage in any professional conduct involving dishonesty, fraud, or deceit or commit any act that reflects adversely on their professional reputation, integrity, or competence.

## II. INTEGRITY OF CAPITAL MARKETS

**A. Material Nonpublic Information.** Members and Candidates who possess material nonpublic information that could affect the value of an investment must not act or cause others to act on the information.

**B. Market Manipulation.** Members and Candidates must not engage in practices that distort prices or artificially inflate trading volume with the intent to mislead market participants.

## III. DUTIES TO CLIENTS

**A. Loyalty, Prudence, and Care.** Members and Candidates have a duty of loyalty to their clients and must act with reasonable care and exercise prudent judgment. Members and Candidates must act for the benefit of their clients and place their clients' interests before their employer's or their own interests. In relationships with clients, Members and Candidates must determine applicable fiduciary duty and must comply with such duty to persons and interests to whom it is owed.

**B. Fair Dealing.** Members and Candidates must deal fairly and objectively with all clients when providing investment analysis, making investment recommendations, taking investment action, or engaging in other professional activities.

**C. Suitability.**

1. When Members and Candidates are in an advisory relationship with a client, they must:
  - a. Make a reasonable inquiry into a client's or prospective clients' investment experience, risk and return objectives, and financial constraints prior to making any investment recommendation or taking investment action and must reassess and update this information regularly.
  - b. Determine that an investment is suitable to the client's financial situation and consistent with the client's written objectives, mandates, and constraints before making an investment recommendation or taking investment action.
  - c. Judge the suitability of investments in the context of the client's total portfolio.
2. When Members and Candidates are responsible for managing a portfolio to a specific mandate, strategy, or style, they must only make investment recommendations or take investment actions that are consistent with the stated objectives and constraints of the portfolio.

**D. Performance Presentation.** When communicating investment performance information, Members or Candidates must make reasonable efforts to ensure that it is fair, accurate, and complete.

**E. Preservation of Confidentiality.** Members and Candidates must keep information about current, former, and prospective clients confidential unless:

1. The information concerns illegal activities on the part of the client or prospective client.
2. Disclosure is required by law.
3. The client or prospective client permits disclosure of the information.

#### **IV. DUTIES TO EMPLOYERS**

**A. Loyalty.** In matters related to their employment, Members and Candidates must act for the benefit of their employer and not deprive their employer of the advantage of their skills and abilities, divulge confidential information, or otherwise cause harm to their employer.

**B. Additional Compensation Arrangements.** Members and Candidates must not accept gifts, benefits, compensation, or consideration that competes with, or might reasonably be expected to create a conflict of interest with, their employer's interest unless they obtain written consent from all parties involved.

**C. Responsibilities of Supervisors.** Members and Candidates must make reasonable efforts to detect and prevent violations of applicable laws, rules, regulations, and the Code and Standards by anyone subject to their supervision or authority.

#### **V. INVESTMENT ANALYSIS, RECOMMENDATIONS, AND ACTION**

**A. Diligence and Reasonable Basis.** Members and Candidates must:

1. Exercise diligence, independence, and thoroughness in analyzing investments, making investment recommendations, and taking investment actions.
2. Have a reasonable and adequate basis, supported by appropriate research and investigation, for any investment analysis, recommendation, or action.

**B. Communication with Clients and Prospective Clients.** Members and Candidates must:

1. Disclose to clients and prospective clients the basic format and general principles of the investment processes used to analyze investments, select securities, and construct portfolios and must promptly disclose any changes that might materially affect those processes.
2. Use reasonable judgment in identifying which factors are important to their investment analyses, recommendations, or actions and include those factors in communications with clients and prospective clients.
3. Distinguish between fact and opinion in the presentation of investment analysis and recommendations.

**C. Record Retention.** Members and Candidates must develop and maintain appropriate records to support their investment analysis, recommendations, actions, and other investment-related communications with clients and prospective clients.

#### **VI. CONFLICTS OF INTEREST**

**A. Disclosure of Conflicts.** Members and Candidates must make full and fair disclosure of all matters that could reasonably be expected to impair their independence and objectivity or interfere with respective duties to their clients, prospective clients, and employer. Members and Candidates must ensure that such disclosures are prominent, are delivered in plain language, and communicate the relevant information effectively.

**B. Priority of Transactions.** Investment transactions for clients and employers must have priority over investment transactions in which a Member or Candidate is the beneficial owner.

**C. Referral Fees.** Members and Candidates must disclose to their employer, clients, and prospective clients, as appropriate, any compensation, consideration, or benefit received from, or paid to, others for the recommendation of products or services.

## **VII. RESPONSIBILITIES AS A CFA INSTITUTE MEMBER OR CFA CANDIDATE**

**A. Conduct as Members and Candidates in the CFA Program.** Members and Candidates must not engage in any conduct that compromises the reputation or integrity of CFA Institute or the CFA designation or the integrity, validity, or security of the CFA examinations.

**B. Reference to CFA Institute, the CFA designation, and the CFA Program.** When referring to CFA Institute, CFA Institute membership, the CFA designation, or candidacy in the CFA Program, Members and Candidates must not misrepresent or exaggerate the meaning or implications of membership in CFA Institute, holding the CFA designation, or candidacy in the CFA Program.

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## Exhibit B

# **Teacher Retirement System of Texas**

## **Employee Ethics Policy**

**Adopted: October 9, 2009**

**Revised: \_\_\_\_\_**

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## I. Overview

The Teacher Retirement System of Texas (“TRS”) is charged by the Texas Constitution and state law with the administration of pension assets held in trust for the exclusive benefit of active or retired TRS members and their beneficiaries, and assets may not be diverted. Certain Employees are subject to fiduciary duties of prudence and loyalty. The duty of prudence compels Employees to exercise the judgment and care under the circumstances then prevailing that persons of ordinary prudence, discretion, and intelligence exercise in the management of their own affairs when making investment decisions. The duty of loyalty requires Employees to have an undivided loyalty to the participants of the trust and to exclude all other interests. All operations and activities of TRS must be undertaken solely to advance and protect the interests of the members, retirees, and beneficiaries of the pension plan and must be conducted in a prudent manner. Similarly, TRS is trustee of other trusts that must be administered according to their terms and TRS, as trustee, is subject to fiduciary responsibilities under trust law with regard to those assets and the participants of each particular trust. These other trusts include the TRS-Care health benefits program, the TRS-ActiveCare health benefits program, and the 403(b) Certification Program. Accordingly, Employees have fiduciary duties commonly associated with pensions and other trusts, and each Employee must exercise an independent judgment on behalf of each trust. These duties extend not only to the investment activities but also to the application of TRS benefit provisions, the establishment of actuarial assumptions, the collection of amounts owed TRS, and the general administration of TRS.

TRS is a public entity. Consequently, Employees have the special responsibilities for honesty and integrity applicable to public servants. Texas Government Code, Chapters 572, 825, and 2203, along with Texas Penal Code, Chapters 36 and 39, describe specific standards of conduct that the TRS Employees must follow.

This Employee Ethics Policy (the “Policy”) specifies standards of conduct expected of Employees in view of these responsibilities. Although many of its provisions are based upon legal and fiduciary concepts, this Policy should not be interpreted as an exclusive and complete statement of legal and fiduciary responsibilities and its provisions should not necessarily be construed as only statements of legal and fiduciary responsibility. This Policy does not supersede any applicable federal or Texas law or administrative rule. All Employees must abide by all applicable federal and Texas law, including applicable fiduciary duties; administrative rules; and TRS conduct policies, including this Policy.

Adherence to this Policy will allow Employees to meet any applicable fiduciary obligations, comply with statutory mandates, and facilitate mutual respect and public confidence.

Any ambiguity in this Policy generally will be resolved in accordance with applicable legal or fiduciary standards.

In fulfilling the Board's roles and responsibilities and pursuant to requirements of applicable statutes, the Board has delegated to the Executive Director the responsibilities outlined in the Bylaws, including management of the day-to-day operations of TRS. Through the Bylaws, the Board has also delegated authority for some matters to the Executive Director or the staff, in accordance with Board actions or applicable law, including the following: certain investment decisions, contracts, payments and other releases of assets, and litigation decisions. Further, the Board has delegated authority to staff in various other policies, such as the investments policies adopted by the Board.

Capitalized terms are defined in Appendix A, attached hereto and incorporated herein for all purposes, if not otherwise described in the text of this Policy. Therefore, the definitions in Appendix A shall apply unless the context requires otherwise.

## **II. General Conduct Guidelines**

Employees shall fulfill the following fiduciary duties and abide by the general conduct guidelines detailed below:

- A. Exercise undivided loyalty to the trust participants;
  - An Employee must exercise care and caution always to place the interests of trust participants and TRS ahead of the Employee's own interest and to act exclusively in the interest of the respective participants of each trust. No Employee may represent any person in any action or proceeding before or involving the interests of TRS except as a duly authorized representative or agent of TRS.
  - On all matters related to or involving TRS, an Employee's actions must benefit the interests of trust participants and trust funds.
- B. Dissociate one's personal viewpoints from the objective requirements of the Employee's fiduciary obligations to trust participants;
  - An Employee must act with integrity, competence, diligence, respect, and in a transparent and an ethical manner in all matters related to or involving TRS, including all dealings with the participants of a TRS trust, TRS Trustees, other TRS staff, and the public.
- C. Exercise care, skill, prudence, and diligence appropriate to the prevailing circumstances;
- D. An Employee must abide by all applicable laws, rules, and regulations, including the terms of the pension plan and, as applicable, the specific laws and rules governing other programs administered by TRS;
- E. Avoid unreasonable favoritism toward one beneficiary group over another;
  - An Employee must deal fairly, objectively, and impartially with all participants.

- F. Refrain from prohibited or conflicted actions.
- An Employee must maintain independence and objectivity with respect to the execution of the Employee's responsibilities to TRS and to trust participants and must avoid actions or activities that create an appearance of bias or that bring into question the Employee's own independence of judgment. This includes avoiding conflicts of interest, refraining from self-dealing, and refusing any gift that could reasonably be expected to affect an Employee's loyalty.
  - No Employee may influence the investment decision-making process of TRS, either for personal gain or private advantage or in a manner detrimental to the interests of TRS.
  - An Employee must maintain the confidentiality of TRS and trust participant information and must never use such information for personal gain or for the gain of third parties.

### **III. Specific Legal Standards of Conduct**

The following specific legal standards of conduct apply to Employees:

- A. An Employee shall not:
1. accept or solicit any gift, favor, or service that might reasonably tend to influence the Employee in the discharge of official duties, or that the Employee knows or should know is being offered with the intent to influence the Employee's official conduct;
  2. intentionally or knowingly solicit, accept, or agree to accept any benefit for having exercised his or her official powers or performed his or her official duties in favor of another;
  3. disclose confidential information, information that is excepted from public disclosure under the Texas Public Information Act, or information that has been ordered sealed by a court, that was acquired by reason of the Employee's official position except when the Executive Director, or his designee, determines such disclosure is either permitted or required by law;
  4. accept other employment, including self-employment, or engage in a business, charity, nonprofit organization, or professional activity that the Employee might reasonably expect would require or induce the Employee to disclose confidential information, information that is excepted from public disclosure under the Texas Public Information Act, or information that has been ordered sealed by a court, that was acquired by reason of the Employee's official position;
  5. have a direct or indirect interest, including financial and other interests, or engage in a business transaction or professional activity, or incur any obligation of any

nature that is in substantial conflict with the proper discharge of the Employee's duties in the interest of TRS;

6. accept other employment, including self-employment, or compensation or engage in a business, charity, nonprofit organization, or professional activity that could reasonably be expected to impair the Employee's independence of judgment in the performance of the Employee's official duties;
7. make personal investments, or have a personal or financial interest, that could reasonably be expected to create a substantial conflict between the Employee's private interest and the public interest;
8. use TRS or state personnel time (*i.e.*, time for which you or other Employees are being paid by TRS or the state), information, property, facilities, equipment or other resources, or information or resources paid for by TRS, for any purpose other than official TRS business. Notwithstanding the above, use of an Employee's own TRS or state personnel time, or use of TRS or state information, property, facilities, equipment and other resources is acceptable if such use
  - does not result in any direct cost to TRS or the state,
  - does not impede TRS functions,
  - is not for private commercial purposes,
  - is reasonable and incidental, and
  - does not violate applicable TRS policies.Likewise, a person may not entrust TRS or state information, property, facilities, equipment or other resources, or information or resources paid for by TRS or the state, to any other person if the information, property, facilities, equipment or other resources are not to be used for TRS purposes;
9. use his or her official position for financial gain, obtaining privileges, or avoiding consequences of illegal acts, including but not limited to:
  - accepting, under any circumstances, offers by reason of their position with TRS to trade in any security or other investment on terms more favorable than available to the general investing public;
  - borrowing from Contractors unless such entities are normally engaged in such lending in the usual course of their business, and then only on customary terms offered to others under similar circumstances to finance proper and usual activities;However, this should not be interpreted to forbid communicating to others the fact that a relationship with TRS exists, provided that no misrepresentation is involved;
10. with intent to obtain a benefit or with intent to harm or defraud another, intentionally or knowingly;

- violate a law relating to the Employee's position with TRS; or
  - misuse TRS time, property, services, personnel, or any other thing of value belonging to TRS that has come into the Employee's custody or possession by virtue of the Employee's position with TRS;
11. knowingly make misleading statements, either oral or written, or provide false information, in the course of official state business;
  12. use TRS or, as applicable, state resources for any political activity;
  13. contract on behalf of TRS with any entity, or an affiliate controlled by such entity, that employs or is represented by a former Trustee or former Employee if such employment or representation would violate the prohibitions on employment of or representation by former public servants contained in Section 572.054 of the Texas Government Code. Notwithstanding the provisions of Section 572.054, the Board may authorize such a contract if the Board determines that the contract would be prudent for TRS. TRS contracts must provide for a termination option, whereby TRS may terminate a contract with an entity, or an affiliate controlled by such entity, in the event that such entity or controlled affiliate employs or uses the services of a former Trustee or former Employee in violation of this Policy;

Section 572.054 of the Texas Government Code prohibits a former Trustee or former Executive Director from making any communication to or appearance before an officer or Employee of TRS before the second anniversary of the date the Trustee or Executive Director ceased being a member of the Board or the Executive Director if the communication or appearance is made:

- with the intent to influence; and
- on behalf of any person in connection with any matter on which the person seeks official action.

Also pursuant to Section 572.054, at no time in the future may a former Trustee or former Employee represent any person or receive compensation for services rendered on behalf of any person regarding a particular matter in which the Trustee or Employee participated, either through personal involvement or because the matter was within the Trustee's or Employee's official responsibility;

14. except for an interest in TRS assets as a member of TRS, have a direct or indirect interest in the gains from investments made with TRS assets and shall not receive any compensation for service other than designated salary and authorized expenses;
15. advise or make decisions about matters affected by a conflict of interest as defined and provided in subsection IV. A. of this Policy; or

16. participate in or be the beneficiary of, directly or indirectly, a loan, commitment to lend, a guarantee or endorsement to lend, or investment by TRS or a contract to advise TRS or manage property or investments for TRS, except this prohibition does not apply to actions taken by an Employee within the scope of the Employee's official duties for TRS, if the actions do not involve a relationship that the Employee must disclose. An Employee must disclose a relationship if the Employee or a person related within the Second Degree by Consanguinity or Affinity to the Employee has a business or commercial relationship that could reasonably be expected to diminish the Employee's independence of judgment in the performance of the Employee's responsibilities to TRS. The Employee shall disclose such a relationship in writing to *the Executive Director or his designee*.
- B. An Employee in a "bona fide executive, administrative, or professional capacity," as that phrase is used for purposes of establishing an exemption to the overtime provisions of the federal Fair Labor Standards Act of 1938 (29 U.S.C. Section 201 et seq.) and the spouse of the Employee shall not be a paid officer, employee, or consultant of a Texas trade association<sup>1</sup> in the field of investment or insurance.
- C. The General Counsel shall not be registered, or be required to be registered, as a lobbyist under Chapter 305 of the Texas Government Code because of the person's activities for compensation on behalf of a business or an association related to the operation of the Board.

#### **IV. Conflicts of Interest**

- A. In addition to conflicts that may arise under circumstances addressed in section III. above, a conflict of interest exists for an Employee whenever the Employee has a relationship or interest that could reasonably be expected to diminish the Employee's independence of judgment in the performance of the Employee's responsibilities to TRS.
- B. No Employee may take action personally (*e.g.*, in the establishment of personal, employment, or business relationships or interests) or on behalf of TRS that will result in a reasonably foreseeable conflict of interest. Should there be action which an Employee believes to be in the best interest of TRS but which could foreseeably result in a personal conflict of interest, the Employee must disclose such fact to the Executive Director prior to taking such action.
- C. No Employee may participate in a matter before TRS that involves a business, contract, property or investment held by the Employee if it is reasonably foreseeable that TRS action

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<sup>1</sup> A Texas trade association means a cooperative and voluntarily joined association of business or professional competitors in Texas designed to assist its members and its industry or profession in dealing with mutual business or professional problems and in promoting their common interest.

on the matter would confer a Benefit to the Employee by or through the business, contract, property or investment. This prohibition on participation in matters involving Benefits for an Employee's own interest does not apply if the Benefit is merely incidental to the Employee's membership in a large class such as the class of TRS members.

- D. No Employee may recommend or cause discretionary TRS business to be transacted with or for the benefit of a Relative.
- E. If an Employee is uncertain whether he has or would have a conflict of interest under a particular set of circumstances then existing or reasonably anticipated to be likely to occur, or if an Employee is uncertain whether the common-law or statutory law prohibits the Employee from having a direct or indirect interest or relationship, such Employee should promptly inform the Executive Director, who shall evaluate whether a conflict of interest exists under the circumstances presented or whether a prohibition exists under applicable common-law and statutory law. If the Executive Director determines that the Employee does not or would not have a conflict under the facts presented and no statutory or common-law prohibition exists, the Employee is not required to make a disclosure pursuant to subsection IV. F. If the Executive Director determines that a conflict or prohibition may exist under the facts and circumstances presented, the Executive Director will advise and discuss the evaluation with the Employee in order to assist the Employee in determining whether a conflict or prohibition actually exists. If a conflict exists, the Employee must make a disclosure pursuant to subsection IV. F. and cure the conflict. Also, if it is determined that a conflict would exist upon the occurrence of the anticipated circumstances and they later do occur, the Employee must make a disclosure pursuant to subsection IV. F. upon the occurrence of such events and cure the conflict.

If the Executive Director determines that the Employee's proposed cure of an existing conflict is not appropriate and sufficient under the standards in subsection IV. G., the Executive Director shall consult with the General Counsel regarding the viability of a waiver under applicable law, and shall so inform the Ethics Committee of the Board. The Employee will take appropriate action to respond to any statutory or common-law prohibitions that exist, including the prohibition addressed in Section IV. H. below.

- F. An Employee must promptly
- disclose his own conflicts of interest in writing to the Executive Director through the Conflict of Interest Disclosure Statement, and
  - disclose conflicts of interest involving others of which the Employee becomes aware, either in writing to the Executive Director through the Conflict of Interest Disclosure Statement or verbally by contacting the TRS "hot" line for anonymous ethics reporting.

Other than the Executive Director, should an Employee with a duty to disclose conflicts of interest have reasonable cause to believe disclosure to the Executive Director will be

ineffective, the Employee should file any written disclosure made through the Conflicts of Interest Disclosure Statement with the General Counsel.

In complying with this subsection, any Conflict of Interest Disclosure Statement filed by the Executive Director shall be filed with the General Counsel. Should the Executive Director have reasonable cause to believe disclosure to the General Counsel will be ineffective, the Executive Director shall file any written disclosure made through the Conflicts of Interest Disclosure Statement with the Deputy Director.

The Executive Director will report to the Ethics Committee of the Board regarding the Conflict of Interest Disclosure Statements and the verbal reports via the TRS “hot” line that are received by TRS, and provide a copy of the report to the General Counsel.

If the conflict of interest being reported by an Employee involves a Contractor, the Executive Director shall provide notice of the reported conflict of interest to the TRS personnel who supervise or monitor the Contractor, unless the Executive Director reasonably believes that such disclosure would be detrimental to the resolution of the conflict.

- G. Employees who become aware, or reasonably should have become aware, of a personal conflict of interest, have a duty not only to disclose that conflict, but also to cure it. An Employee normally cures a conflict of interest by promptly eliminating it. An Employee who cannot or does not wish to eliminate the conflict must terminate his or her relationship with TRS as quickly as responsibly and legally possible.

If an Employee may prudently withdraw from action on a particular matter in which a conflict exists, he or she may cure the conflict in that manner provided that

1. The Employee may be and is effectively separated from influencing the action taken,
2. The action may properly be taken by others, and
3. The nature of the conflict is not such that the Employee must regularly and consistently withdraw from decisions that are normally his or her responsibility with respect to TRS.

- H. An Employee who files a Conflict of Interest Disclosure Statement must refrain from giving advice or making decisions about matters affected by the conflict of interest. The Board hereby delegates to the Executive Director the authority to waive this prohibition. This prohibition concerning the Employee’s actions continues in place unless the Executive Director, after consultation with the General Counsel, expressly waives this prohibition, thereby effectively waiving the conflict of interest for that matter. To assist it in deciding whether to grant waivers, the Board may develop criteria for determining the kinds of

relationships that do not constitute material conflicts of interest. Records of all waivers granted with the supporting reasons will be maintained by the General Counsel. The Executive Director will advise the Ethics Committee of the Board of his decision to grant or deny a waiver.

- I. It shall not be considered a conflict solely because
  - 1. An Employee is a member, retiree, or beneficiary of the system or has an interest no greater than a large class of its members, retirees, or beneficiaries, or
  - 2. An Employee has an investment in the stock of a publicly traded corporation which is owned, purchased, or sold by TRS, provided that the Employee's interest in the stock is not more than ten (10) percent of any class of stock of the corporation.
- J. Employees should become familiar with the TRS Code of Ethics for Contractors (the "Code of Ethics"), and any reporting responsibilities placed on such Employees.
- K. With respect to each proposed, pending, or closed transaction by TRS concerning a Private Investment, and except as disclosed in writing pursuant to this subsection IV. K., each Employee who actively participates in the decision-making process (an "Active Employee") on behalf of TRS with regard to a given Private Investment, including the review, evaluation or recommendation of a TRS investment, represents that:
  - 1. The Active Employee has not solicited or accepted any direct or indirect Benefit or interest, or received or agreed to accept any Benefit or interest from any individual or entity in connection with the Private Investment, and is not aware of any personal Benefit or interest that may result or arise from TRS's investment or decision to invest in the Private Investment.
  - 2. To the best of the Active Employee's knowledge, no Relative of the Active Employee has received any direct or indirect Benefit or interest or any promise of a Benefit or interest relating to or arising from TRS's investment or decision to invest in the Private Investment, and the Active Employee is not aware of any Benefit to or interest of a Relative that may result or arise from TRS's investment or decision to invest in the Private Investment.
  - 3. Neither the Active Employee nor, to the best of the Active Employee's knowledge, any Relative of the Active Employee, has acquired or has any current intention of acquiring any Benefit or interest, including an ownership interest in the same Private Investment and, so long as the Active Employee holds the position of an Active Employee, neither the Active Employee nor a Relative of the Active Employee will acquire such an interest.

4. Neither the Active Employee nor, to the best of the Active Employee's knowledge, any Relative of the Active Employee has or will have an economic or beneficial interest in a general partner, managing member, servicer, underwriter, sponsor, investment adviser, or investment manager of the Private Investment as identified by TRS staff; and so long as the Active Employee holds the position of an Active Employee, neither the Active Employee nor a Relative of the Active Employee will knowingly acquire an economic or beneficial interest in any such entity.
5. The Active Employee has no business relationship with the TRS consultant or adviser recommending the Private Investment, or with any other consultant identified by TRS staff as giving advice or assistance to TRS with regard to the particular Private Investment.
6. The Active Employee is unaware of any existing relationships, interests, or other facts that could reasonably be expected to diminish the Active Employee's independence of judgment as an Active Employee and thereby constitute a conflict of interest in connection with the Active Employee's actions as an Active Employee relating to the Private Investment.

If an Active Employee is unable to make all the representations immediately above in this subsection IV. K. with regard to a Private Investment, then the Active Employee should notify the Executive Director in writing immediately upon receipt of information regarding the Private Investment so that a determination of the appropriate course of action can be made prior to authorization by TRS or, in any event, prior to TRS's becoming contractually bound to fund the Private Investment.

## **V. Trading**

- A. The Executive Director, or his designee, shall develop and implement a trading policy (the "Trading Policy") that addresses policies, procedures, and standards of conduct applicable to Employees in the conduct of each Employee's personal trading activities and trading activities undertaken on behalf of TRS. Additionally, the Executive Director, or his designee, is authorized to amend the Trading Policy from time to time as the Executive Director deems advisable and to issue or modify forms to fully implement the provisions of the Trading Policy, as amended from time to time. Employees shall comply with the Trading Policy.
- B. Restricted List. No Employee or spouse of the Employee may have or borrow a Security (or a Derivative thereof) or other ownership or profit sharing interest in a Contractor with which TRS does business, except as permitted below.

This prohibition applies to a Security (or a Derivative thereof) or other ownership or profit sharing interest held for an Employee's own account or an account in which he or she has a Beneficial Ownership.

If an Employee or a spouse of an Employee (1) has an interest prohibited by this Section prior to becoming an employee or prior to the entity becoming a TRS contractor, or (2) receives an interest prohibited by this Section by inheritance or gift, the Employee or spouse may hold but not add to the interest. The Employee or spouse, in his or her discretion, may dispose of the interest at a time of his or her choosing, provided the Employee or spouse complies with all applicable laws and policies. The Employee shall evaluate whether holding the interest creates a conflict of interest, and if so, will handle the conflict of interest as required by this Policy.

## **VI. Nepotism**

- A. TRS may not employ a person who is a Relative of a Trustee. This does not prevent the continued employment of a person who has already been working for TRS for thirty consecutive days prior to the date of a related Trustee's appointment.
- B. No Employee may exercise discretionary authority to hire, evaluate or promote a Relative. No Employee may supervise a Relative, either directly or indirectly. As used herein, "supervise" means to oversee, with the powers of direction and decision-making, the implementation of one's own or another's intentions. Supervision normally involves assigning duties, overseeing and evaluating work, and approving leave.

## **VII. Benefits**

- A. An Employee shall not solicit, accept, or agree to accept from any donor:
  - 1. a Benefit that the Employee knows or should know is consideration for the Employee's decision, opinion, recommendation, vote, or other exercise of discretion as an Employee, or for having exercised the Employee's official powers or performed the Employee's official duties in favor of another<sup>2</sup>;
  - 2. a Benefit that the Employee knows or should know is consideration for a violation of a duty imposed by law on the Employee;

3. a Benefit that might reasonably tend to influence the Employee in the discharge of official duties or that the Employee knows or should know is offered with the intent to influence the Employee's official conduct;
  4. a Benefit if the source of the Benefit is not identified or if the Employee knows or has reason to know that the Benefit is being offered through an intermediary; or
  5. a Benefit that creates a reasonably foreseeable conflict of interest or an actual conflict of interest as defined in subsection IV. A. or that could reasonably be expected to impair the Employee's independence of judgment in the performance of the Employee's official duties.
- B. Except as provided in this subsection VII. B., in subsection VII. C., or in subsection VII. D., an Employee shall not solicit, accept or agree to accept (or offer, give, or agree to give) any Benefit from (to) a Restricted Donor.
- C. As long as the prohibitions in subsection VII. A. are not violated, an Employee may accept or agree to accept from a Restricted Donor:
1. gifts given on special occasions between Trustees and/or Employees;
  2. an item with a value of less than \$50, received from the same donor or employees of the same donor on infrequent occasions, excluding cash, cash equivalents, or a negotiable instrument as described by Section 3.104, Business & Commerce Code;
  3. a fee prescribed by law to be received by the Employee or any other Benefit to which the Employee is lawfully entitled or for which he gives legitimate consideration in a capacity other than as an Employee of TRS; or
  4. a Benefit conferred on account of kinship or a personal, professional, or business relationship independent of the official status of the Employee.
- D. Food, Lodging, Transportation and Entertainment. The following apply to items of food, lodging, transportation and entertainment offered by or accepted from a Restricted Donor:
1. No standard set forth in subsection VII. A. may be violated when acting under subsections VII. D. 2. through 5. immediately below.
  2. Modest items of food (with a value less than \$50 per person) are permissible only if given or accepted on infrequent occasions.
  3. Food items (with a value of \$50 or more per person) are permissible only if

- provided in connection with a business meeting, business meal, business conference, or reception; and
  - the donor or a representative of the donor is present.
4. Lodging, transportation, or entertainment are permissible only if (i) approved by the Executive Director; (ii) in connection with receptions, business meals, business meetings, or business conferences that serve a TRS purpose and (iii) the donor or a representative of the donor will be present at the reception, business meal, business meeting, business conference, or entertainment. The Executive Director shall provide notice to the Chair of the Board's Audit Committee of any approvals for Restricted Donors to pay for any expenses related to business conferences under this section.
5. If the Employee is required by law to report any items of food, lodging, transportation, and entertainment, such must be reported by the Employee.
- E. If otherwise permitted by this Policy, lodging and transportation may not be accepted from a person registered as a lobbyist in Texas unless in connection with a fact-finding trip or to a seminar or conference at which the Employee will provide services, such as speaking, and the services are more than merely perfunctory<sup>3</sup>. Entertainment provided by a lobbyist may not exceed the cumulative value of \$500 in a calendar year. Benefits provided by a lobbyist, other than food, lodging, transportation and entertainment, may not exceed the cumulative value of \$500 in a calendar year.
- F. If an unsolicited Benefit that violates any provision of this section VII. is received by an Employee, he or she should attempt to return the Benefit to its source or donate the Benefit to charity.

### **VIII. Outside Employment and Certain Other Outside Activities**

- A. Employees may not engage in outside employment, business, or other activities, whether compensated or uncompensated, that detract from the ability to fulfill their full-time responsibilities to TRS. Employees must obtain advance written approval from the Executive Director for any outside employment or business. The Executive Director may delegate authority to approve outside employment to appropriate executive staff members.
- B. Employees who work in the TRS Investment Management Division or who in the course of their regular duties for TRS have access to current information concerning investment recommendations or decisions of TRS, may not, without advance approval from the Executive Director, advise, manage, or oversee an investment function for any entity,

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<sup>3</sup> Section 305.025 of the Texas Government Code.

whether profit or nonprofit, or person even if such activity would not detract from the ability to fulfill their full-time responsibilities to TRS. This prohibition applies whether the activity is compensated or uncompensated. An investment function means management of or investment advice with respect to a portfolio of investments. This prohibition does not extend to advice or management relating to individual transactions for family members or to functions normally viewed as those of a treasurer such as investing in certificates of deposit or other money market instruments. The Executive Director shall inform the Chair of the Board's Audit Committee of any approvals granted under this section. C.

- C. Any outside employment or business undertaken by the Executive Director must be approved in advance by the Board.

### **IX. Key Employees**

- A. The Board shall designate by position the Employees who exercise significant fiduciary authority. By virtue of their position with TRS, these persons are "Key Employees." Employees with fiduciary authority have a strict duty of loyalty and care to TRS, and its members and beneficiaries.
- B. Employees designated as Key Employees must acknowledge their Key Employee status in writing through the annual Ethics Compliance Statement.

### **X. Training**

Employees shall participate in annual ethics training.

### **XI. Trustee-Staff Relations and Communications**

The Board has articulated the role and responsibility of Trustees and staff by developing and implementing policies that clearly separate the policy-making responsibilities of the Board and the management responsibilities of the Executive Director and the staff of TRS. Significantly, the Board has delegated certain responsibilities to the Executive Director in Article 4.1 of the Bylaws. Additionally, the Board has delineated significant authority of staff in TRS rules and in policies adopted by the Board, including the Investment Policy Statement, the Proxy Voting Policy, and the Securities Lending Policy.

It is important that the Trustees and staff have an open and productive working relationship to accomplish the goals of TRS for members, beneficiaries and retirees.

The following will assist staff with its interactions with Trustees.

- A. The Board and staff recognize the distinctively separate policymaking and implementation roles that each plays in fund governance.

B. Providing direction to TRS Staff, Consultants and Agents:

The Board collectively is empowered to direct TRS's management, staff, and consultants on policy matters of TRS operations. Conversely, no individual Trustee speaks for or binds the Board or TRS. Staff, Consultants and agents should not interpret communications from individual Trustees as direction.

C. Staff shall keep the Executive Director and the Deputy Director informed of contacts from a Trustee related to a TRS Matter.

D. Referrals of Potential Investments or Third-Party Service Providers:

If a Trustee makes a referral, the Trustee will make a referral and any follow-up inquiries to the Executive Director or, for investment matters, to the Chief Investment Officer. The Executive Director shall inform the other Trustees of any follow-up communications made by a referring Board member if they are repetitive or otherwise create concern.

With regard to all referrals, including those from a Trustee, the staff will evaluate the referred party or opportunity under then existing operating standards and procedures, without regard to the source of the referral.

## **XII. Compliance With Professional Standards**

A. Employees who are members of professional organizations that promulgate standards of conduct must comply with those standards.

B. Employees in the TRS Investment Management Division must comply with the CFA Institute's Code of Ethics and Standards of Professional Conduct (together, the "Standards") as amended from time to time by the CFA Institute. The Standards constitute Appendix B to this Policy.

## **XIII. Financial and Compliance Disclosures**

A. The Executive Director must annually file a verified Personal Financial Statement with the Texas Ethics Commission in compliance with Subchapter B of Chapter 572 of the Texas Government Code. Copies of this Personal Financial Statement can be obtained from the Texas Ethics Commission. In addition, at the same time the Executive Director files a copy of his or her verified financial statement with the Texas Ethics Commission, the Executive Director shall file an identical copy of the verified financial statement with the General Counsel and the Chief Audit Executive.

- B. Key Employees must file enhanced disclosure statements with the Executive Director or his designee. The content of these statements shall disclose a key employee's, a key employee's spouse's, and a key employee's dependent child(ren)'s and other dependent's private investments, material debts, non-TRS fiduciary positions, non-TRS employment, and material Benefits received from Restricted Donors.

Key Employees must file the enhanced disclosure statement within 30 days of their date of employment as a Key Employee. The Key Employee's first such enhanced disclosure statement must address the calendar year immediately prior to their date of employment as a Key Employee. Thereafter, an enhanced disclosure statement must be filed by April 30th of each year covering the preceding calendar year. Notwithstanding anything to the contrary, in no event shall a Key Employee be required to file a second enhanced disclosure statement covering the same calendar year. The Executive Director may postpone a filing deadline for not more than 60 days on written request or for an additional period for good cause, as determined by the Chairman of the Board.

- C. In addition to disclosures required in other provisions of this Policy (*e.g.*, subsections IV. F.), Employees with knowledge of a violation of this Policy, the Trustee Ethics Policy, or of the Code of Ethics must promptly
- report his own violation of this Policy in writing to the Executive Director, and
  - report violations, of which he becomes aware, of this Policy, the Trustee Ethics Policy, or of the Code of Ethics by any other individual or entity, either in writing to the Executive Director or verbally by contacting the TRS "hot" line for anonymous ethics reporting.
- D. Within sixty (60) days of the date of employment, in the case of new Employees, and within sixty (60) days of the date of employment in a position as a new Key Employee, the Employee or Key Employee, as the case may be, must file a completed ethics compliance statement that he has received and read this Policy, that he will comply with its provisions, and that it is his duty to report any acts by Trustees, other Employees, or Contractors when he has knowledge of violations of this Policy. This statement will also include a reminder that he is required to update his ethics compliance statement if a change in circumstances occurs that would require reporting under this Policy.

Employees must annually file a completed ethics compliance statement. These annual ethics compliance statements are due by April 30 of each year for the preceding calendar year.

Except for the Executive Director, Employees must file their completed ethics compliance statements with the Executive Director, or his or her designee. The Executive Director must file his or her compliance statement with the General Counsel. The General Counsel will provide a copy of the Executive Director's compliance statement to the Chairman of the Ethics Committee of the Board only if the Executive Director (i) has

anything to report under the four questions found in the compliance statement or (ii) checks either the third or fourth “blank” of the box labeled “Only for Key Employees.” These annual compliance statements are due by April 30 of each year.

- E. Except for the Executive Director, within sixty (60) days of the date of employment in a position as a new Key Employee, the Key Employee must file a completed Disciplinary Action Disclosure Statement with the Executive Director. Within sixty (60) days of the date an individual becomes the Executive Director, he must file a Disciplinary Action Disclosure Statement with the General Counsel. The General Counsel will provide a copy of the Executive Director’s Disciplinary Action Disclosure Statement to the Chairman of the Ethics Committee of the Board only if the Executive Director responds with a “yes” to any of the questions in this statement. A Key Employee must promptly file an updated, complete Disciplinary Action Disclosure Statement if any action occurs that would cause any answers to change on this form.
- F. The Executive Director may implement an electronic system through which Employees submit required disclosures.

#### **XIV. Custodians of Disclosures and Waivers**

The Executive Director shall be the custodian for open records purposes of disclosures required under this Policy. The General Counsel shall be the custodian for open records purposes of waivers of conflicts of interest, if any, granted by the Executive Director.

#### **XV. Enforcement**

- A. The Board will enforce this Policy through the Executive Director, who is responsible for its implementation with respect to Employees.
- B. The full range of disciplinary options under TRS personnel policies and practices may be used with respect to Employees who violate this Policy, up to and including termination. Employees shall cooperate with any investigation under this Policy.
- C. Employees who are fiduciaries shall take appropriate action as co-fiduciaries in the event a violation of this Policy would involve or does involve a breach of fiduciary duties, including using reasonable care to prevent a co-fiduciary from committing a breach of trust or to compel a co-fiduciary to redress a breach of trust.
- D. No retaliatory action will be taken toward any individual who, in good faith, makes a report of or takes action in response to a violation or suspected violation of applicable ethical laws, standards, or policies.
- E. A list will be maintained of the Contractors whose contract or relationship with TRS has been terminated because they were found to be in violation of the Code of Ethics. The

custodian of this list is the Executive Director. Termination of a contract or relationship because of a violation of the Code of Ethics can preclude another contract or relationship with TRS for a period of time up to ten years, as determined by the Executive Director or his designee, commencing from the date of the termination of the contract or relationship.

- F. The Executive Director will report to the Ethics Committee of the Board in writing by May 31 of each year, covering the immediately prior twelve-month period from May 1 to April 30, of the following:
1. any approval given for outside employment by Key Employees, including the nature of the employment;
  2. any disciplinary action disclosed by Key Employees;
  3. any Conflict of Interest Disclosure Statements and verbal reports via the TRS “hot” line that are received by TRS; and
  4. any written or verbal reports of violations of this Policy, the Trustee Ethics Policy, or of the Code of Ethics.
  5. any decision to grant or deny a waiver pursuant to Section IV. H.

#### **XVI. Conflict with Other TRS Policies**

The provisions of this Policy are intended to be read in conjunction with other TRS policies regarding ethics. To the extent that this Policy imposes obligations on Employees that are greater than those imposed in other TRS policies, these obligations are deemed to be in addition to, and not in conflict with, the obligations set forth in other TRS policies. Employees should seek the advice of the Executive Director if they have any questions about possible conflicts between this Policy and other TRS policies.

## Appendix A

### Definitions

1. **“Affinity”** means a relation which one spouse, because of marriage, has to the blood relatives of the other spouse. In other words, affinity is the connection existing in consequence of a marriage, between each of the married persons and the kindred of the other. Affinity is distinguished from “consanguinity,” which is the connection between two individuals that exists by kinship or by blood.
2. **“Beneficial Ownership”** means the true ownership of a Security or an interest in a Security as opposed to any stated legal title to ownership provided in documents or oral representations. The beneficial owner is the person that receives or has the right to receive proceeds or other advantages as a result of the ownership without regard to the nominal owner. In this Policy, Beneficial Ownership includes all types of beneficial ownership interests, such as community property or joint tenancies, the power to vote shares, profit-sharing arrangements, interests in self-directed retirement arrangements, and beneficial interests in trusts and estates, and includes, in addition to a person’s own direct beneficial ownership, an indirect beneficial interest through immediate family members (spouse, minor children, or other dependents).
3. **“Benefit”** means any gift, item, favor, payment, or service, including a promised future benefit, whether or not such gift, item, favor, payment, or service has a pecuniary value, and includes, without limitation, any gift, item, favor, payment, or service given to or accepted by a person in whose welfare an Employee has a direct and substantial interest. A Benefit does not include a gift, item, favor, payment, or service for which TRS has given due consideration.
4. **“Board”** means the Board of Trustees of TRS.
5. **“Consanguinity”** means a relation by kinship or by blood. Individuals are related by consanguinity if the individuals are descended from the same stock or common ancestor. Consanguinity is distinguished from “affinity,” which is the connection existing in consequence of a marriage, between each of the married persons and the kindred of the other.
6. **“Consultant”** means an entity or person, other than an Employee or Trustee, (i) who provides advice to TRS intended to affect or form a basis for significant TRS decisions, including but not limited to an actuary or insurance and health care plan advisor, or (ii) who provides advice to TRS and may reasonably be expected to receive for its services more than \$10,000 in compensation from TRS during a fiscal year (September 1 to August 31). For purposes of this Policy, the term “Consultant” does not include an entity or person defined in the Code of Ethics as a Broker or as a Financial Provider. However, if an entity

or person defined as a Consultant would also fall within the definition of a Financial Provider, the entity or person will be considered a Financial Provider for all purposes. If any question exists regarding who constitutes a Consultant for purposes of this Policy, the Executive Director or his designee shall make that determination.

7. **“Contractor”** is a collective term used to reference all individuals or entities that fall within any one or more of the definitions for an Agent, a Broker, a Consultant, or a Financial Provider, as each separate term is defined in the Code of Ethics.
8. **“Derivative”** means a financial product whose value or return is based on, derived from, or linked to the value of a reference rate, exchange rate, interest rate, index, or currency or an underlying Security, asset, commodity, or any combination of underlying rates, indices, currencies or securities (*i.e.*, futures contracts, forward contracts and options), but does not include mutual funds.
9. **“Employee”** means a person working for TRS in an employer-employee relationship and not in an independent contractor capacity, and includes the Executive Director and Chief Investment Officer of TRS.
10. **“Ethics Committee of the Board”** means the standing Ethics Committee of the Board established pursuant to the Bylaws of the Board, as amended from time to time.
11. **“General Counsel”** means the Employee of TRS serving in the position of chief legal advisor for TRS.
12. **“Policy”** means this Employee Ethics Policy.
13. **“Private Investment”** means an investment or decision to invest, regardless of form, made or under consideration by TRS in a private, non-publicly traded security pursuant to limited offerings of securities exempt from registration under the securities laws.
14. **“Relative”** means a person related in the Third Degree by Consanguinity (blood relative) or Affinity (marriage) determined in accordance with Sections 573.021-025, Texas Government Code. Examples of Relatives by consanguinity are a child, grandchild, great-grandchild, parent, grandparent, great-grandparent, brother, sister, uncle, aunt, niece or nephew. A person adopted into a family is considered a relative on the same basis as a natural born family member. Examples of Relatives by affinity are a spouse, any person related to the spouse within the third degree by consanguinity, or any spouse of a Relative by consanguinity or affinity. A person is considered a spouse even if the marriage has been dissolved by death or divorce if there are surviving children of that marriage.
15. **“Restricted Donor”** means (1) persons or entities with which TRS does business, (2) persons or entities seeking to do business with TRS or with whom TRS is considering

doing business, (3) non-publicly traded entities in which TRS invests or is considering investing, (4) publicly traded entities in which TRS invests or is considering investing, but only if the Employee knows that the publicly traded entity is interested in or likely to become interested in a TRS contract, purchase, payment, claim or transaction, (5) persons or entities seeking official action from TRS, or (6) any other person or entity who gives the Benefit because of the Employee's official position with TRS. Persons employed by the same entity, and entities with common ownership or control, shall be considered to be a single donor.

16. **“Second Degree by Consanguinity or Affinity,”** as determined in accordance with Sections 573.021-025, Texas Government Code, includes the following persons related to the Employee: (1) by consanguinity (blood relative) - a child, grandchild, parent, grandparent, brother, and sister; and (2) by affinity (marriage) – a spouse and the spouse's child, grandchild, parent, grandparent, brother, and sister. A person adopted into a family is considered a relative on the same basis as a natural born family member. A person is considered a spouse even if the marriage has been dissolved by death or divorce if there are surviving children of that marriage.
17. **“Security” or “Securities”** means, for purposes of this Policy, (a) all types of publicly traded equity and debt securities of companies listed on a domestic or foreign exchange, including without limitation, any equity security included in a TRS policy benchmark, common stocks, preferred stocks, bonds convertible into equities, rights, warrants, units, depositary receipts and (b) Derivatives of equity securities, including without limitation, swaps, futures, options, and the functional equivalents of such instruments. The terms “Security” or “Securities” do not include: (i) open-ended mutual fund investment companies registered under the Investment Company Act of 1940; (ii) U.S. Government-issued securities; (iii) municipal debt obligations; (iv) money market instruments (*i.e.*, bankers' acceptances, bank certificates of deposit, commercial paper, repurchase agreements and other high quality short-term debt instruments); and (v) any exchange traded fund (“ETF”) of sufficient size that TRS trades are unlikely to affect the fair market value of the ETF's shares, as determined by the Compliance Officer in consultation with TRS Investment Management Division staff.
18. **“Third Degree by Consanguinity or Affinity,”** as determined in accordance with Sections 573.021-025, Texas Government Code, includes the following persons related to the Employee: (1) by consanguinity (blood relative) - a child, grandchild, great-grandchild, parent, grandparent, great-grandparent, brother, sister, uncle, aunt, niece or nephew; and (2) by affinity (marriage) – a spouse and the spouse's child, grandchild, great-grandchild, parent, grandparent, great-grandparent, brother, sister, uncle, aunt, niece or nephew. A person adopted into a family is considered a relative on the same basis as a natural born family member. A person is considered a spouse even if the marriage has been dissolved by death or divorce if there are surviving children of that marriage.

19. **“TRS”** means the Teacher Retirement System of Texas.
20. **“TRS Matter”** means any transaction, event, occurrence, situation, or state of affairs relating to TRS business and responsibilities, including policies, administration of benefits or programs or operations, current or prospective contracts, procurements or contracting opportunities, employees or employment opportunities, proceedings such as rule making and appeals, investments and investment opportunities, and legislation relating to or affecting TRS.
21. **“Trustee”** means a member of the Board of TRS.

## Appendix B

# CFA Institute

## Code of Ethics and Standards of Professional Conduct

As amended and restated in the  
*Standards of Practice Handbook*, 9th edition

### *The Code of Ethics*

Members of the CFA Institute (including Chartered Financial Analyst [CFA] charterholders) and candidates for the CFA designation (“Members and Candidates”) must:

- Act with integrity, competence, diligence, respect, and in an ethical manner with the public, clients, prospective clients, employers, employees, colleagues in the investment profession, and other participants in the global capital markets.
- Practice the integrity of the investment profession and the interests of clients above their own personal interests.
- Use reasonable care and exercise independent professional judgment when conducting investment analysis, making investment recommendations, taking investment actions, and engaging in other professional activities.
- Practice and encourage others to practice in a professional and ethical manner that will reflect credit on ourselves and the profession.
- Promote the integrity of, and uphold the rules governing, capital markets.
- Maintain and improve their professional competence and strive to maintain and improve the competence of other investment professionals.

### *Standards of Professional Conduct*

#### **I. PROFESSIONALISM**

**A. Knowledge of the Law.** Members and Candidates must understand and comply with all applicable laws, rules, and regulations (including the CFA Institute Code of Ethics and Standards of Professional Conduct) of any government, regulatory organization, licensing agency, or professional association governing their professional activities. In the event of conflict, Members and Candidates must comply with the more strict law, rule, or regulation. Members and Candidates must not knowingly participate or assist in and must dissociate from any violation of such laws, rules, or regulations.

**B. Independence and Objectivity.** Members and Candidates must use reasonable care and judgment to achieve and maintain independence and objectivity in their professional activities. Members and Candidates must not offer, solicit, or accept any gift, benefit, compensation, or

consideration that reasonably could be expected to compromise their own or another's independence and objectivity.

**C. Misrepresentation.** Members and Candidates must not knowingly make any misrepresentations relating to investment analysis, recommendations, actions, or other professional activities.

**D. Misconduct.** Members and Candidates must not engage in any professional conduct involving dishonesty, fraud, or deceit or commit any act that reflects adversely on their professional reputation, integrity, or competence.

## II. INTEGRITY OF CAPITAL MARKETS

**A. Material Nonpublic Information.** Members and Candidates who possess material nonpublic information that could affect the value of an investment must not act or cause others to act on the information.

**B. Market Manipulation.** Members and Candidates must not engage in practices that distort prices or artificially inflate trading volume with the intent to mislead market participants.

## III. DUTIES TO CLIENTS

**A. Loyalty, Prudence, and Care.** Members and Candidates have a duty of loyalty to their clients and must act with reasonable care and exercise prudent judgment. Members and Candidates must act for the benefit of their clients and place their clients' interests before their employer's or their own interests. In relationships with clients, Members and Candidates must determine applicable fiduciary duty and must comply with such duty to persons and interests to whom it is owed.

**B. Fair Dealing.** Members and Candidates must deal fairly and objectively with all clients when providing investment analysis, making investment recommendations, taking investment action, or engaging in other professional activities.

### **C. Suitability.**

1. When Members and Candidates are in an advisory relationship with a client, they must:
  - a. Make a reasonable inquiry into a client's or prospective clients' investment experience, risk and return objectives, and financial constraints prior to making any investment recommendation or taking investment action and must reassess and update this information regularly.
  - b. Determine that an investment is suitable to the client's financial situation and consistent with the client's written objectives, mandates, and constraints before making an investment recommendation or taking investment action.
  - c. Judge the suitability of investments in the context of the client's total portfolio.
2. When Members and Candidates are responsible for managing a portfolio to a specific mandate, strategy, or style, they must only make investment recommendations or take investment actions that are consistent with the stated objectives and constraints of the portfolio.

**D. Performance Presentation.** When communicating investment performance information, Members or Candidates must make reasonable efforts to ensure that it is fair, accurate, and complete.

**E. Preservation of Confidentiality.** Members and Candidates must keep information about current, former, and prospective clients confidential unless:

1. The information concerns illegal activities on the part of the client or prospective client.
2. Disclosure is required by law.
3. The client or prospective client permits disclosure of the information.

#### **IV. DUTIES TO EMPLOYERS**

**A. Loyalty.** In matters related to their employment, Members and Candidates must act for the benefit of their employer and not deprive their employer of the advantage of their skills and abilities, divulge confidential information, or otherwise cause harm to their employer.

**B. Additional Compensation Arrangements.** Members and Candidates must not accept gifts, benefits, compensation, or consideration that competes with, or might reasonably be expected to create a conflict of interest with, their employer's interest unless they obtain written consent from all parties involved.

**C. Responsibilities of Supervisors.** Members and Candidates must make reasonable efforts to detect and prevent violations of applicable laws, rules, regulations, and the Code and Standards by anyone subject to their supervision or authority.

#### **V. INVESTMENT ANALYSIS, RECOMMENDATIONS, AND ACTION**

**A. Diligence and Reasonable Basis.** Members and Candidates must:

1. Exercise diligence, independence, and thoroughness in analyzing investments, making investment recommendations, and taking investment actions.
2. Have a reasonable and adequate basis, supported by appropriate research and investigation, for any investment analysis, recommendation, or action.

**B. Communication with Clients and Prospective Clients.** Members and Candidates must:

1. Disclose to clients and prospective clients the basic format and general principles of the investment processes used to analyze investments, select securities, and construct portfolios and must promptly disclose any changes that might materially affect those processes.
2. Use reasonable judgment in identifying which factors are important to their investment analyses, recommendations, or actions and include those factors in communications with clients and prospective clients.
3. Distinguish between fact and opinion in the presentation of investment analysis and recommendations.

**C. Record Retention.** Members and Candidates must develop and maintain appropriate records to support their investment analysis, recommendations, actions, and other investment-related communications with clients and prospective clients.

#### **VI. CONFLICTS OF INTEREST**

**A. Disclosure of Conflicts.** Members and Candidates must make full and fair disclosure of all matters that could reasonably be expected to impair their independence and objectivity or interfere with respective duties to their clients, prospective clients, and employer. Members and Candidates must ensure that such disclosures are prominent, are delivered in plain language, and communicate the relevant information effectively.

**B. Priority of Transactions.** Investment transactions for clients and employers must have priority over investment transactions in which a Member or Candidate is the beneficial owner.

**C. Referral Fees.** Members and Candidates must disclose to their employer, clients, and prospective clients, as appropriate, any compensation, consideration, or benefit received from, or paid to, others for the recommendation of products or services.

## **VII. RESPONSIBILITIES AS A CFA INSTITUTE MEMBER OR CFA CANDIDATE**

**A. Conduct as Members and Candidates in the CFA Program.** Members and Candidates must not engage in any conduct that compromises the reputation or integrity of CFA Institute or the CFA designation or the integrity, validity, or security of the CFA examinations.

**B. Reference to CFA Institute, the CFA designation, and the CFA Program.** When referring to CFA Institute, CFA Institute membership, the CFA designation, or candidacy in the CFA Program, Members and Candidates must not misrepresent or exaggerate the meaning or implications of membership in CFA Institute, holding the CFA designation, or candidacy in the CFA Program.

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# Exhibit C

**ETHICS COMPLIANCE STATEMENT FOR EMPLOYEES AND CERTAIN CONTRACTORS<sup>1</sup>**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Department: \_\_\_\_\_

Date: \_\_\_\_\_

Key Employee (yes/no): \_\_\_\_\_

Please check the appropriate blank.

New Employee, ~~or~~ new Key Employee, New Contractor

Annual Confirmation for current Employees, ~~or~~ current Key Employees, or Contractor (Due on April 30 of each year)

**FOR ALL EMPLOYEES**

- I have received and read the current Employee Ethics Policy. I have also received and read the current TRS Trading Policy for Employees and Certain Contractors (the "Trading Policy"). I agree to comply with ~~both the letter and spirit of~~ the Employee Ethics Policy and the Trading Policy. I understand that adherence to the Employee Ethics Policy and the Trading Policy are basic conditions of my employment at TRS.
- If I believe I have a conflict of interest as defined in the Employee Ethics Policy, I agree to report my conflicts to the Executive Director in writing through the TRS Conflict of Interest Disclosure Statement.
- If I believe that that I have knowledge that a Trustee, Employee, or Contractor (as defined in the TRS Code of Ethics for Contractors (the "Code of Ethics")) has a conflict of interest as defined respectively in the Trustee Ethics Policy (the "Trustee Ethics Policy"), in the Employee Ethics Policy, or in the Code of Ethics, I agree to report such conflicts either in writing to the Executive Director through the TRS Conflict of Interest Disclosure Statement or verbally through the TRS "hot" line for anonymous ethics reporting (the "Hot Line").

~~I agree (1) to report my own conflicts to the Executive Director in writing through the TRS Conflict of Interest Disclosure Statement, and (2) to report conflicts of interest involving others of which I become aware either in writing to the Executive Director through the TRS Conflict of Interest Disclosure Statement or verbally through the TRS "hot" line for anonymous ethics reporting (the "Hot Line") if:~~

- ~~\_\_\_\_\_ 1) \_\_\_\_\_ I believe that I have a conflict of interest as defined in the Employee Ethics Policy;~~
- ~~\_\_\_\_\_ 2) \_\_\_\_\_ I believe that I have knowledge that a Trustee, Employee, or Contractor (as defined in the TRS Code of Ethics for Consultants, Agents, Financial Providers and Brokers (the "Code of Ethics")) has a conflict of interest as defined respectively in the Trustee Governance and Ethics Policy (the "Trustee Ethics Policy"), in the Employee Ethics Policy, or in the Code of Ethics.~~

<sup>1</sup> "Covered Contractors" as that term is defined in the Code of Ethics for Contractors must use this form to comply with their obligations under Section II.M of the Code of Ethics for Contractors.

- If I believe that I have violated the Employee Ethics Policy or the Trading Policy, I agree to report my violation to the Executive Director in writing.
- If I believe that I have knowledge that a Trustee, Employee, or Contractor has violated the Trustee Ethics Policy, Employee Ethics Policy, or Code of Ethics, I agree to report such violations either in writing to the Executive Director or verbally through the Hot Line. I agree (1) to report my own violations of the Employee Ethics Policy or the Trading Policy to the Executive Director in writing (there is no particular form for this reporting), and (2) to report violations by others of the Trustee Ethics Policy, the Employee Ethics Policy, the Trading Policy, or the Code of Ethics either in writing (there is no particular form for this reporting) to the Executive Director or verbally through the Hot Line if:
  - ~~1) I believe that I have violated the Employee Ethics Policy or the Trading Policy,~~
  - ~~2) I believe that I have knowledge that a Trustee, Employee, or Contractor has violated, respectively, the Trustee Ethics Policy, the Employee Ethics Policy, the Trading Policy or the Code of Ethics.~~
- I agree that I will not allow myself to be placed in a position which might give rise to a reasonably foreseeable conflict of interest, as defined in the Employee Ethics Policy.
- I agree that I will cooperate with any investigation under the Employee Ethics Policy, Trading Policy, Trustee Ethics Policy, Code of Ethics, or other applicable TRS policy.

- To the best of my knowledge and belief, I do not have any relationship or interest, nor have I engaged in any activity, which constitutes a conflict of interest as defined in the Employee Ethics Policy.

---

(Write "None" if you have nothing to report. If you have something to report, please attach a completed TRS Conflict of Interest Disclosure Statement to this form.)

- I am unaware of any unreported conflicts of interest under the Trustee Ethics Policy or the Employee Ethics Policy, as applicable, involving any Trustee or Employee, or any unreported conflicts of interest under the Code of Ethics involving any Contractor, except as indicated below.

---

(Write "None" if you have nothing to report or have reported all conflicts of interest of which you are aware. If you are aware of an unreported conflict of interest, please either attach a completed Conflict of Interest Disclosure Statement to this form or make your report verbally to the Hot Line before filing this form.)

- To the best of my knowledge and belief, I have not violated the Employee Ethics Policy or the Trading Policy, except as indicated below.

---

(Write "None" if you have nothing to report. If you have something to report, please attach a written explanation to this form. There is no required form for the explanation itself.)

- I am unaware of any unreported violations of the Trustee Ethics Policy, the Employee Ethics Policy or the Trading Policy, as applicable, by any Trustee or Employee, or any unreported violations of the Code of Ethics by any Contractor, except as indicated below.

---

(Write "None" if you have nothing to report or have reported all violations of which you are aware. If you are aware of an unreported violation, please either attach a written explanation to this form (there is no required form for the explanation itself) or make your report verbally to the Hot Line before filing this form.)

- If required by the Trading Policy, I have properly reported my Personal Securities Transactions and properly disclosed all of my Beneficial Ownership Accounts ("BOAs") (as defined in the Trading Policy), in accordance with the Trading Policy, except as indicated below.

---

(Write "None" if you (1) either had no Personal Securities Transactions to report or if you properly reported all of your Personal Securities Transactions in accordance with the Trading Policy, and (2) you properly disclosed all of your BOAs in accordance with the Trading Policy.)

- I agree that if any change in circumstances occurs which should be reported in accordance with the Employee Ethics Policy or the Trading Policy, I will promptly report this change in accordance with those policies.

Outside Employment (please check blank that applies)

I am not engaged in any outside employment or business.

I am engaged in outside employment or business and have obtained advance written approval for such activity, as required by the Employee Ethics Policy.

**FOR KEY EMPLOYEES**

\_\_\_\_\_ I acknowledge my status as a TRS Key Employee.

**ONLY FOR KEY EMPLOYEES** (please check the first blank and all other applicable blanks)

\_\_\_\_\_ I acknowledge my status as a TRS Key Employee.

\_\_\_\_\_ I am not engaged in any outside employment or business.

\_\_\_\_\_ I am engaged in outside employment or business and have obtained advance written approval for such activity, as required by the Employee Ethics Policy.

\_\_\_\_\_ I am a director, officer, or more than 5% owner (by shares, stock, or otherwise) of a corporation or other business entity and have made the following disclosures as required by the Employee Ethics Policy: (i) the nature of the business of the entity and (ii) the identity of the persons and/or entities that are the owners, directors, and officers of the business.

**SIGNATURE BLOCK**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
**Department**

\_\_\_\_\_  
**Title**

\_\_\_\_\_  
Date

**IF THIS STATEMENT IS THE EMPLOYEE'S ANNUAL ETHICS COMPLIANCE STATEMENT, THIS COMPLIANCE STATEMENT MUST BE RETURNED TO THE OFFICE OF THE EXECUTIVE DIRECTOR BY APRIL 30.**

AS TO STATEMENTS OF PAST ACTIONS, THIS COMPLIANCE STATEMENT COVERS THE PERIOD FROM MAY 1 OF THE PRIOR CALENDAR YEAR THROUGH APRIL 30 OF THE CALENDAR YEAR DURING WHICH THIS COMPLIANCE STATEMENT IS DUE. AS TO STATEMENTS OR COMMITMENTS OF FUTURE ACTIONS, THIS COMPLIANCE STATEMENT COVERS THE PERIOD FROM MAY 1 OF THE CALENDAR YEAR DURING WHICH THIS COMPLIANCE STATEMENT IS DUE THROUGH APRIL 30 OF THE NEXT CALENDAR YEAR.

## Exhibit D

**ETHICS COMPLIANCE STATEMENT FOR EMPLOYEES AND CERTAIN CONTRACTORS<sup>1</sup>**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Department: \_\_\_\_\_

Date: \_\_\_\_\_

Key Employee (yes/no): \_\_\_\_\_

Please check the appropriate blank.

\_\_\_\_ New Employee, new Key Employee, New Contractor

\_\_\_\_ Annual Confirmation for current Employees, current Key Employees, or Contractor (**Due on April 30 of each year**)

**FOR ALL EMPLOYEES**

- I have received and read the current Employee Ethics Policy I have also received and read the current TRS Trading Policy for Employees and Certain Contractors (the “Trading Policy”). I agree to comply with the Employee Ethics Policy and the Trading Policy. I understand that adherence to the Employee Ethics Policy and the Trading Policy are basic conditions of my employment at TRS.
- If I believe I have a conflict of interest as defined in the Employee Ethics Policy, I agree to report my conflicts to the Executive Director in writing through the TRS Conflict of Interest Disclosure Statement.
- If I believe that that I have knowledge that a Trustee, Employee, or Contractor (as defined in the TRS Code of Ethics for Contractors (the "Code of Ethics")) has a conflict of interest as defined respectively in the Trustee Ethics Policy (the "Trustee Ethics Policy"), in the Employee Ethics Policy, or in the Code of Ethics, I agree to report such conflicts either in writing to the Executive Director through the TRS Conflict of Interest Disclosure Statement or verbally through the TRS "hot" line for anonymous ethics reporting (the "Hot Line").
- If I believe that I have violated the Employee Ethics Policy or the Trading Policy, I agree to report my violation to the Executive Director in writing.
- If I believe that I have knowledge that a Trustee, Employee, or Contractor has violated the Trustee Ethics Policy, Employee Ethics Policy, or Code of Ethics, I agree to report such violations either in writing to the Executive Director or verbally through the Hot Line.
- I agree that I will not allow myself to be placed in a position which might give rise to a reasonably foreseeable conflict of interest, as defined in the Employee Ethics Policy.
- I agree that I will cooperate with any investigation under the Employee Ethics Policy, Trading Policy, Trustee Ethics Policy, Code of Ethics, or other applicable TRS policy.

---

<sup>1</sup> “Covered Contractors” as that term is defined in the Code of Ethics for Contractors must use this form to comply with their obligations under Section II.M of the Code of Ethics for Contractors.

- To the best of my knowledge and belief, I do not have any relationship or interest, nor have I engaged in any activity, which constitutes a conflict of interest as defined in the Employee Ethics Policy.

---

(Write "None" if you have nothing to report. If you have something to report, please attach a completed TRS Conflict of Interest Disclosure Statement to this form.)

- I am unaware of any unreported conflicts of interest under the Trustee Ethics Policy or the Employee Ethics Policy, as applicable, involving any Trustee or Employee, or any unreported conflicts of interest under the Code of Ethics involving any Contractor, except as indicated below.

---

(Write "None" if you have nothing to report or have reported all conflicts of interest of which you are aware. If you are aware of an unreported conflict of interest, please either attach a completed Conflict of Interest Disclosure Statement to this form or make your report verbally to the Hot Line before filing this form.)

- To the best of my knowledge and belief, I have not violated the Employee Ethics Policy or the Trading Policy, except as indicated below.

---

(Write "None" if you have nothing to report. If you have something to report, please attach a written explanation to this form. There is no required form for the explanation itself.)

- I am unaware of any unreported violations of the Trustee Ethics Policy, the Employee Ethics Policy or the Trading Policy, as applicable, by any Trustee or Employee, or any unreported violations of the Code of Ethics by any Contractor, except as indicated below.

---

(Write "None" if you have nothing to report or have reported all violations of which you are aware. If you are aware of an unreported violation, please either attach a written explanation to this form (there is no required form for the explanation itself) or make your report verbally to the Hot Line before filing this form.)

- If required by the Trading Policy, I have properly reported my Personal Securities Transactions and properly disclosed all of my Beneficial Ownership Accounts ("BOAs") (as defined in the Trading Policy), in accordance with the Trading Policy, except as indicated below.

---

(Write "None" if you (1) either had no Personal Securities Transactions to report or if you properly reported all of your Personal Securities Transactions in accordance with the Trading Policy, and (2) you properly disclosed all of your BOAs in accordance with the Trading Policy .)

- I agree that if any change in circumstances occurs which should be reported in accordance with the Employee Ethics Policy or the Trading Policy, I will promptly report this change in accordance with those policies.

Outside Employment (please check blank that applies)

\_\_\_\_\_ I am not engaged in any outside employment or business.

\_\_\_\_\_ I am engaged in outside employment or business and have obtained advance written approval for such activity, as required by the Employee Ethics Policy.

**FOR KEY EMPLOYEES**

\_\_\_\_\_ I acknowledge my status as a TRS Key Employee.

**SIGNATURE BLOCK**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

**IF THIS STATEMENT IS THE EMPLOYEE'S ANNUAL ETHICS COMPLIANCE STATEMENT, THIS COMPLIANCE STATEMENT MUST BE RETURNED TO THE OFFICE OF THE EXECUTIVE DIRECTOR BY APRIL 30.**

AS TO STATEMENTS OF PAST ACTIONS, THIS COMPLIANCE STATEMENT COVERS THE PERIOD FROM MAY 1 OF THE PRIOR CALENDAR YEAR THROUGH APRIL 30 OF THE CALENDAR YEAR DURING WHICH THIS COMPLIANCE STATEMENT IS DUE. AS TO STATEMENTS OR COMMITMENTS OF FUTURE ACTIONS, THIS COMPLIANCE STATEMENT COVERS THE PERIOD FROM MAY 1 OF THE CALENDAR YEAR DURING WHICH THIS COMPLIANCE STATEMENT IS DUE THROUGH APRIL 30 OF THE NEXT CALENDAR YEAR.

# Exhibit E

**TEACHER RETIREMENT SYSTEM OF TEXAS**  
**KEY EMPLOYEE ENHANCED DISCLOSURE FORM**

In completing this form, the reporting year is January 1 through December 31 of the prior calendar year. You may attach additional sheets if necessary for complete disclosures.

Name: \_\_\_\_\_

Reporting Year: \_\_\_\_\_

Spouse's Name: \_\_\_\_\_

Dependent Children's Names: \_\_\_\_\_

Other Economic Dependents' Names: \_\_\_\_\_

**SUMMARY OF INFORMATION**

Indicate yes or no to the following:

I am disclosing non-TRS Employment (page 2): \_\_\_\_\_

I am disclosing material debt or debts, defined for this purpose as a debt of of \$25,000 or more (page 3): \_\_\_\_\_

I am disclosing a benefit or benefits received from a Restricted Donor (page 4): \_\_\_\_\_

I am disclosing a non-TRS fiduciary position (page 5): \_\_\_\_\_

I am disclosing privately held investments (page 6): \_\_\_\_\_

**EMPLOYMENT**

Your Non-TRS Employment

I have non-TRS employment during the reporting year: \_\_\_\_\_ (yes/no)

If yes, provide the following information.

Name and address of employer:

Nature of employment:

Spousal Employment (if applicable):

Name and address of employer:

Nature of employment:

Dependent Child Employment (if applicable):

Name and address of employer:

Nature of employment:

Name and address of employer:

Nature of employment:

Name and address of employer:

Nature of employment:

Other Economic Dependent Employment (if applicable):

Name and address of employer:

Nature of employment:

Name and address of employer:

Nature of employment:

Name and address of employer:

Nature of employment:

**DISCLOSABLE DEBTS:**

Did or do you, your spouse, dependent child, and/or other financial dependent owe any lender or creditor a debt or aggregate debts of \$25,000 or more during the reporting year? \_\_\_\_\_ (yes/no)

If no, move on to the next section. If yes, provide the following information for each debt of \$25,000 or more actually owed at any time during the reporting year. If you, your spouse, dependent child, and/or other financial dependent owed aggregate debts of \$25,000 or more to any lender or creditor, please list each debt separately.

Creditor:  
Borrower:  
Guarantor if any:  
Principal owed (as of 12/31):

Creditor:  
Borrower:  
Guarantor if any:  
Principal owed (as of 12/31):

Creditor:  
Borrower:  
Guarantor if any:  
Principal owed (as of 12/31):

Creditor:  
Borrower:  
Guarantor if any:  
Principal owed (as of 12/31):

Creditor:  
Borrower:  
Guarantor if any:  
Principal owed (as of 12/31):

Creditor:  
Borrower:  
Guarantor if any:  
Principal owed (as of 12/31):

**BENEFITS FROM RESTRICTED DONORS**

Have you, your spouse, dependent child, or other financial dependent received any benefit (e.g., gift) worth more than \$50 from a Restricted Donor during the reporting year? \_\_\_\_\_ (yes/no)

“Benefit” means any gift, item, favor, payment, or service, including a promised future benefit, whether or not such gift, item, favor, payment, or service has a pecuniary value, and includes, without limitation, any gift, item, favor, payment, or service given to or accepted by a person in whose welfare an Employee has a direct and substantial interest. A Benefit does not include a gift, item, favor, payment, or service for which TRS has given due consideration.

“Restricted Donor” means (1) persons or entities with which TRS does business, (2) persons or entities seeking to do business with TRS or with whom TRS is considering doing business, (3) non-publicly traded entities in which TRS invests or is considering investing, (4) publicly traded entities in which TRS invests or is considering investing, but only if the Employee knows that the publicly traded entity is interested in or likely to become interested in a TRS contract, purchase, payment, claim or transaction, (5) persons or entities seeking official action from TRS, or (6) any other person or entity who gives the Benefit because of the Employee’s official position with TRS. Persons employed by the same entity, and entities with common ownership or control, shall be considered to be a single donor.

If no, move to the next section. If yes, provide the following information.

Name of recipient:  
Name and address of donor:  
Description of gift:  
Value of gift:

Name of recipient:  
Name and address of donor:  
Description of gift:  
Value of gift:

Name of recipient:  
Name and address of donor:  
Description of gift:  
Value of gift:

Name of recipient:  
Name and address of donor:  
Description of gift:  
Value of gift:

**NON-TRS FIDUCIARY POSITIONS**

Did or do you, your spouse, dependent child, or other financial dependent hold any non-TRS office or position that owed fiduciary duties during the reporting year? \_\_\_\_\_ (yes/no)

If yes, provide the following information.

Organization:  
Position Held:  
Position Held by:

**DISCLOSABLE PRIVATELY HELD INVESTMENTS**

Do or did you, your spouse, dependent child, or other financial dependent hold an interest in any privately held investment (e.g., limited partnership, closely held corporation, limited liability company) during the reporting year? \_\_\_\_\_ (yes/no)

If no, move to the next section. If yes, provide the following information.

Held by:  
Name of investment:  
Date Acquired:  
Estimated value of investment (as of 12/31):

Held by:  
Name of investment:  
Date Acquired:  
Estimated value of investment (as of 12/31):

Held by:  
Name of investment:  
Date Acquired:  
Estimated value of investment (as of 12/31):

Held by:  
Name of investment:  
Date Acquired:  
Estimated value of investment (as of 12/31):

Held by:  
Name of investment:  
Date Acquired:  
Estimated value of investment (as of 12/31):

Held by:  
Name of investment:  
Date Acquired:  
Estimated value of investment (as of 12/31):

Held by:  
Name of investment:  
Date Acquired:  
Estimated value of investment (as of 12/31):

Teacher Retirement System of Texas  
Key Employee Financial Disclosure Form

**DECLARATION**

My name is

**I declare under penalty of perjury that the foregoing is true and correct.**

Executed in \_\_\_\_\_ County, State of \_\_\_\_\_, on the \_\_\_\_\_ day of \_\_\_\_\_.

Signature: \_\_\_\_\_

Print Name:

# Exhibit F



**December 12-13, 2013**

**Teacher Retirement System of Texas**

**Board of Trustees**

**Resolution Approving Certain Changes to the Employee Ethics Policy and Related Forms**

**Whereas**, In October 2009, the Board of Trustees of the Teacher Retirement System of Texas (the "Board") adopted the Employee Ethics Policy and last revised the Policy in April 2012; and

**Whereas**, It is now necessary and prudent to adopt certain changes to the Employee Ethics Policy to implement changes made possible by 2013 amendments to TRS' ethics statute, Gov't Code § 825.212, and to make other prudent revisions, including to forms related to the Employee Ethics Policy; and now, therefore be it

**Resolved**, That the Board hereby adopts the revisions to the Employee Ethics Policy, the Ethics Compliance Statement for Employees and Certain Contractors, and the Key Employee Enhanced Disclosure Form, as presented by the staff to the Policy Committee. [with the following changes, if any, to the recommended revisions:

- \_\_\_\_\_
- \_\_\_\_\_ ]

*[optional language bracketed]*

# Exhibit G



~~April 19 – 20, 2012~~ December 12-13, 2013

**Teacher Retirement System of Texas**

**Board of Trustees**

**Resolution Adopting Revised TRS Key Employee Determinations**

**Whereas**, In accordance with Government Code Section 825.212 and the Employee Ethics Policy, as revised from time to time, the Board of Trustees of the Teacher Retirement System of Texas (the “Board”) has authority to determine ~~previously determined~~ employees who exercise significant ~~decisionmaking or~~ fiduciary authority (“key employees”); and

**Whereas**, The Board desires to adopt the following determinations of key employees; now, therefore be it

**Resolved**, That the following positions are determined to be key employees and their current and future incumbents subject to all applicable requirements for key employees:

<b>Title</b>
Executive Director
Deputy Director
Chief Investment Officer
Deputy Chief Investment Officer
Chief Benefit Officer
Chief Financial Officer
General Counsel
Chief Audit Executive
Chief Information Officer
Deputy Chief Information Officer
Director of Health Care Policy and Administration
<u>Director of Strategic Initiatives</u>
Manager of General Accounting
Manager of Investment Accounting

**Further resolved**, That all employees who hold a voting position on the Internal Investment Committee at any time during a reporting period are determined to be key employees subject to all applicable requirements for key employees;

**Further resolved**, That all Investment Management Division employees who hold the working title of Director or higher during a reporting period are determined to be key employees and subject to all applicable requirements for key employees;

**Further resolved,** That all employees who have authority to approve or execute securities trades in the TRS order management system during a reporting period are determined to be key employees and subject to all applicable requirements for key employees;

**Further resolved,** That all employees who hold authority during a reporting period under the Board's Authority Resolution (TRS 477) ~~or Voucher Authority Resolution~~ either through direct delegation from the Board or otherwise are determined to be key employees and subject to all applicable requirements for key employees;

**Further resolved,** That the Executive Director is authorized to designate, upon notice to the General Counsel, an employee not identified above to be a supplemental key employee if the Executive Director determines that it would be prudent for TRS to have the employee subject to the key employee requirements because of the influence the employee exercises, the nature of the employee's job, the information to which the employee has access, or another appropriate reason; at the next meeting of the Board after any supplemental key employee designations, the Executive Director shall notify the Board of the designations for the Board to consider ratification of the designations;

**Further resolved,** That the foregoing resolutions and all applicable key employee requirements, including submitting enhanced disclosures required by the Employee Ethics Policy, are effective for the 201~~2~~<sup>4</sup> reporting year and shall remain effective until modified by the Board.

# Exhibit H



**December 12-13, 2013**

**Teacher Retirement System of Texas**

**Board of Trustees**

**Resolution Adopting Revised TRS Key Employee Determinations**

**Whereas**, In accordance with Government Code Section 825.212 and the Employee Ethics Policy, as revised from time to time, the Board of Trustees of the Teacher Retirement System of Texas (the “Board”) has authority to determine employees who exercise significant fiduciary authority (“key employees”); and

**Whereas**, The Board desires to adopt the following determinations of key employees; now, therefore be it

**Resolved**, That the following positions are determined to be key employees and their current and future incumbents subject to all applicable requirements for key employees:

<b>Title</b>
Executive Director
Deputy Director
Chief Investment Officer
Deputy Chief Investment Officer
Chief Benefit Officer
Chief Financial Officer
General Counsel
Chief Audit Executive
Chief Information Officer
Deputy Chief Information Officer
Director of Health Care Policy and Administration
Director of Strategic Initiatives
Manager of General Accounting
Manager of Investment Accounting

**Further resolved**, That all employees who hold a voting position on the Internal Investment Committee at any time during a reporting period are determined to be key employees subject to all applicable requirements for key employees;

**Further resolved**, That all Investment Management Division employees who hold the working title of Director or higher during a reporting period are determined to be key employees and subject to all applicable requirements for key employees;

**Further resolved,** That all employees who have authority to approve or execute securities trades in the TRS order management system during a reporting period are determined to be key employees and subject to all applicable requirements for key employees;

**Further resolved,** That all employees who hold authority during a reporting period under the Board's Authority Resolution (TRS 477) either through direct delegation from the Board or otherwise are determined to be key employees and subject to all applicable requirements for key employees;

**Further resolved,** That the Executive Director is authorized to designate, upon notice to the General Counsel, an employee not identified above to be a supplemental key employee if the Executive Director determines that it would be prudent for TRS to have the employee subject to the key employee requirements because of the influence the employee exercises, the nature of the employee's job, the information to which the employee has access, or another appropriate reason; at the next meeting of the Board after any supplemental key employee designations, the Executive Director shall notify the Board of the designations for the Board to consider ratification of the designations;

**Further resolved,** That the foregoing resolutions and all applicable key employee requirements, including submitting enhanced disclosures required by the Employee Ethics Policy, are effective for the 2012 reporting year and shall remain effective until modified by the Board.

# Tab 12



# Financial Statements

## September and October 2013 Cash Disbursements Pension Trust Fund

**To:** TRS Board of Trustees  
Brian Guthrie, Executive Director  
Ken Welch, Deputy Director

**From:** Don Green, Chief Financial Officer

**Date:** December 12, 2013

---

Section 825.314(b) of the Texas Government Code requires the staff of the retirement system to report to the board at each board meeting the amounts and uses since the preceding board meeting of any money expended by the system from the Pension Trust Fund along with an explanation of why the amounts were needed to perform the fiduciary duties of the board. The 83<sup>rd</sup> Texas State Legislature adopted provisions allowing operating expenses of the system to be paid out of the Pension Trust Fund. On June 14, 2013, the board approved the Administrative Operations budget for fiscal year 2014.

*Total Administrative Expenses (excluding TEAM Program)* of \$5.8 million were disbursed in September, 2013. *Salaries and Other Personnel Costs* were \$4.0 million, *Professional Fees* were \$252 thousand, capital projects were \$239 thousand, and *Other Operating Expenses* were \$1.4 million. Items of interest include \$104 thousand in utilities, \$279 thousand for rent/lease/parking, \$100 thousand in postage and delivery, and \$224 thousand for software maintenance.

*Total Administrative Expenses (excluding TEAM Program)* of \$5.8 million were disbursed in October, 2013. *Salaries and Other Personnel Costs* were \$4.1 million, *Professional Fees* were \$188 thousand, capital projects were \$204 thousand, and *Other Operating Expenses* were \$1.3 million. Items of interest include \$351 thousand in postage and delivery and \$388 software maintenance.

*TEAM Program Expenses* of \$1.2 million were disbursed in September, 2013. *Salaries and Other Personnel Costs* were \$205 thousand, *Professional Fees* were \$237 thousand, and *Other Operating Expenses* were \$715 thousand. Item of interest includes \$110 thousand for software maintenance.

*TEAM Program Expenses* of \$1.1 million were disbursed in October, 2013. *Salaries and Other Personnel Costs* were \$212 thousand, *Professional Fees* were \$317 thousand, and *Other Operating Expenses* were \$582 thousand. Item of interest includes \$158 thousand for software maintenance.

# Financial Statements



<b>Pension Trust Fund</b>			
Cash Disbursements - FY 2014			
YTD for the Month Ended October 31			
	<u>2014</u>		<u>2013</u>
September	\$ 6,970,179	\$	6,956,188
October	6,917,337		7,527,488
November			
December			
January			
February			
March			
April			
May			
June			
July			
August			
Totals	<u>\$ 13,887,516</u>	(a)	<u>\$ 14,483,676</u> (b)

(a) Includes reimbursements of \$1,319.40  
 (b) Cash disbursements totaled \$82,959,217 at August 31, 2013

# Tab 13

# Teacher Retirement System of Texas



## Comprehensive Annual Financial Report Fiscal Year 2013

- Jamie Michels
- Cindy Haley



# Teacher Retirement System of Texas

## 2013 COMPREHENSIVE ANNUAL FINANCIAL REPORT



A Component Unit of the State of Texas  
Fiscal Year Ended August 31, 2013





Government Finance Officers Association

**Certificate of  
Achievement  
for Excellence  
in Financial  
Reporting**

Presented to

**Teacher Retirement System  
of Texas**

For its Comprehensive Annual  
Financial Report  
for the Fiscal Year Ended

**August 31, 2012**

Executive Director/CEO

# Comprehensive Annual Financial Report FY 2013

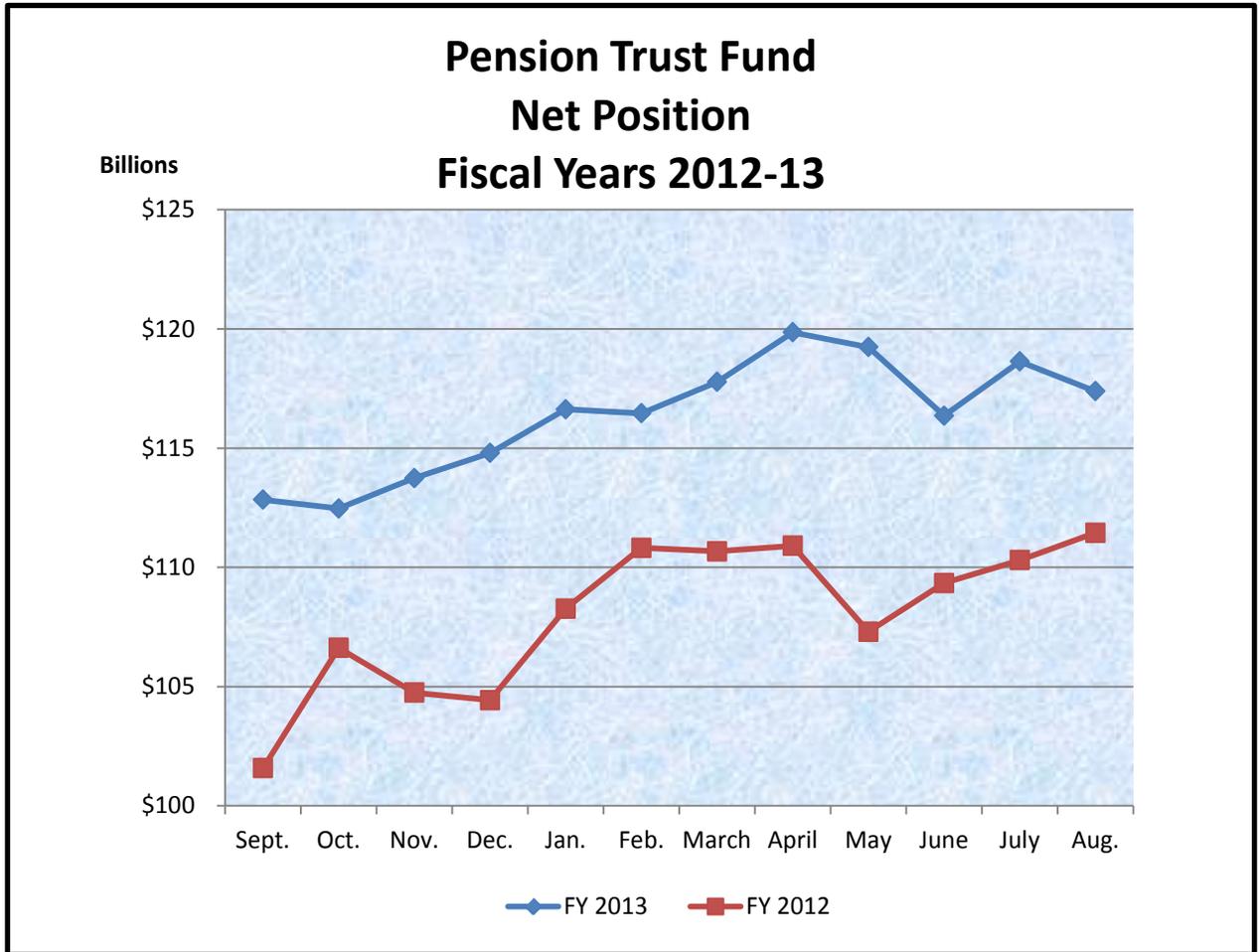
## Teacher Retirement System of Texas Highlights

### PENSION TRUST FUND (billions)

<b>Net Position - September 1, 2012</b>	<b>\$ 111.4</b>
Additions:	
Member Contributions	2.4
State Contributions	1.5
Investment Income	9.8
Other	0.8
Deductions:	
Retirement Benefits and Other	(8.1)
Refunds of Contributions/Admin.	(0.4)
<b>Net Position - August 31, 2013</b>	<b>\$ <u>117.4</u></b>
Administrative Cost per Member	\$26.48
Investment Cost per Member (in basis points 16.29)	\$137.94
<b>Membership</b>	
Current Members (Average Age 44.4)	1,021,412
Retirees and Beneficiaries	<u>348,228</u>
Total Membership	<u>1,369,640</u>
<b>Reporting Entities</b>	1,365



# Comprehensive Annual Financial Report FY 2013

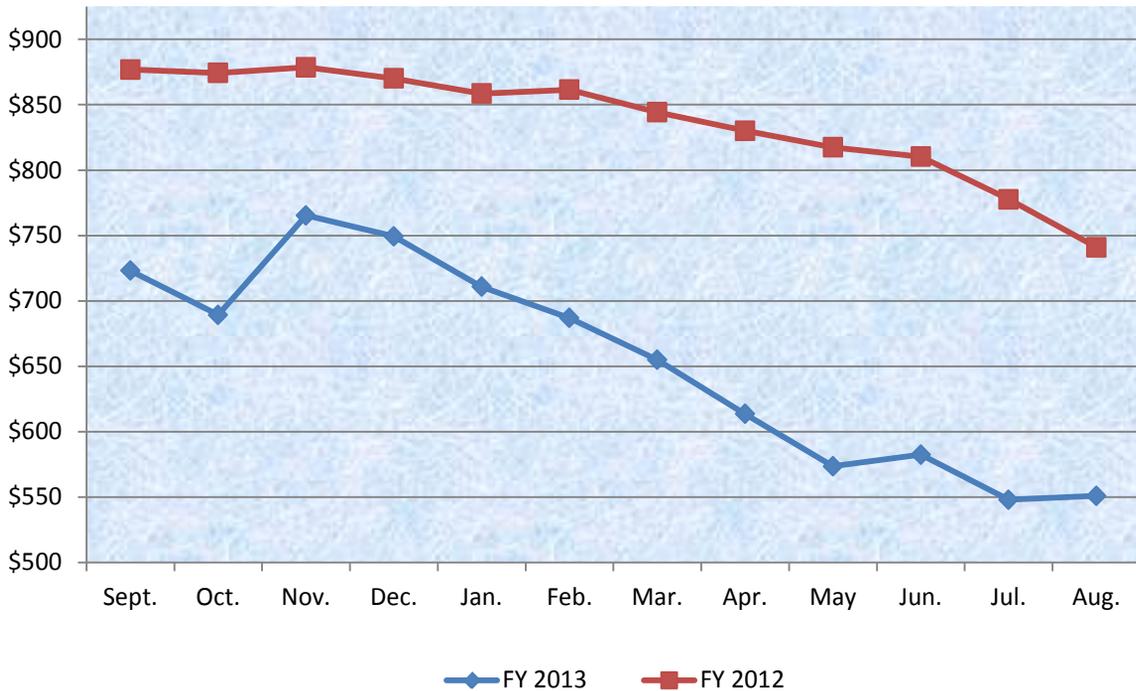


# Comprehensive Annual Financial Report FY 2013



**TRS-Care  
Net Position  
Fiscal Years 2012-13**

Millions



# Comprehensive Annual Financial Report FY 2013

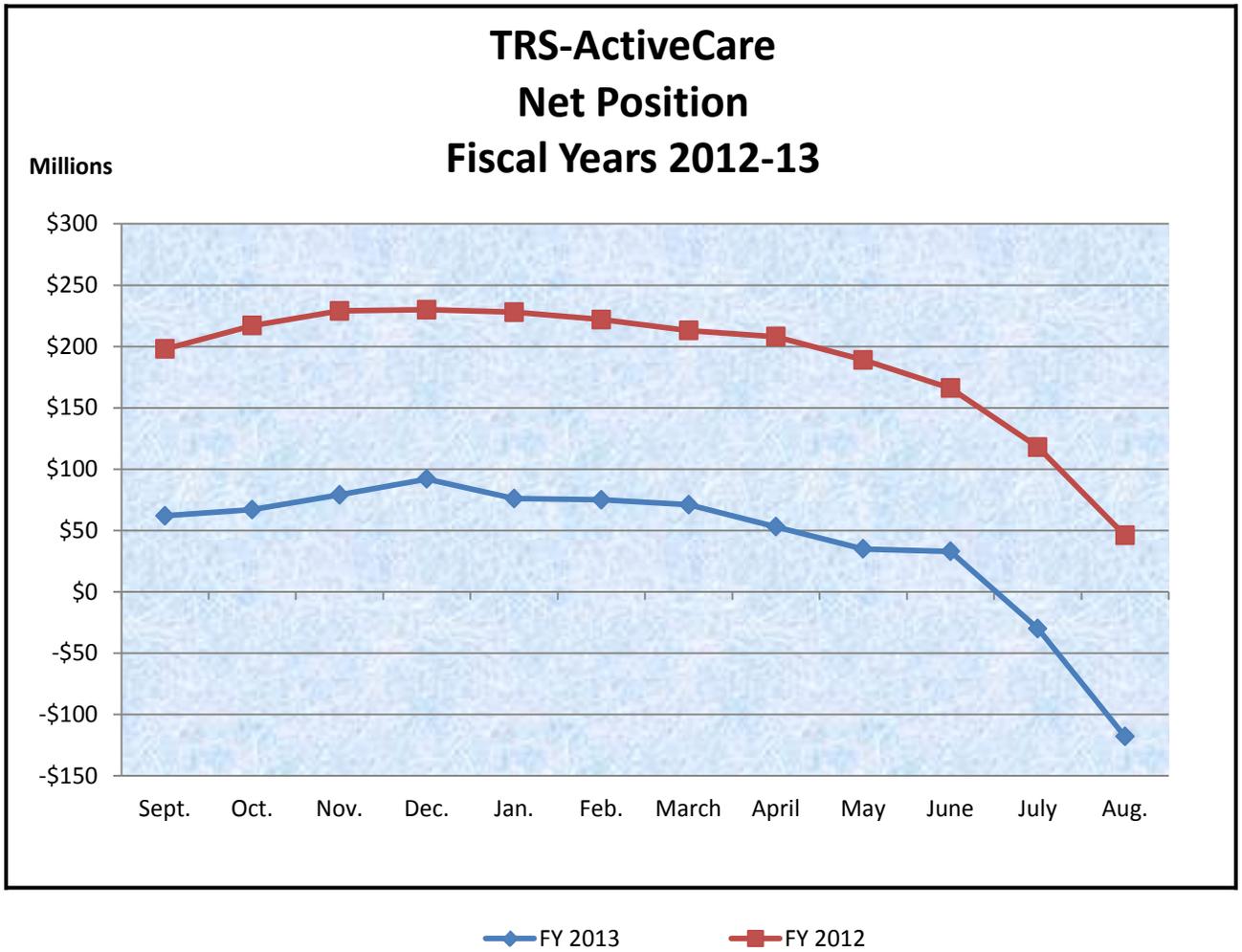
## Teacher Retirement System of Texas Highlights

### HEALTH BENEFIT PROGRAMS

(millions)

	<u>Retired</u>	<u>Active</u>
<b>Net Position - September 1, 2012</b>	\$ <b>741.0</b>	\$ <b>45.8</b>
Additions:		
Health Care Premiums	355.7	1,808.7
State Contributions	229.8	
Member Contributions	180.8	
Reporting Entities and Other Contributions	172.8	
Rebates and Discount Income	82.1	
Federal Revenue	74.5	
Investment Income	3.0	0.7
Deductions:		
Medical and Rx Claims	(1,241.7)	(1,886.0)
Claims Processing/Admin. Costs	<u>(47.0)</u>	<u>(87.2)</u>
<b>Net Position - August 31, 2013</b>	\$ <b><u>551.0</u></b>	\$ <b><u>(118.0)</u></b>
<b>Membership (and dependents)</b>	<u>236,842</u>	<u>455,705</u>

# Comprehensive Annual Financial Report FY 2013



Note: Amounts presented are on an accrual basis and included incurred but not reported expenses.

**Tab 14**



# Teacher Retirement System of Texas

Actuarial Valuation as of  
August 31, 2013

**GRS**

**Gabriel Roeder Smith & Company**  
Consultants & Actuaries  
[www.gabrielroeder.com](http://www.gabrielroeder.com)



# Actuarial Valuation

---

- ◆ Prepared as of August 31, 2013 using member data, financial data, benefit and contribution provisions, actuarial assumptions and methods as of that date
- ◆ Purposes:
  - Measure the actuarial liabilities
  - Determine adequacy of current statutory contributions
  - Provide other information for reporting
    - GASB #25
    - CAFR
  - Explain changes in actuarial condition of TRS
  - Track changes over time
  - Warn about possible future problems and issues



# Actuarial Valuation

## – Key Changes and Issues

---

- ◆ Forecast improved dramatically from previous valuations:
  - ▶ Legislation increased future revenues substantially
  - ▶ Market assets returns 8.9%, net of expenses
  - ▶ Liabilities grew slower than expected, mostly due to lower than projected salary increase
    - Actual average was 2.5% vs current assumption of approximate 5.5% average increase
    - Actuarial gain of almost \$2 billion
- ◆ Funding period of 28 years based on smoothed assets
  - ▶ Assumes all scheduled contribution increases occur and no further benefit enhancements
- ◆ Once contribution increases are rolled in, the projections will have an expectation of an increasing funded status



# Legislative changes to Liabilities (Benefits)

---

- ◆ A one-time cost of living adjustment to members who were retired prior to August 31, 2004 equal to the lesser amount of 3% of the retiree's monthly annuity or \$100 per month
  - ▶ Approximate liability increase of \$700 M
- ◆ Members non-vested as of August 31, 2014 and future hires will have to achieve age 62 (Rule 80) to be eligible for unreduced retirement benefits
  - ▶ Current age 60 (Rule 80) for post 8/31/2007 hires
- ◆ Interest credited to member account balances is decreased from 5% to 2%, prospectively
- ◆ TRS-Care eligibilities modified for members more than 5 years away from retirement eligibility
- ◆ *Net impact is a net increase in current liabilities and a decrease in the current funded ratio*
  - ▶ Revenue increases will increase future funded ratios, but the current impact is a decrease



# Legislative changes to Revenue (Contributions)

---

- ◆ Member contribution rates will increase to 7.70% by FY2017
  - ▶ Previously 6.40%
- ◆ State contribution rates increase to 6.80% in FY2015
  - ▶ Previously 6.40%
- ◆ Local School Districts which do not participate in Social Security will contribute 1.50% of minimum salary in FY2015
  - ▶ 64% of payroll impacted, effective increase of 0.96%
- ◆ TRS kept the settle up money at the end of FY2013 and applied it as additional contributions in FY2014
  - ▶ Approximately 0.40%
- ◆ Long term contribution rates increased by approximately 2.66% of payroll
  - ▶ Would equate to approximately \$917 M if effective in FY2014

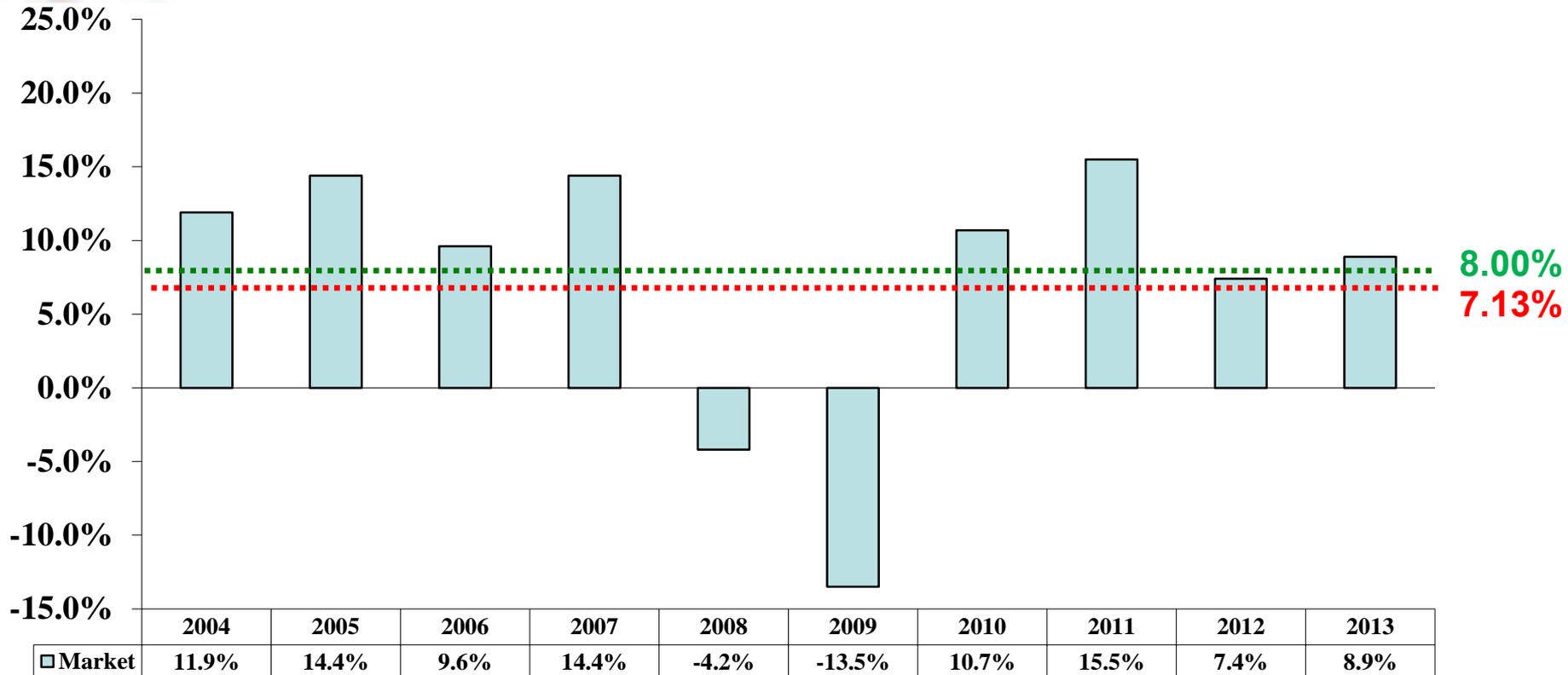


# Maximum UAAL

---

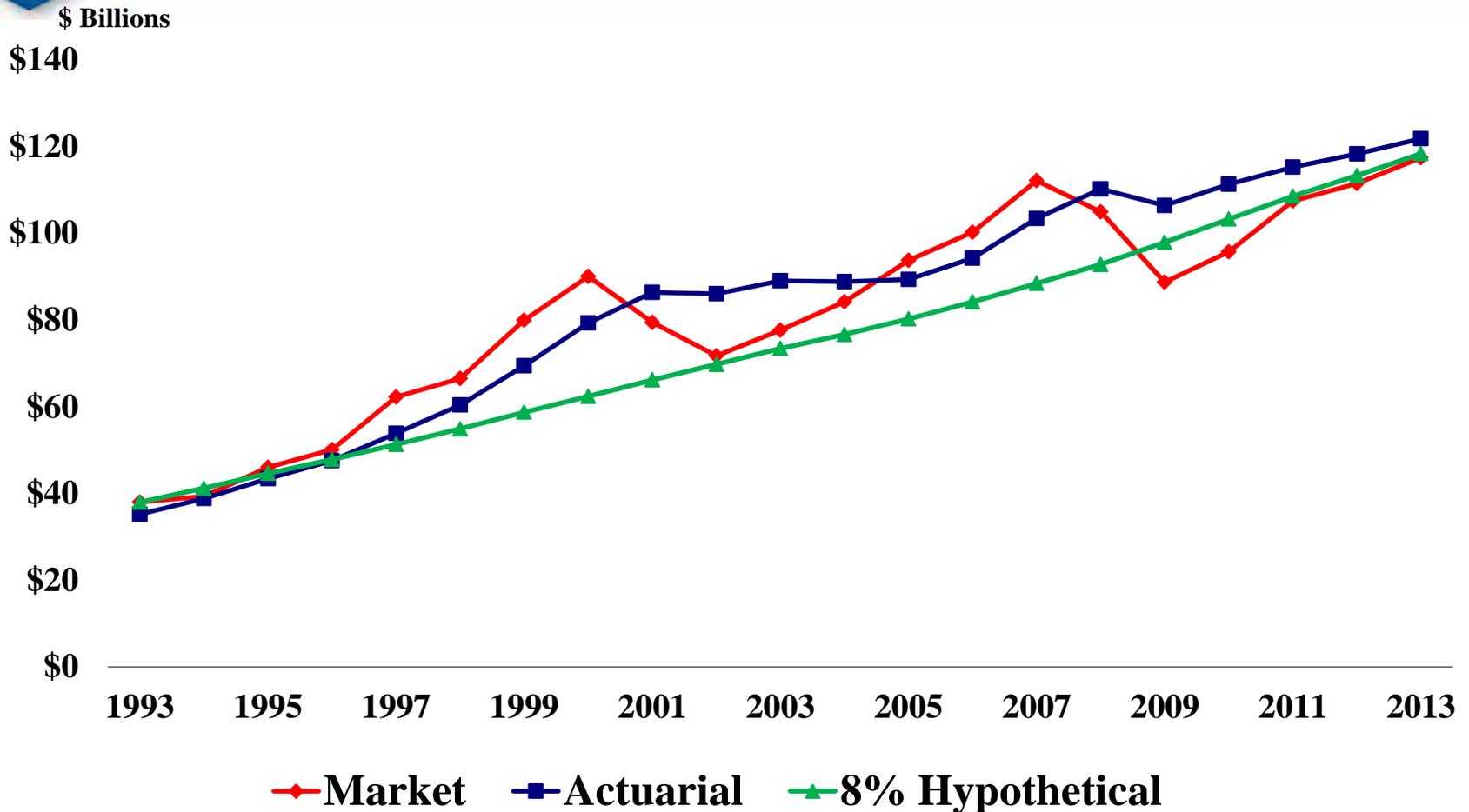
- ◆ Common Question: What contribution rate is needed to produce a 30 year funding period given a specific UAAL
- ◆ Inverse of that Question: How large can the UAAL be given a specific contribution rate and still produce a 30 year funding period
  - ▶ Before Legislation:  $2.20\% * \$36.5 \text{ B Payroll (estimated FY2014)} * 16.66 \text{ (30 year amortization factor)} = \$13.4 \text{ B}$
  - ▶ After Legislation:  $5.15\% * \$36.5 \text{ B Payroll (estimated FY2014)} * 16.66 \text{ (30 year amortization factor)} = \$31.3 \text{ B}$
- ◆ The System can absorb a lot more variation in experience with the larger spread between the total contribution rate and the normal cost

# Estimated Yields Based on Market Value of Assets



7.13% average compound return (on market value) over last 10 years. 7.79% over last 20 years.  
8.91% since 1989

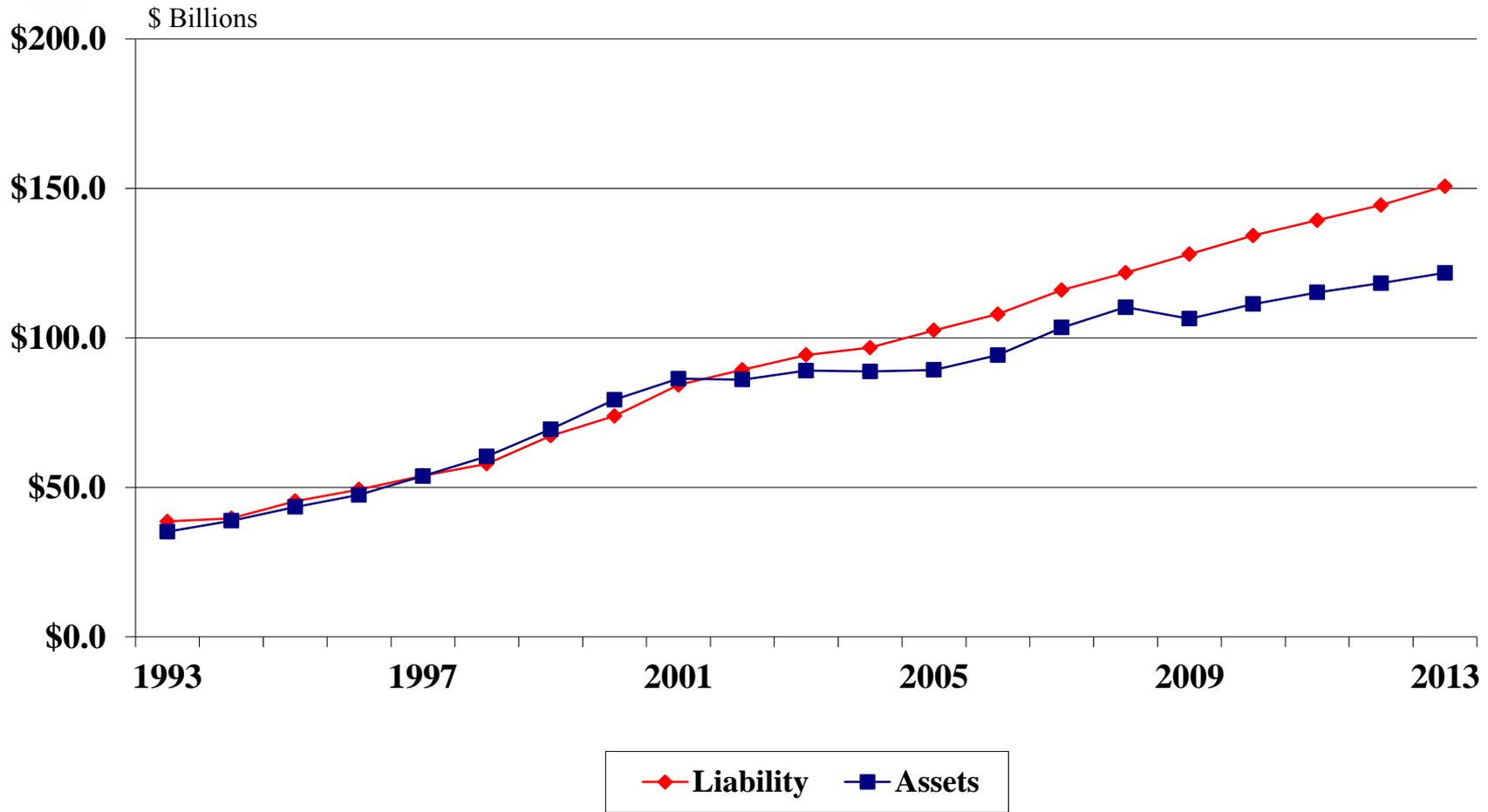
# Market and Actuarial Values of Assets



8% Hypothetical assumes 8% had been earned on market every year since 1993, all cash flows unchanged  
8 7.79% average compound return (on market value) over last 20 years.



# Actuarial Values of Assets vs. Actuarial Accrued Liability



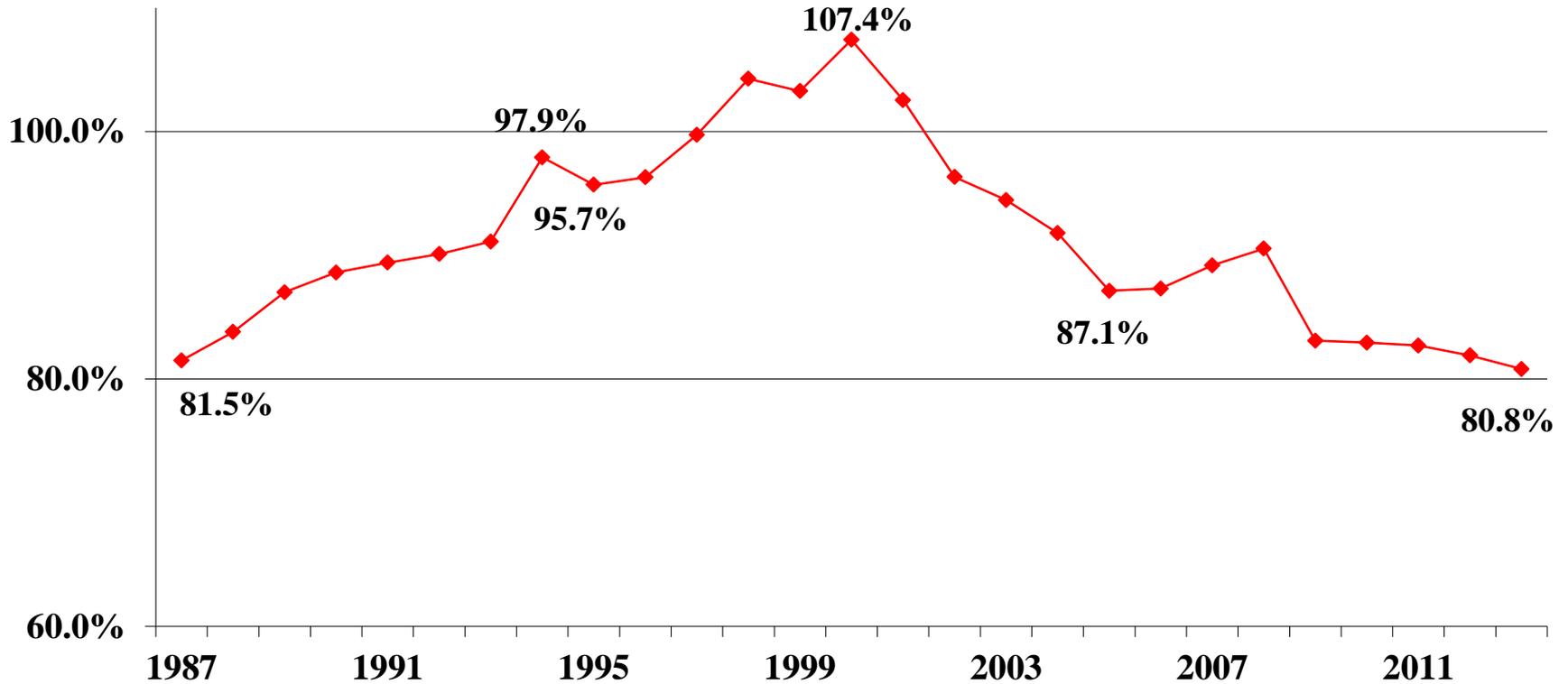
Average Annual Growth 1993-2003: Assets 9.7%, Liabilities 9.3%

Average Annual Growth 2003-2013 Assets 3.2%, Liabilities 4.8%





# GASB #25 Funded Ratio

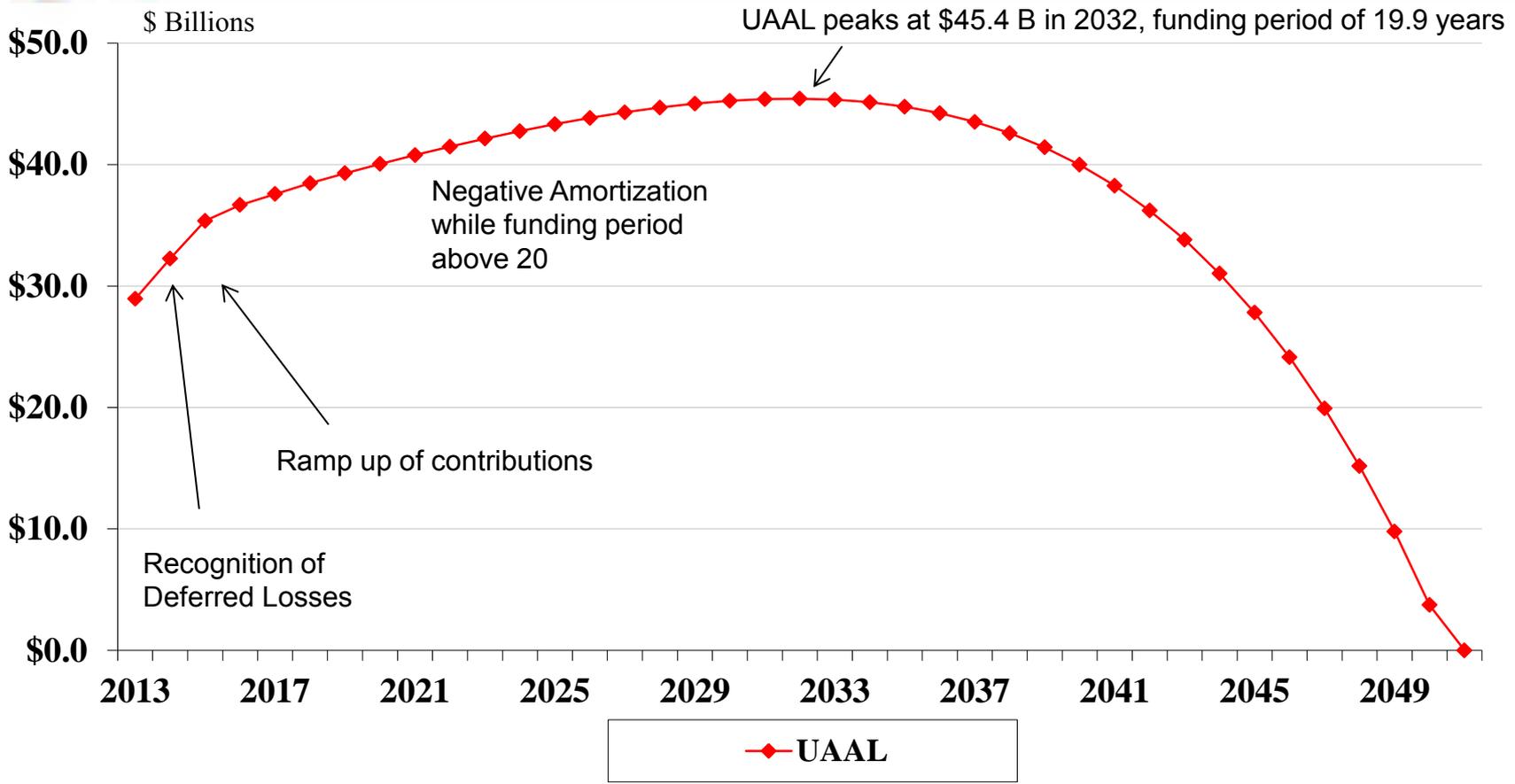


77.9% based on market value of assets as of August 31, 2013, 77.2% last year





# Projection of UAAL (Based on MVA)



The above assumes all assumptions exactly met, including 8% annual investment returns based on MVA  
Assumes no changes to benefit policy  
Assumes current statutory contribution policy remains throughout period





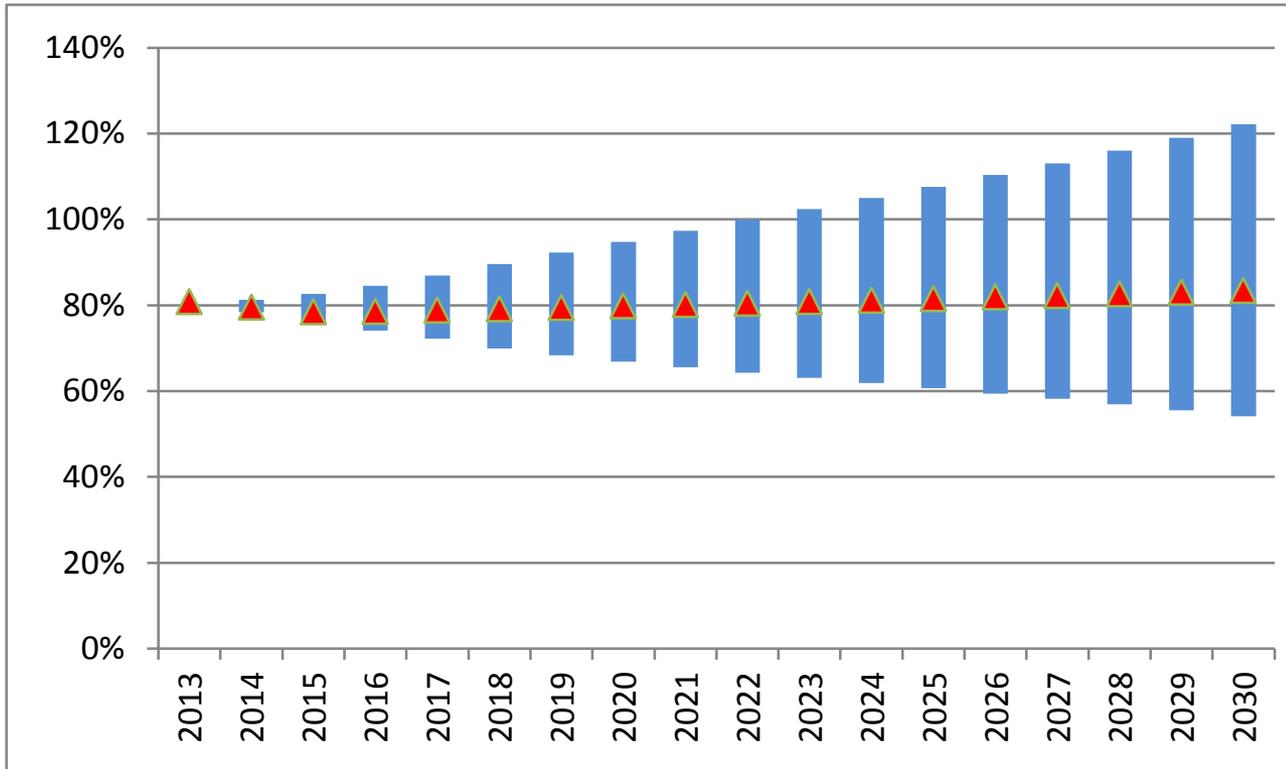
# Next Year Projections

	Market Return for 12 month period ending August 31, 2014						
	16%	12%	8%	4%	0%	-4%	-8%
UAAL	\$29.2	\$30.2	\$32.2	\$33.2	\$34.1	\$35.0	\$36.0
Funded Ratio	81.4%	80.8%	79.5%	78.9%	78.3%	77.7%	77.2%
Funding Period based on new contribution policy							
Smoothed Assets	25.8	27.3	31.1	33.0	35.1	37.4	39.9
Market Assets	20.7	27.4	36.9	53.0	146	Never	Never

Current values: UAAL of \$28.9 billion, funded ratio of 80.8%, Funding period of 28.0 on smoothed assets and 37.4 on market

A 12% return on MVA is necessary to completely offset current deferred losses

# Projected Funded Ratio



Median Expectation

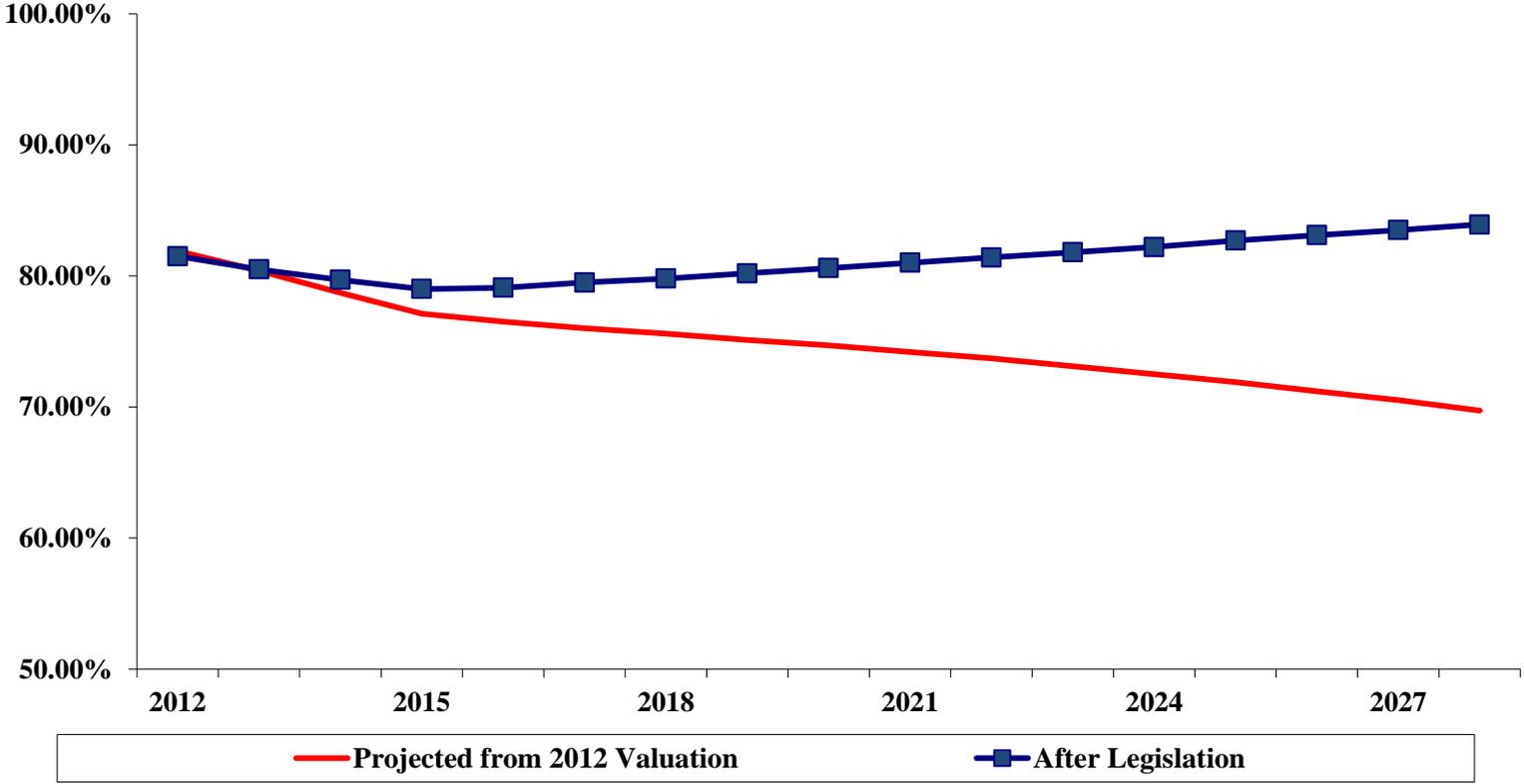


25<sup>th</sup>-75<sup>th</sup> percentile of expectation

- Assumes new contribution policy, projected from market value of assets as of August 31, 2013
- Assumes constant active population and payroll grows at assumed 3.50% per year



# Projection of Funded Ratio

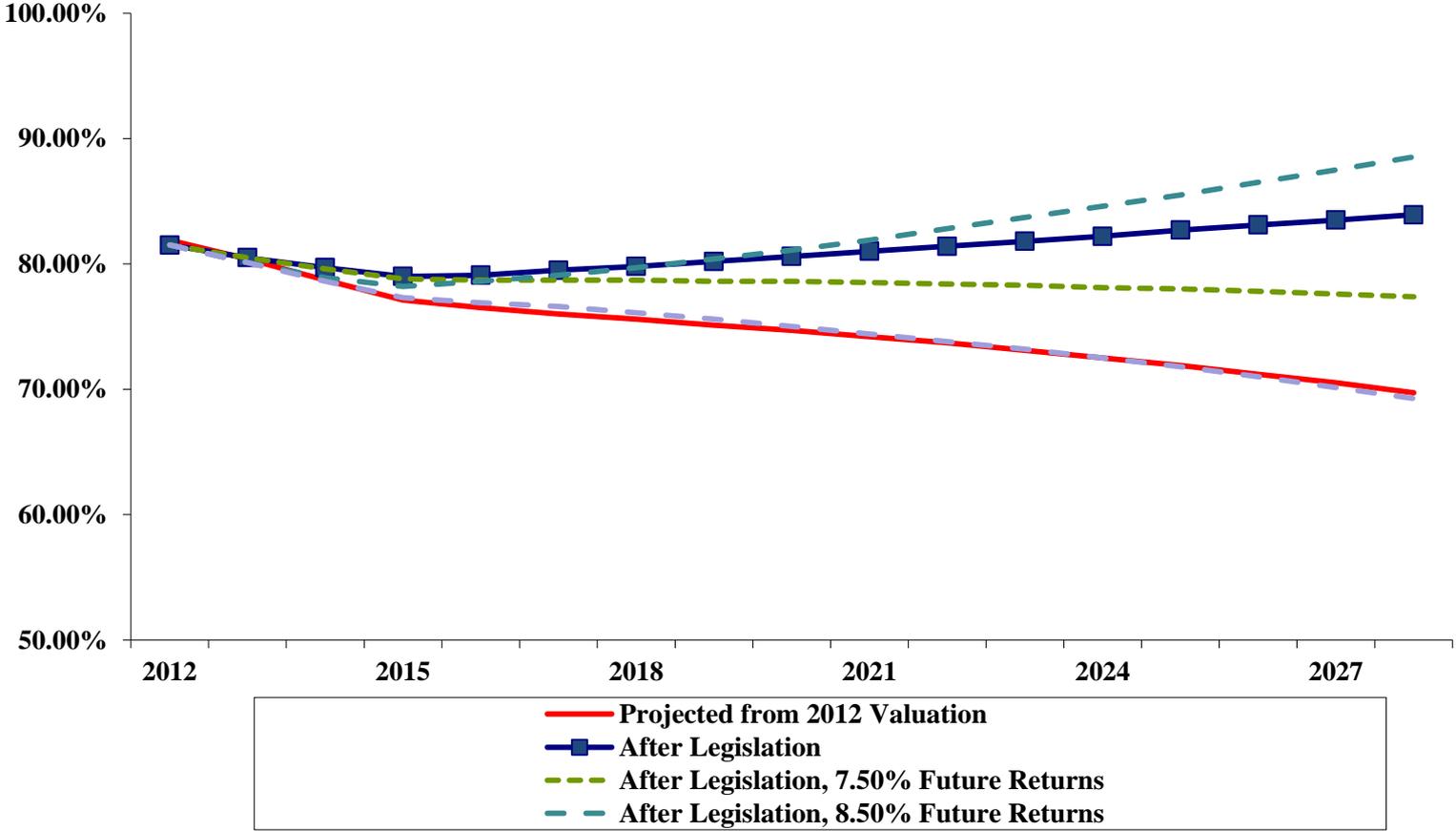


All projections assume contribution policy outlined in legislation continues indefinitely and no future changes to benefits





# Projection of Funded Ratio Investment Return Sensitivity

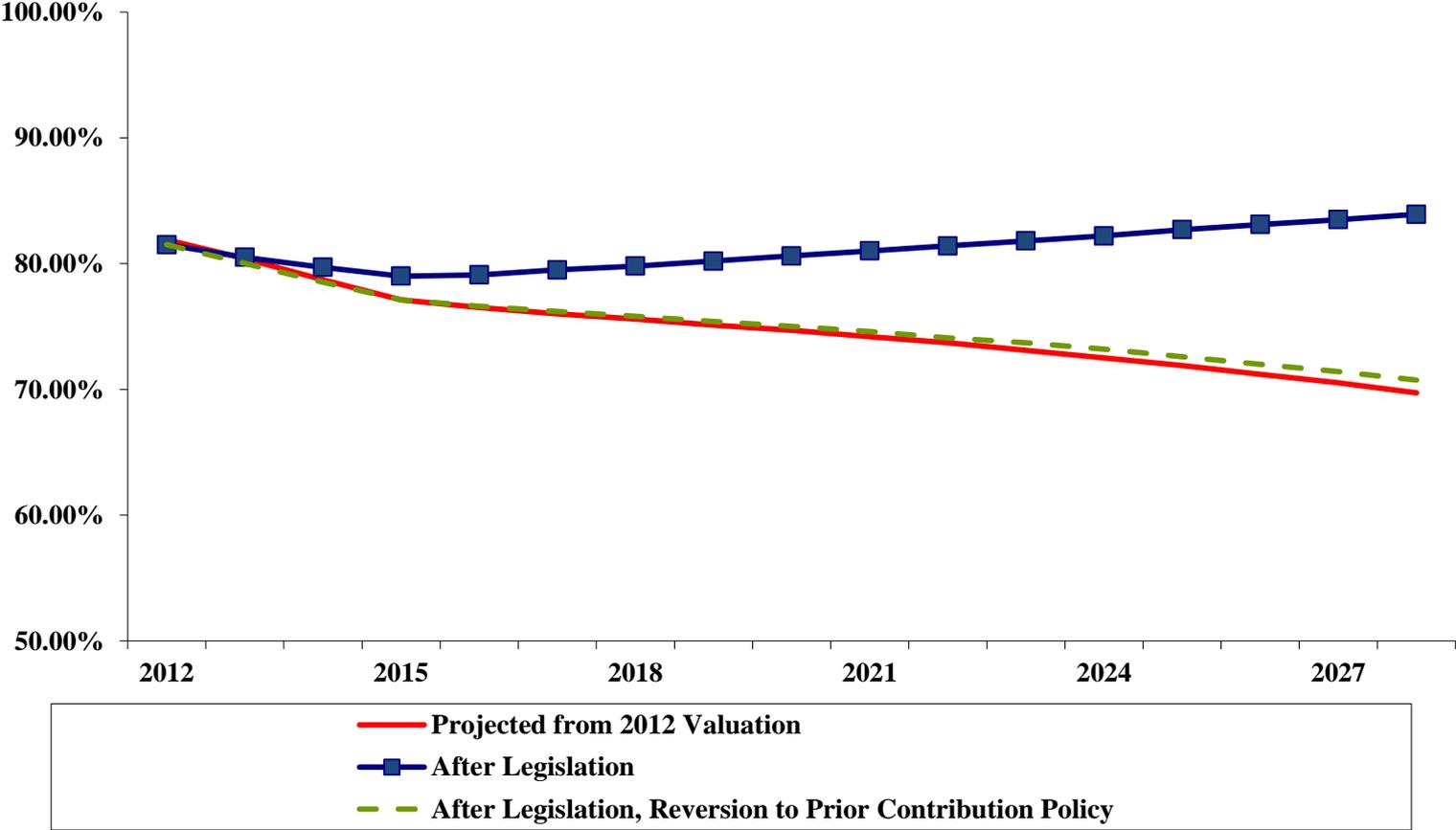


All projections assume contribution policy outlined in legislation continues indefinitely and no future changes to benefits



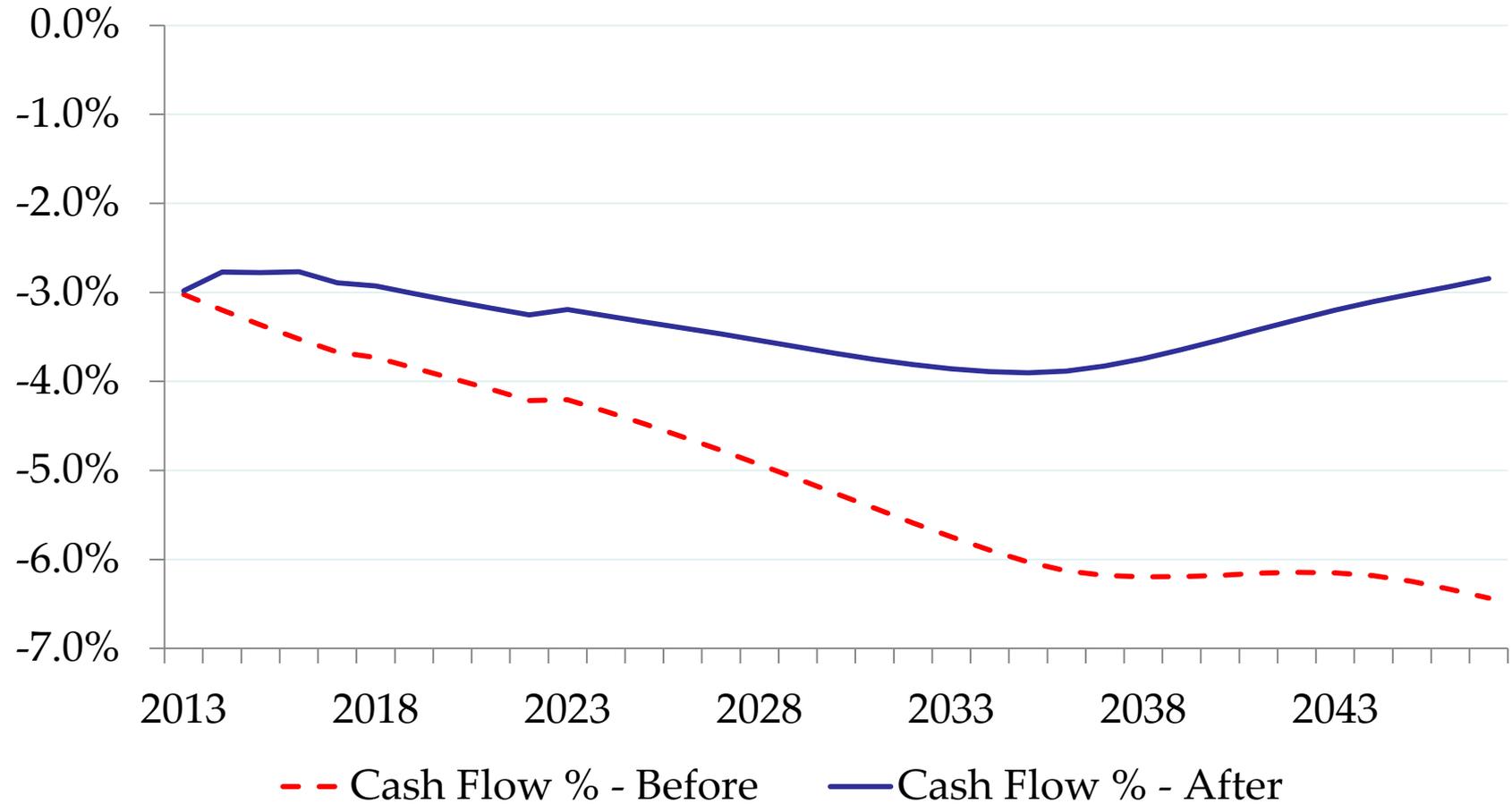


# Projection of Funded Ratio Contribution Policy





# Cash Flow as a % of Assets





# Comments from Valuation Report

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- ◆ *It is important to understand that while the negotiation process by the Legislature included an ad hoc COLA paid to retirees in September of 2013, the legislation also included substantial increases in contribution rates. This should be the model used in any future year that a COLA is considered. In past negotiations, there were times that COLAs and retroactive benefit enhancements were granted without additional funding sources and that eventually deteriorated the financial health of the System.*
- ◆ *Thus, we still urge caution in granting future unfunded additional liabilities without additional funding. As of now, based on the current benefit levels, the dollar amount of the unfunded actuarial accrued liability is expected to increase for the next two decades. Adding additional unfunded liabilities will only increase the amount further and place more risk on future generations.*



# Summary

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- ◆ The legislation was very positive for the TRS System
  - ▶ Replaced the date of depletion with a calculable, reasonable funding period
- ◆ Projections expect the UAAL to increase in nominal dollars over the next couple of decades before beginning to decrease
- ◆ During that time, the funded ratio should bottom in the next 4 years and begin to slowly increase



# New Pension Accounting Standards

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## **New Pension Accounting Standards Adopted by the Governmental Accounting Standards Board (GASB)**



# What has GASB done?

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- ◆ The standards change pension accounting and financial reporting standards for state and local governments
  - ▶ Disconnect the accounting cost from funding cost
  - ▶ Employers recognize the Net Pension Liability (NPL) on their balance sheets (*where NPL is code for the Unfunded Accrued Liability based on Market Value of Assets*)
  - ▶ Employers recognize a new measure of the Pension Expense (PE) on their income statements, which is different from the actuarially determined contribution (ARC)
  - ▶ Expand the disclosures required in the notes and required supplementary information



# Timing

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## ◆ GASB 67 Plan Reporting

- ▶ Effective for fiscal years beginning after June 15, 2013
- ▶ For TRS, August 31, 2014 financial statements

## ◆ GASB 68 Employer Reporting

- ▶ Effective for fiscal years beginning after June 15, 2014
- ▶ For the State, August 31, 2015 financial statements
  - Various dates for local employers



# Big Picture

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- ◆ There will be a large liability on the governments' balance sheet
  - ▶ It will encompass all retirement systems
  - ▶ Liability will be “volatile”; varying each year with changes in the market value of assets and liability
- ◆ There will be an expense on the governments' books that is different than the cash cost
  - ▶ A shorter amortization of gains and losses will result in greater year to year volatility of the expense
- ◆ The changes only impact the accounting rules, but .....



# Before and After

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	GASB 25/27	GASB 67/68
Liability	Up to six allowable actuarial cost methods	Only Individual Entry Age* allowed
Asset Offset	Various asset smoothing methods allowed	Fair market value
Expense	Various amortization periods and methods allowed	Rigid rules for Pension Expense components
LTeROR	Flexible on plan's return assumption	Still flexible on plan's return assumption

\* Not ultimate EA method; normal cost is calculated using same benefit structure as PVB for each individual employee



# Determining the Discount Rate

---

- ◆ Discount rate used in determining the Total Pension Liability (TPL) is a blend of two rates:
  - ▶ Long-term expected rate of return on pension plan investments
    - This rate is generally consistent with the funding valuation
    - 8.00% for TRS
  - ▶ Yield or index rate for a 20-year, tax-exempt general obligation municipal bond
    - Will vary
    - ~4.0%
- ◆ Weight given to the long-term rate is based on a closed group projection
- ◆ With recent legislation, TRS is expected to pass this test and be able to use 8% discount rate for reporting



# UAAL vs NPL

<i>Note: the below variance in funded ratios is due to differences between AVA ("smoothed" value of assets) and MVA (market value of assets); currently, AVA exceeds MVA (deferred losses)</i>	Current Valuation (Ult EAN, AVA)	Estimated Individual EAN Results (I-EAN, AVA)	Estimated GASB 68 Results (I-EAN, MVA)
Actuarial Accrued Liability / Total Pension Liability	\$150.7	\$150.1	\$150.1
Actuarial Value of Assets / Net Position	<u>121.7</u>	<u>121.7</u>	<u>117.4</u>
Unfunded Actuarial Accrued Liability / Net Pension Liability	\$28.9	\$28.4	\$32.7
Funded Ratio / Plan Fiduciary Net Position as a Percentage of Total Pension Liability	80.8%	81.1%	78.2%

*\$ amounts shown above are in billions*



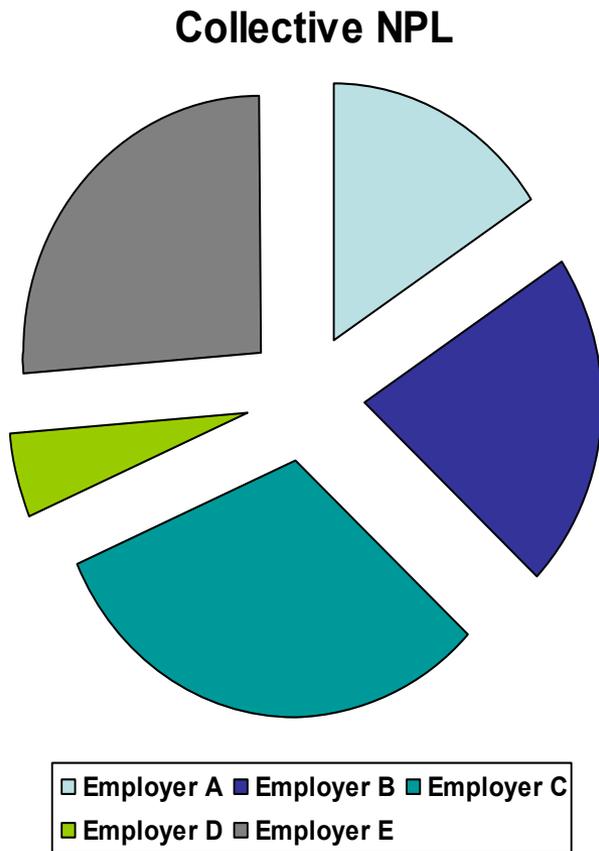
# Discount Rate Sensitivity

	-1% (7%) (I-EAN, MVA)	Baseline Results (8%) (I-EAN, MVA)	+1% (9%) (I-EAN, MVA)
Actuarial Accrued Liability / Total Pension Liability	\$168.4	\$150.1	\$134.7
Actuarial Value of Assets / Net Position	<u>117.4</u>	<u>117.4</u>	<u>117.4</u>
Unfunded Actuarial Accrued Liability / Net Pension Liability	\$51.0	\$32.7	\$17.3
Funded Ratio / Plan Fiduciary Net Position as a Percentage of Total Pension Liability	69.7%	78.2%	87.1%

*\$ amounts shown above are in billions*

# Cost-Sharing Plans

## Proportionate Shares



- Cost-Sharing Plan – “A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.”
- Under GASB 27, employers in a cost-sharing plan report the contractually required contribution in their financial statements
- Under GASB 68, employers in cost-sharing plans will have to report their proportionate share of the collective Net Pension Liability



# Nonemployer Contributing Entities

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## ◆ Classification

- ▶ “Special funding situations” (SFSs)
- ▶ Other circumstances

## ◆ State will make approximately 80% of total non-employee contribution for FY 2014

- ▶ State portion of contributions will decrease to 70% of total non-employee contributions under the new legislation

## ◆ Implications regarding the funding arrangement

- ▶ If it is classified as a SFS
  - Non-employer accounting similar to cost-sharing employer
  - State will recognize a proportionate share if the NPL
- ▶ If it is not classified as a SFS
  - Non-employer accounts for grant
  - NPL will be proportionately allocated to the School Districts, and revenue for contribution attributable to the non-employer entity



# Implications

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- ◆ Example: State contributions 90% of total contributions, 2 employers contribute 5% each. Total NPL of 100 and annual expense of 20.
- ◆ If SFS:
  - ▶ State shows NPL of 90, each employer 5. State shows expense of 18, each employer 1.
- ◆ If non SFS:
  - ▶ Each employer shows NPL of 50
  - ▶ Each employer shows expense of 10, with annual “grant” equal to 9 each
- ◆ For TRS/School Districts, this will be the difference whether approximately \$23 billion is put on the State’s balance sheet or across the school districts collectively



# Special Funding Situations (SFSs)

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- ◆ Must satisfy both criteria to be a SFS:
  - ▶ Non-employer entity legally required to make contributions directly to pension plan
  - ▶ Required contribution amounts are either (need one):
    - Not dependent on event/circumstances unrelated to pension
    - Non-employer is only entity required to make contributions



# *Communication Challenges*

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➤ Explaining:

- The new very large liability on balance sheet
- The annual changes in liability and pension expense, e.g., explaining why pension expense number is actually pension income in some years
- Why accounting numbers do not equal funding numbers; which ones are right?
- Why it costs so much to prepare
- Helping participating employers to understand and implement the new requirements



- ◆ Circular 230 Notice: Pursuant to regulations issued by the IRS, to the extent this presentation concerns tax matters, it is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding tax-related penalties under the Internal Revenue Code or (ii) marketing or recommending to another party any tax-related matter addressed within. Each taxpayer should seek advice based on the individual's circumstances from an independent tax advisor.
- ◆ This presentation shall not be construed to provide tax advice, legal advice or investment advice.

# Tab 15



# TRS-Care OPEB

## GASB 43 & 45 2013 Actuarial Valuation



**Gabriel Roeder Smith & Company**  
Consultants & Actuaries  
[www.gabrielroeder.com](http://www.gabrielroeder.com)



# Current Funding Policy

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- ◆ Active Employees: 0.65% of payroll
- ◆ Local Employers: 0.55% of payroll
- ◆ State assistance: 1.00% of payroll
- ◆ There is a statutory requirement that the State is responsible for any shortfall



# Impact of changes

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- ◆ Baseline 2013 results with prior assumptions were consistent with those expected in 2012 valuation.
  - ▶ Claims experience was favorable for the self-insured plans
  - ▶ Medicare Advantage premiums increased faster than expected
- ◆ New plan design
  - ▶ Non-grandfathered employees will not be eligible for TRS Care-2 or TRS Care-3 prior to age 62
  - ▶ Normal retirement date was increased for non-vested employees
- ◆ Key changes to OPEB assumptions
  - ▶ Phasing out the EGWP-Wrap Rx savings for Medicare retirees
  - ▶ Reset the trend assumption
  - ▶ Assuming increased participation in TRS-Care 2



# 2013 Results

## Current Funding Policy (\$millions)

	2013	2012	2011
	(1)	(2)	(3)
Discount Rate	5.25%	5.25%	5.25%
Unfunded Actuarial Accrued Liability (in Millions)	\$29,284	\$26,801	\$28,894
Normal Cost (in Millions)	\$1,094	\$1,069	\$1,173
Annual Required Contribution (in Millions)	\$2,358	\$2,225	\$2,420
ARC per active member (\$)	\$3,480	\$3,347	\$3,551
Total ARC as a % of Payroll	7.73%	7.47%	7.93%
Employer ARC as a % of Payroll (Net of Active Member Contributions)			
Contributions: 2012      2013 and 2011	7.08%	6.82%	7.28%
State    0.50%      1.00%			
District <u>0.55%</u> <u>0.55%</u>			
Total    1.05%      1.55%			



# Results by Scenario

## Advanced Funding Policy (\$millions)

	2013	2012	2011
	(1)	(2)	(3)
Discount Rate	8.00%	8.00%	8.00%
Unfunded Actuarial Accrued Liability (in Millions)	\$19,664	\$17,982	\$19,371
Normal Cost (in Millions)	\$606	\$604	\$658
Annual Required Contribution (in Millions)	\$1,787	\$1,684	\$1,821
ARC per active member (\$)	\$2,637	\$2,533	\$2,672
Total ARC as a % of Payroll	5.86%	5.65%	5.97%
Employer ARC as a % of Payroll (Net of Active Member Contributions)			
Current Contributions: State 1.00%	5.21%	5.00%	5.32%
District <u>0.55%</u>			
Total 1.55%			



# Cash Estimates for FY2014

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- ◆ The current projected contributions are \$671 million (2.20% of payroll)
- ◆ The current expected net claims are \$848 million (\$177 million more than projected contributions)
- ◆ To increase to advance funding, the contribution requirement is 5.86% of payroll (increase of \$1,116 million above the current \$671 million)

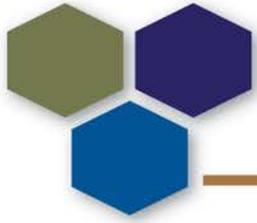


# Health Benefits Briefing

Teacher Retirement System of Texas  
December 13, 2013



**Gabriel Roeder Smith & Company**  
Consultants & Actuaries  
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# TRS-Care

Health Care Program  
for Retired Public School Employees and Their Dependents



# History

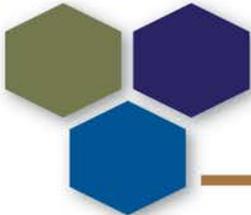
- ◆ Created in 1985...coverage began September 1, 1986
- ◆ Historically operated through a separate trust fund
- ◆ Provides health coverage for retired Texas public school employees
- ◆ Higher education retirees are generally covered by ERS, UT or A&M
- ◆ Benefits provided through medical and pharmacy networks
  - ▶ Medical benefits administered by Aetna
    - Self-funded PPO plan design options
    - Fully insured Medicare Advantage plan options
  - ▶ Pharmacy benefits administered by Express Scripts
    - Self-funded prescription drug benefits for non-Medicare participants
    - Self-funded Medicare Part D drug benefits for Medicare participants

# Plan Design

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## Self-funded PPO plans

- ◆ TRS-Care 1
  - ▶ Catastrophic plan with different deductibles for retirees (1) under 65, (2) with Medicare Part B Only, and (3) with Medicare Parts A&B
- ◆ TRS-Care 2
  - ▶ Comprehensive plan with \$1,000 deductible and \$35 office visit copay and includes managed pharmacy program
- ◆ TRS-Care 3
  - ▶ Comprehensive plan with \$300 deductible and \$25 office visit copay and includes managed pharmacy program
- ◆ Retiree premium structure based on years of service and Medicare status

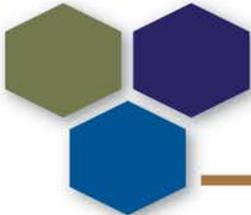


## Overview of TRS-Care Plan Design

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Program redesigned in FY2013 for Medicare primary individuals

- ◆ Fully Insured Medicare Advantage plans effective January 1, 2013
  - ▶ Insured by Aetna
  - ▶ Retirees not covered by both Medicare Parts A&B, along with those opting out of the Medicare Advantage plans, continue to be covered under the self-funded plans administered by Aetna
  - ▶ With 80% participation, savings through the biennium ending August 31, 2015 were expected to be \$345.3 million
  - ▶ Participation level approximately 70% of retirees with Medicare Parts A&B
  - ▶ \$180 per year reduction in retiree premium for each member enrolled in a Medicare Advantage plan



## Overview of TRS-Care Plan Design

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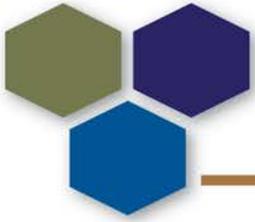
Program redesigned in FY2013 for Medicare primary individuals

- ◆ Self-funded Medicare Part D Plans effective January 1, 2013
  - ▶ Administered by Express Scripts
  - ▶ Retirees not covered by either Medicare Part A or Part B, along with those opting out of the Medicare Part D plans, continue to be covered under the self-funded plans administered by Express Scripts
  - ▶ With 80% participation, savings through the biennium ending August 31, 2015 were expected to be \$162.1 million
  - ▶ Actual participation levels are approximately 83% of retirees covered by Medicare Part A and/or Part B

## Overview of TRS-Care

# Medical Plan Design

	TRS-Care 2	TRS-Care 3	Medicare Advantage for TRS-Care 2	Medicare Advantage for TRS-Care 3
<b>MEDICARE RETIREES</b>				
Deductible	\$1,000 / \$2,000	\$300 / \$600	\$500	\$150
Coinsurance	80%/20% after Medicare payment	80%/20% after Medicare payment	95%/5%	95%/5%
Max Coinsurance (Excluding Deductible)	\$3,000 / \$6,000	\$3,000 / \$6,000	\$3,000	\$3,000
Inpatient Hospital	80%/20% after Medicare payment	80%/20% after Medicare payment	\$500 copay per stay	\$250 copay per stay
Office Visit			\$5 PCP \$10 Specialist	\$5 PCP \$10 Specialist
Urgent Care			\$35 copay	\$35 copay
Emergency Room			\$65 copay	\$50 copay

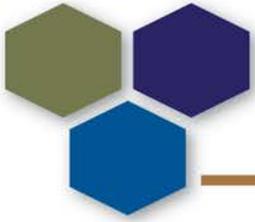


Overview of TRS-Care

# Prescription Drug Plan Design

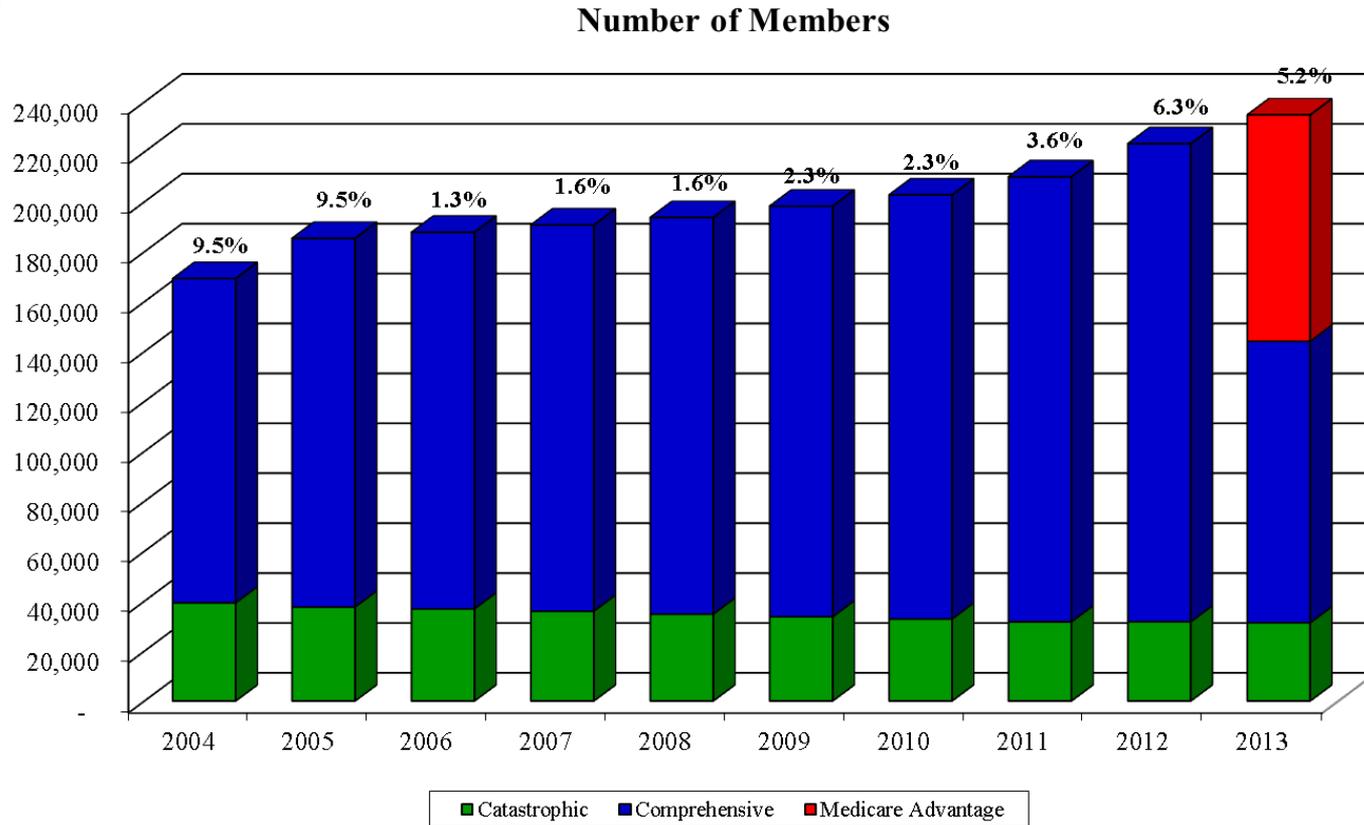
	TRS-Care 2	TRS-Care 3	Medicare Part D Plan for TRS-Care 2	Medicare Part D Plan for TRS-Care 3
<b>MEDICARE RETIREES</b>				
Retail Copays				
Generic	\$10	\$10	\$5	\$5
Preferred Brand	\$30	\$25	\$25	\$20
Non-Preferred Brand	\$50	\$40	\$50	\$40
Mail Order Copays				
Generic	\$20	\$20	\$15	\$15
Preferred Brand	\$75	\$50	\$70	\$45
Non-Preferred Brand	\$125	\$80	\$125	\$80



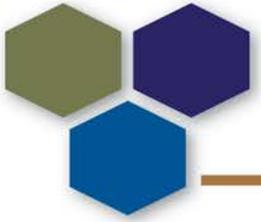


# TRS-Care Participation Growth

## Overall Membership

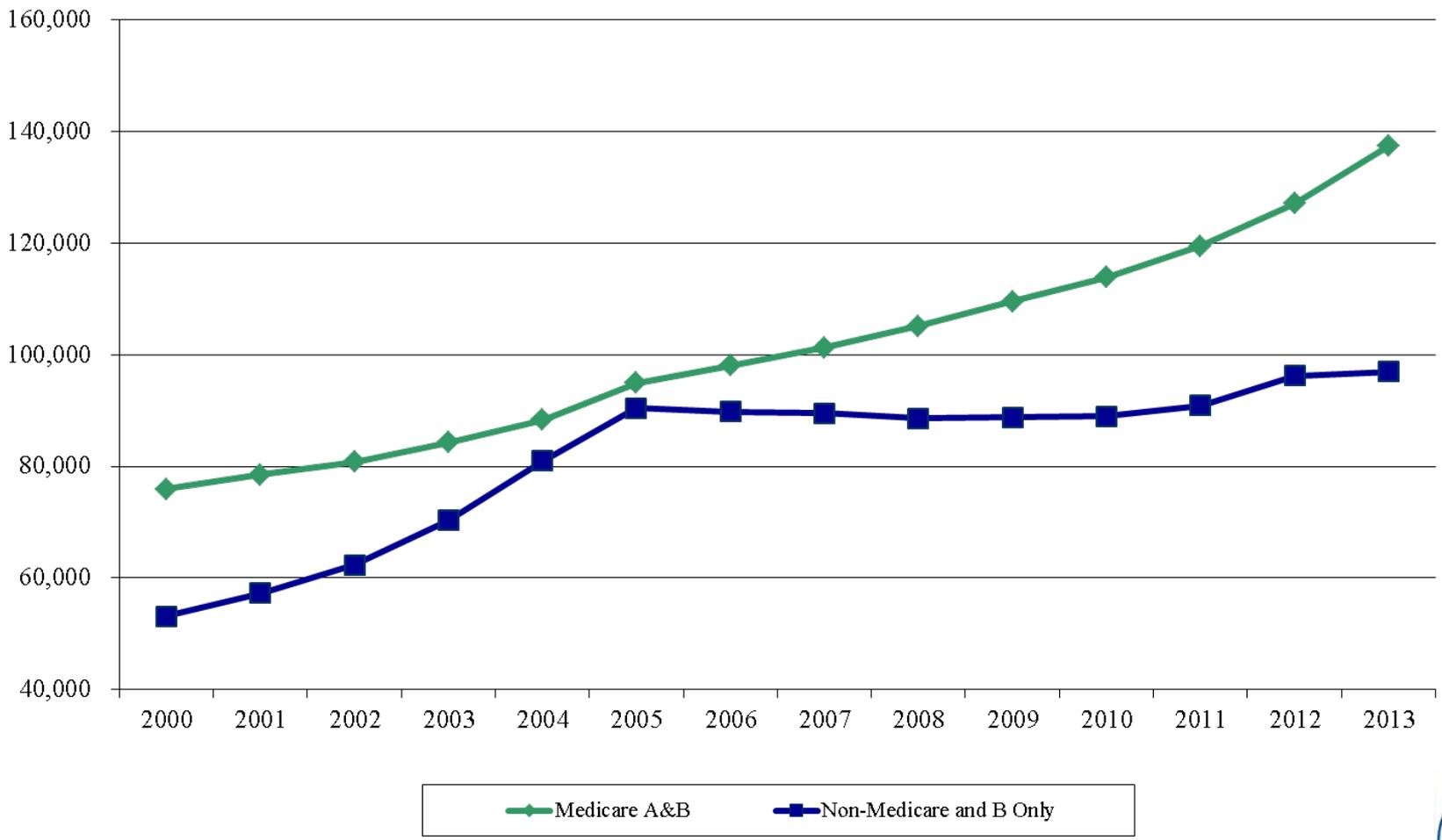


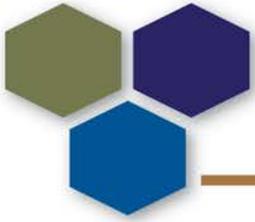
- ◆ Most retirees participate in TRS-Care health care coverage
- ◆ Most elect comprehensive coverage



## TRS-Care Participation Growth

# Number of Members by Medicare Status

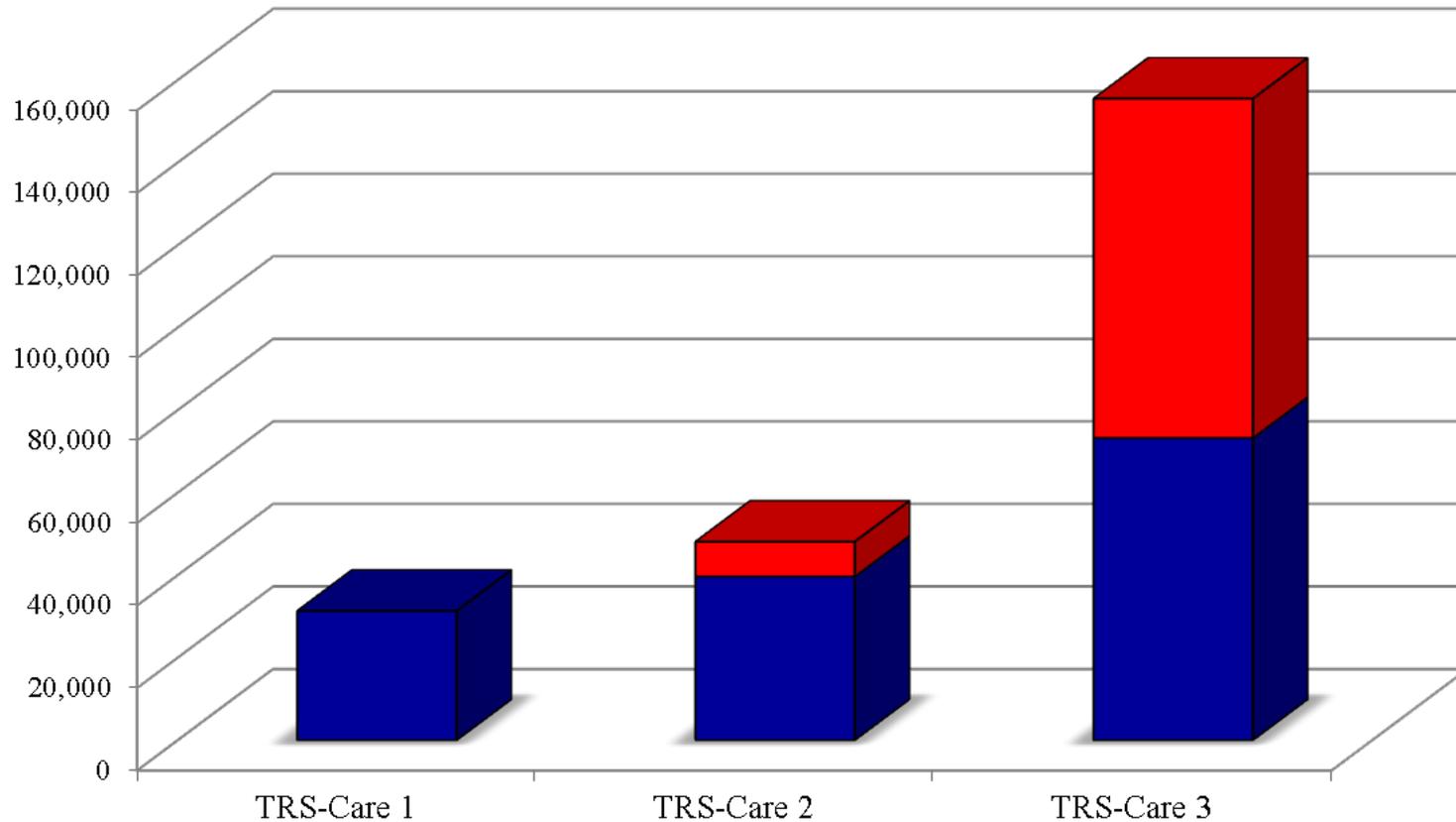




## TRS-Care Participation Growth

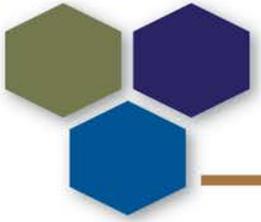
# Number of Members by TRS-Care Plan

FY2013 Enrollment



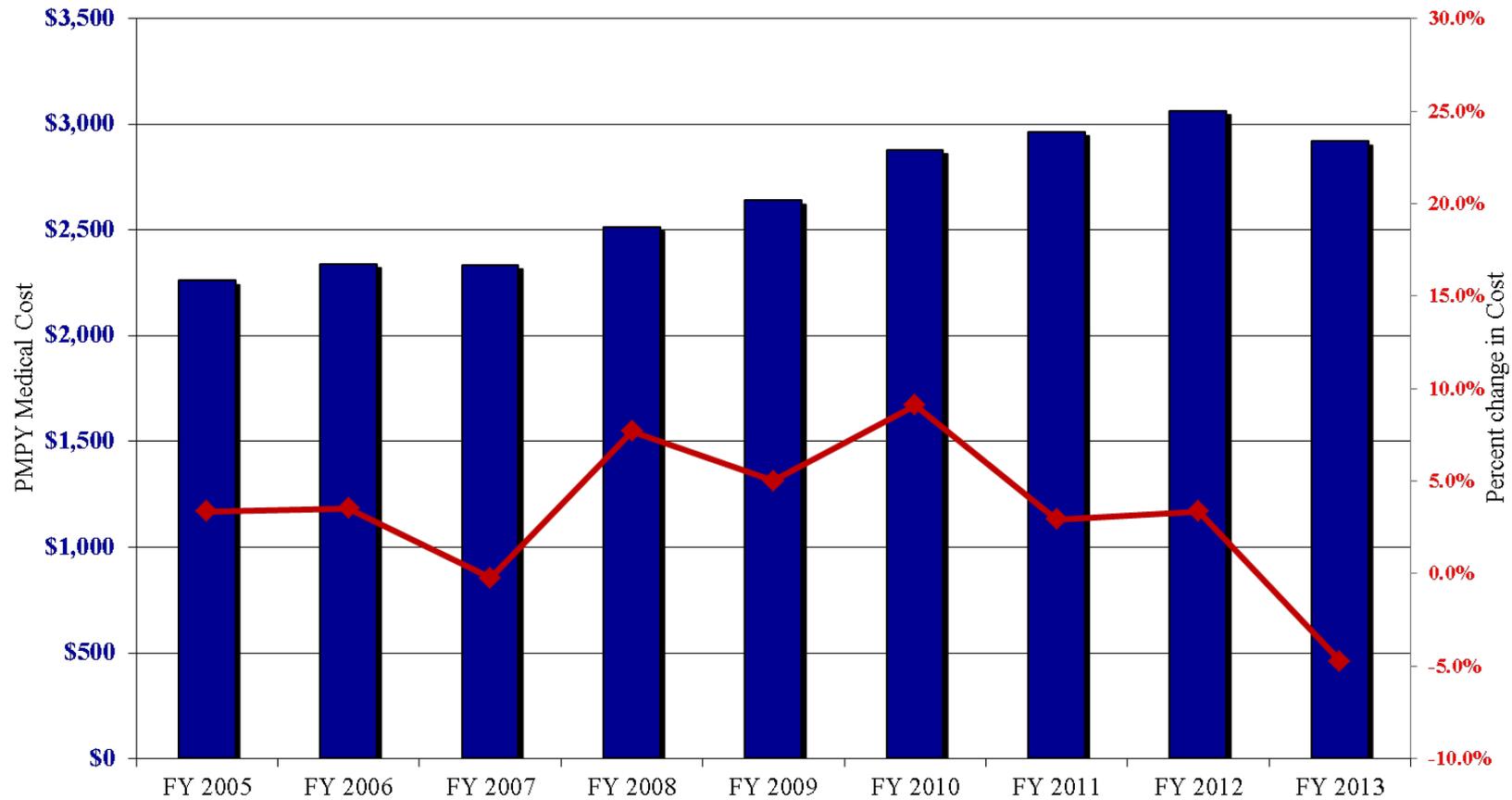
■ Self-funded PPO   ■ Fully Insured Medicare Advantage

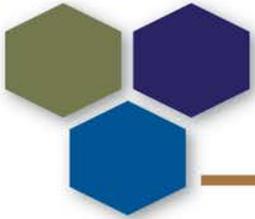




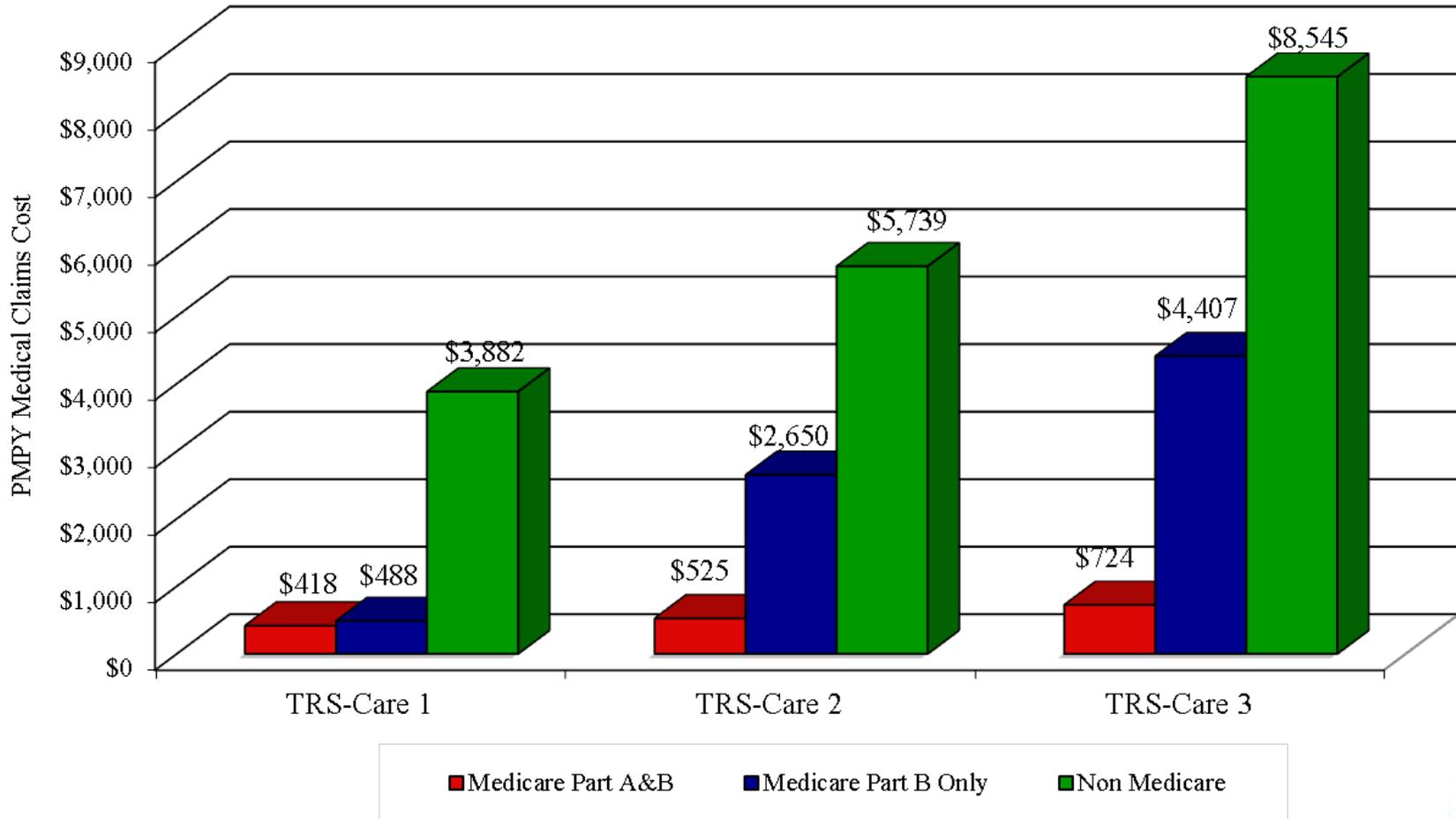
# TRS-Care Claims Cost

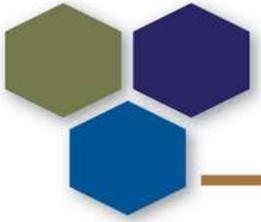
## Medical Claims Per Member



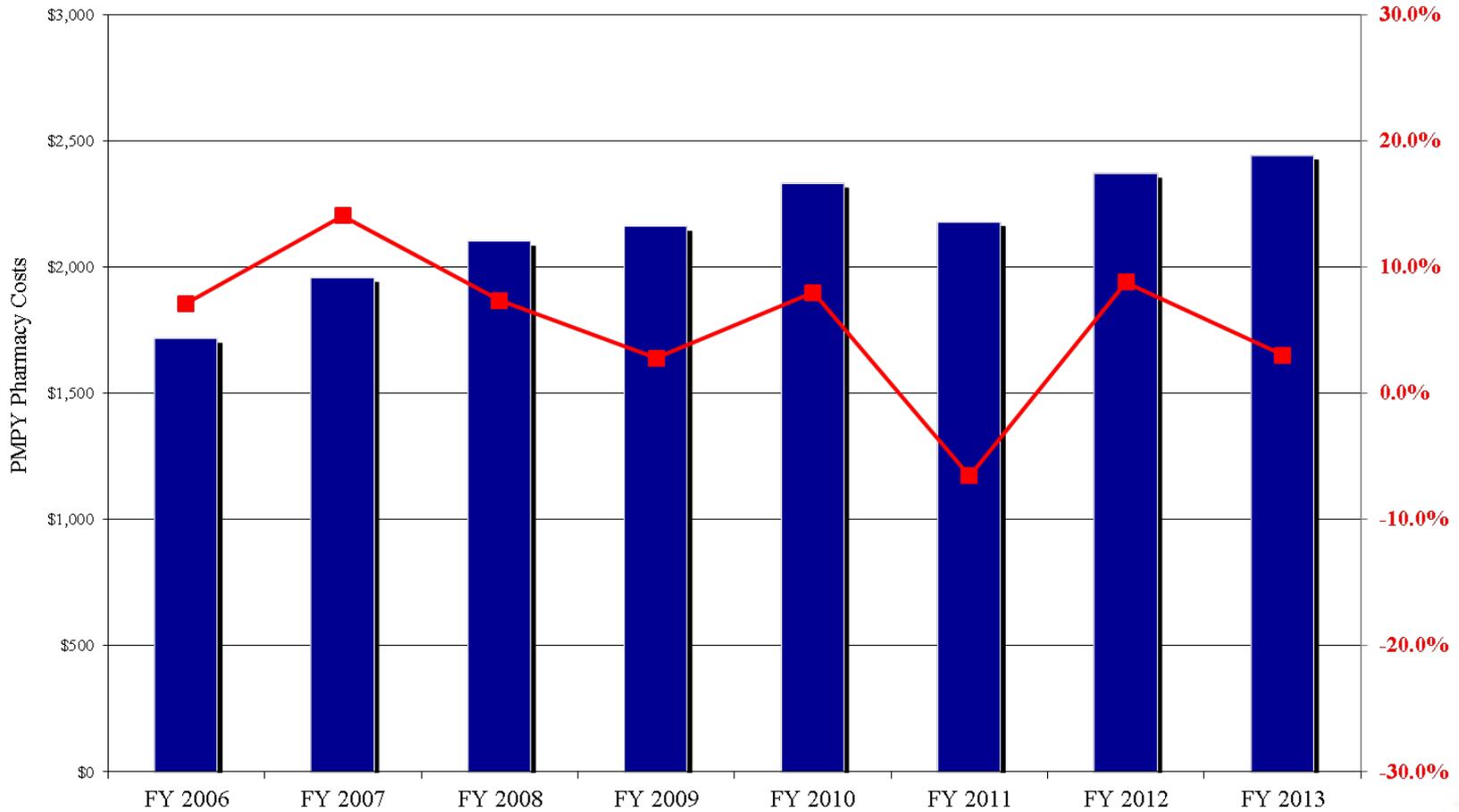


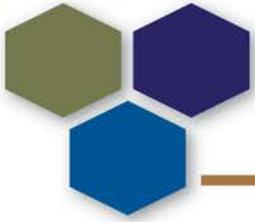
# TRS-Care Claims Cost FY2013 Average Medical Claims for Self-Funded Plans





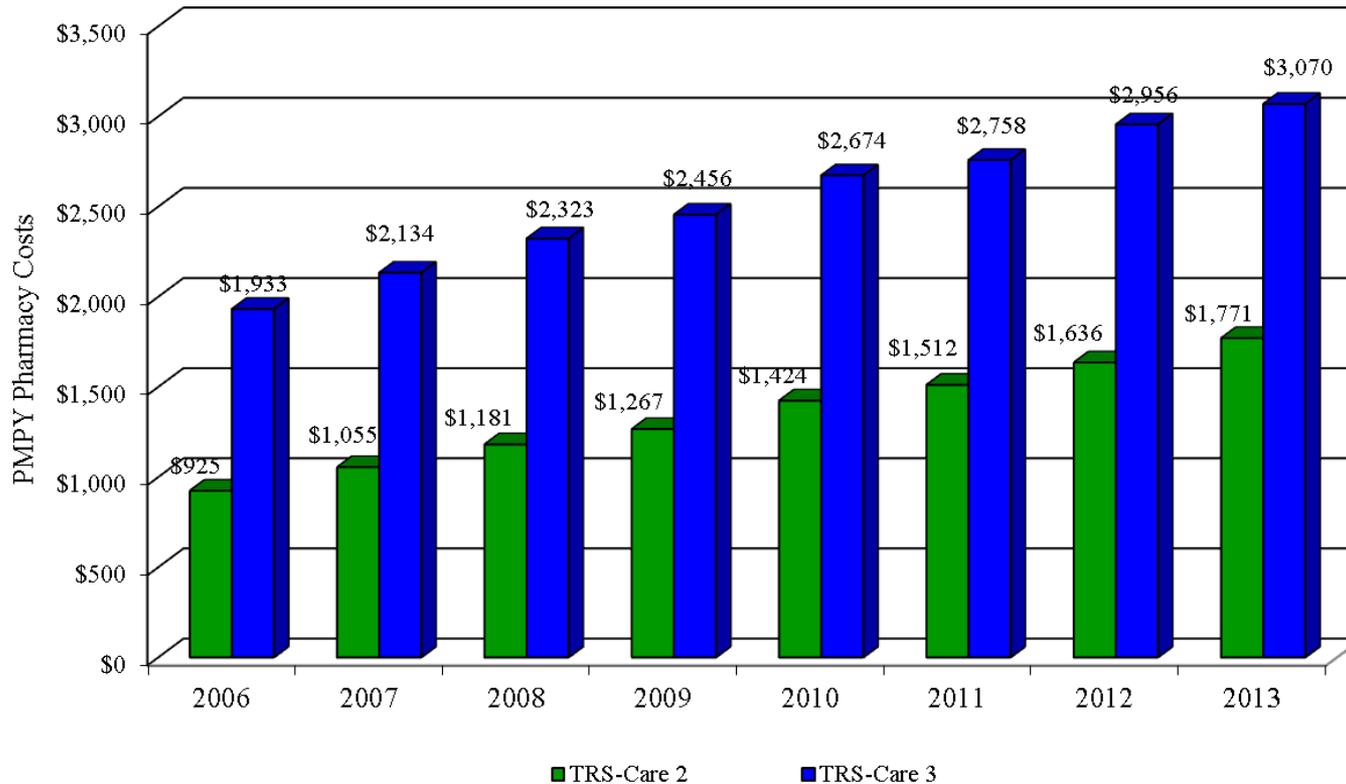
# TRS-Care Claims Cost Average Pharmacy Claims Net of Rebates



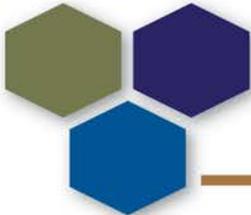


## TRS-Care Claims Cost

# Average Pharmacy Claims Per Member



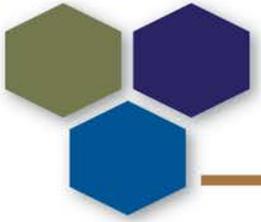
FY2013 costs include both the commercial Rx plan and the Medicare Part D Plans for TRS-Care 2 and TRS-Care 3.



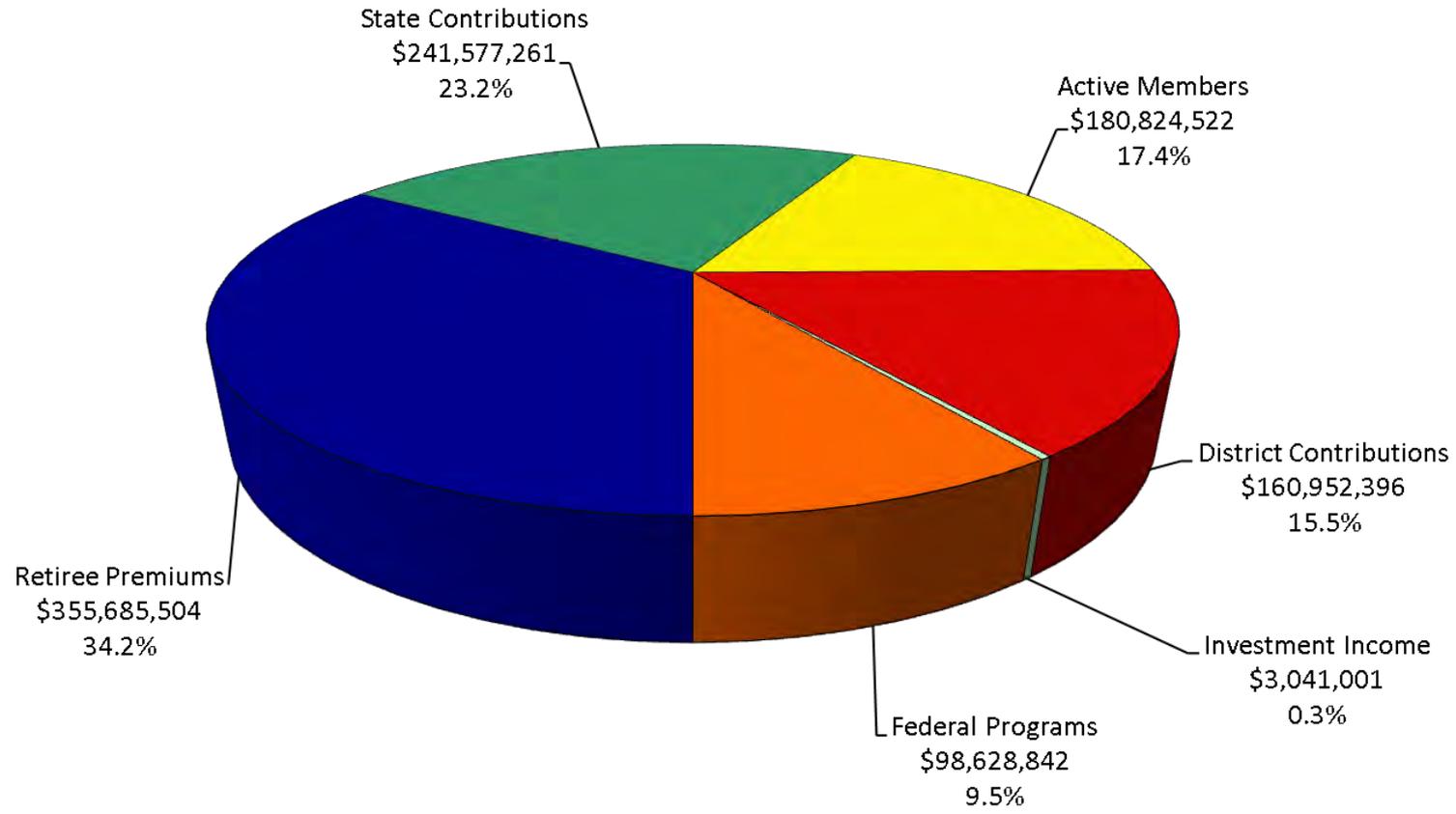
# TRS-Care Funding Sources

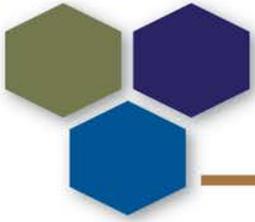
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- ◆ State Contributions: 0.5% of public education covered payroll for FY 2013; reinstated to 1.0% in FY2014
- ◆ Active TRS members: 0.65% of employee's salary
- ◆ School Districts: 0.55% of employee's salary
- ◆ Supplemental funding
- ◆ Retiree Contributions: tiered by years of service and Medicare status for Care 2 & 3 Coverage and Dependent Coverage
- ◆ Employer surcharge to account for the “return to work” employees
- ◆ Prescription Drug Subsidies
  - ▶ Retiree Drug Subsidy (RDS)
  - ▶ PDP Subsidy
  - ▶ Coverage Gap Discounts
  - ▶ Catastrophic Reinsurance
- ◆ Investment Income
- ◆ Retirees also pay substantial amounts for deductibles, copays, medical co-insurance and Medicare Part B premiums

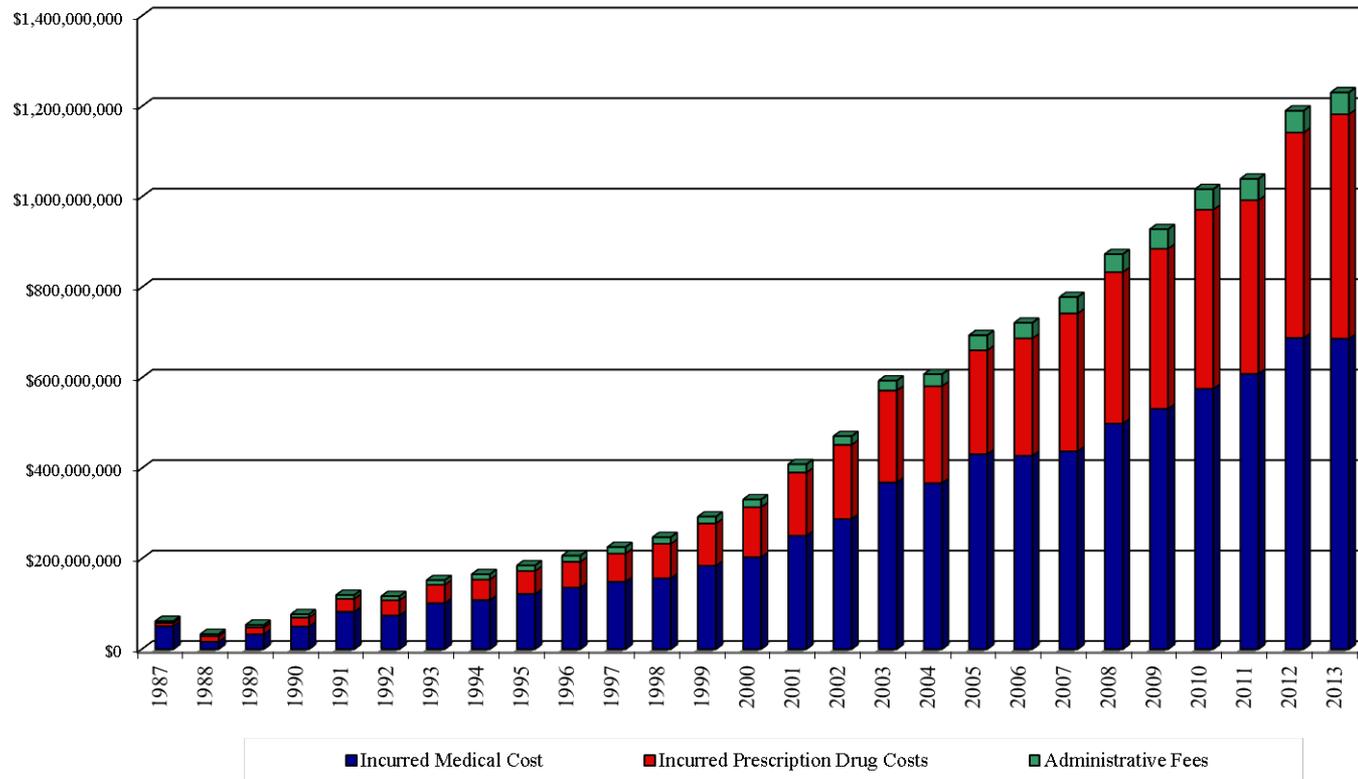


# TRS-Care Funding Sources



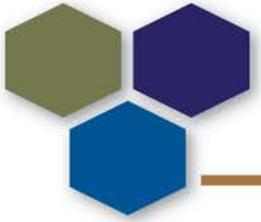


# TRS-Care Historical Expenditures



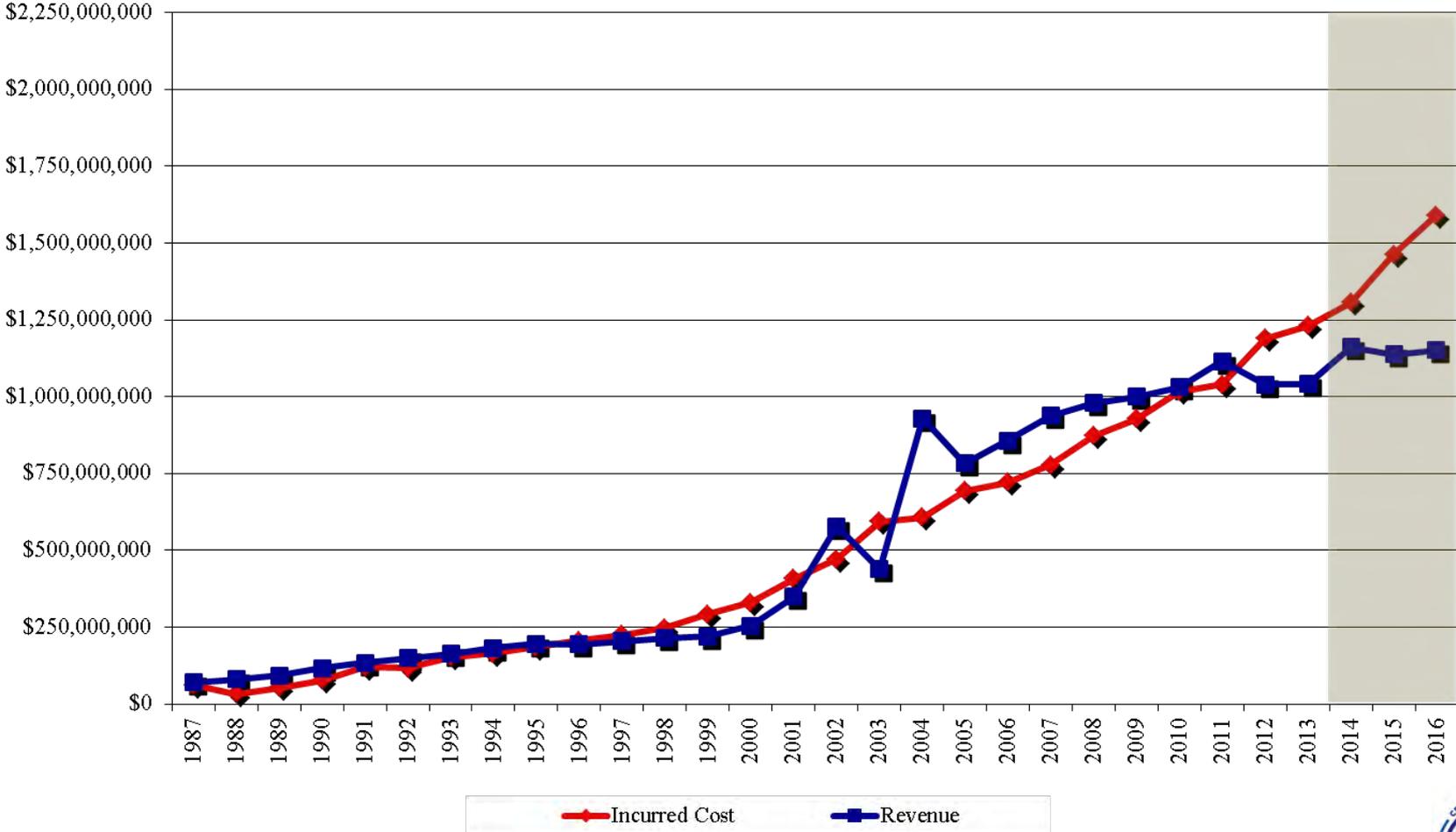
This chart is only part of the picture of total health care costs. In addition to expenditures paid by TRS-Care, retiree costs are shared by Medicare, provider discounts, and retirees. In FY 2013 Medicare paid an estimated \$1.5 billion. Provider discounts contributed over \$835 million and retiree copayments and payments for non-covered services are estimated at \$890 million.





## TRS-Care Funding

# Revenue Versus Incurred Cost



# TRS-Care Funding

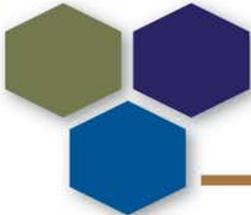
Financial History & Projection Through FY 2018 with Data Through August 2013

Fiscal Year	Contributions								Expenditures				Ending Balance (Incurred Basis)
	Retiree Contributions	State Contributions	Supplemental Appropriations	Active Employee Contributions	District Contributions	Investment Income	CMS& Part D Subsidies	ERRP Subsidy	Medical Incurred	Drug Incurred	Medicare Advantage Premiums	Administrative Costs	
FY 1986	\$0	\$0	\$250,000	\$17,625,194	\$0	\$572,153	\$0	\$0	\$0	\$0	\$0	\$362,371	\$18,084,976
FY 1987	\$22,617,624	\$25,931,680	\$0	\$18,522,629	\$0	\$2,568,998	\$0	\$0	\$50,988,845	\$7,044,825	\$0	\$3,941,936	\$25,750,301
FY 1988	\$23,948,600	\$31,357,632	\$0	\$19,598,520	\$0	\$5,703,832	\$0	\$0	\$16,157,649	\$12,441,672	\$0	\$4,614,755	\$73,144,809
FY 1989	\$25,428,632	\$37,420,711	\$0	\$20,789,215	\$0	\$8,802,914	\$0	\$0	\$32,926,324	\$15,458,710	\$0	\$5,212,073	\$111,989,174
FY 1990	\$37,556,561	\$44,369,915	\$0	\$22,184,958	\$0	\$13,098,835	\$0	\$0	\$50,171,919	\$19,835,965	\$0	\$7,186,851	\$152,004,708
FY 1991	\$46,563,787	\$47,277,743	\$0	\$23,638,871	\$0	\$15,801,047	\$0	\$0	\$82,697,189	\$28,683,081	\$0	\$8,258,029	\$165,647,857
FY 1992	\$56,395,797	\$50,392,512	\$0	\$25,196,592	\$0	\$17,314,372	\$0	\$0	\$74,307,953	\$33,829,694	\$0	\$8,862,560	\$197,946,923
FY 1993	\$65,154,653	\$54,029,406	\$0	\$27,014,703	\$0	\$17,181,190	\$0	\$0	\$101,627,864	\$40,700,513	\$0	\$10,067,359	\$208,931,140
FY 1994	\$80,128,944	\$56,912,083	\$0	\$28,456,041	\$0	\$16,467,438	\$0	\$0	\$108,284,693	\$45,712,060	\$0	\$11,668,828	\$225,230,065
FY 1995	\$89,006,331	\$59,849,850	\$0	\$29,924,925	\$0	\$16,841,673	\$0	\$0	\$122,054,551	\$50,782,093	\$0	\$12,219,847	\$235,796,353
FY 1996	\$82,622,236	\$63,634,087	\$0	\$31,817,043	\$0	\$16,818,747	\$0	\$0	\$135,982,304	\$57,074,921	\$0	\$13,593,578	\$224,037,663
FY 1997	\$87,657,784	\$67,616,395	\$0	\$33,808,197	\$0	\$16,202,440	\$0	\$0	\$148,823,489	\$62,530,982	\$0	\$14,097,454	\$203,870,554
FY 1998	\$91,390,173	\$72,210,190	\$0	\$36,105,095	\$0	\$15,260,517	\$0	\$0	\$156,537,913	\$76,256,158	\$0	\$14,616,678	\$171,425,780
FY 1999	\$96,474,107	\$76,488,424	\$0	\$38,244,213	\$0	\$9,762,741	\$0	\$0	\$184,398,533	\$93,459,890	\$0	\$14,905,196	\$99,631,646
FY 2000	\$120,227,960	\$85,505,637	\$0	\$42,738,069	\$0	\$6,923,485	\$0	\$0	\$203,029,971	\$110,903,247	\$0	\$16,837,127	\$24,256,451
FY 2001	\$131,213,445	\$90,118,787	\$76,281,781	\$45,059,394	\$0	\$5,824,134	\$0	\$0	\$250,691,898	\$139,774,848	\$0	\$18,237,767	(\$35,950,521)
FY 2002	\$143,797,748	\$94,792,026	\$285,515,036	\$47,378,092	\$0	\$7,140,560	\$0	\$0	\$287,729,918	\$163,979,754	\$0	\$19,017,292	\$71,945,978
FY 2003	\$162,954,010	\$98,340,798	\$124,661,063	\$49,170,399	\$0	\$3,394,956	\$0	\$0	\$368,462,963	\$203,281,400	\$0	\$21,690,329	(\$82,967,487)
FY 2004	\$248,552,679	\$198,594,194	\$298,197,463	\$99,297,097	\$79,457,387	\$4,840,982	\$0	\$0	\$366,840,457	\$214,514,500	\$0	\$26,332,200	\$238,285,158
FY 2005	\$322,780,191	\$202,397,566	\$64,172,167	\$101,198,783	\$80,914,228	\$11,300,868	\$0	\$0	\$431,036,095	\$229,522,988	\$0	\$33,333,010	\$327,156,868
FY 2006	\$326,844,982	\$215,666,940	\$0	\$140,183,511	\$118,607,527	\$21,435,792	\$34,611,607	\$0	\$427,553,404	\$259,532,887	\$0	\$34,434,969	\$462,985,967
FY 2007	\$323,957,945	\$238,190,720	\$0	\$154,823,968	\$136,008,512	\$32,671,539	\$52,329,617	\$0	\$437,519,747	\$304,773,401	\$0	\$35,878,194	\$622,796,927
FY 2008	\$328,505,433	\$254,722,174	\$0	\$165,569,413	\$141,672,630	\$29,252,347	\$59,486,239	\$0	\$498,767,038	\$334,742,500	\$0	\$39,656,301	\$728,839,324
FY 2009	\$329,723,191	\$267,471,299	\$0	\$173,856,344	\$149,562,613	\$17,482,143	\$61,530,735	\$0	\$531,239,020	\$353,893,845	\$0	\$43,184,393	\$800,148,391
FY 2010	\$332,481,933	\$279,250,547	\$0	\$181,512,856	\$155,918,241	\$11,679,229	\$70,795,686	\$0	\$575,539,788	\$395,817,017	\$0	\$45,465,776	\$814,964,302
FY 2011	\$345,164,271	\$282,782,431	\$0	\$183,808,580	\$158,724,010	\$8,168,640	\$66,258,008	\$70,629,797	\$608,461,321	\$384,017,059	\$0	\$47,151,354	\$890,870,304
FY 2012	\$363,348,030	\$271,925,242	\$0	\$176,751,407	\$154,607,926	\$5,189,934	\$71,575,942	(\$2,941,996)	\$687,987,585	\$454,143,825	\$0	\$48,181,723	\$741,013,656
FY 2013	\$355,685,504	\$139,213,557	\$102,363,704	\$180,824,522	\$160,952,396	\$3,041,001	\$98,628,841	\$0	\$686,321,003	\$496,229,923	\$1,075,388	\$47,048,587	\$551,048,281
FY 2014	\$369,159,229	\$274,644,494	\$36,058,148	\$178,518,921	\$159,131,892	\$6,014,595	\$138,134,043	\$0	\$675,708,151	\$556,726,738	\$26,084,428	\$47,468,922	\$406,721,365
FY 2015	\$376,857,297	\$274,644,494	\$0	\$178,518,921	\$159,131,892	\$3,450,368	\$145,134,215	\$0	\$725,602,808	\$639,697,498	\$42,680,020	\$54,847,344	\$81,630,883
FY 2016	\$384,039,179	\$274,644,494	\$0	\$178,518,921	\$159,131,892	\$406,151	\$154,204,515	\$0	\$773,687,680	\$713,723,237	\$49,377,601	\$54,189,427	(\$358,401,909)
FY 2017	\$390,054,237	\$274,644,494	\$0	\$178,518,921	\$159,131,892	\$0	\$163,655,764	\$0	\$820,636,027	\$794,378,907	\$57,060,622	\$53,717,318	(\$918,189,473)
FY 2018	\$395,758,704	\$274,644,494	\$0	\$178,518,921	\$159,131,892	\$0	\$173,128,698	\$0	\$870,394,199	\$882,077,083	\$65,730,546	\$51,778,762	(\$1,606,987,352)

**NOTES**

- Actual data through August 31, 2013
- Reduction in pharmacy spend as a result of the implementation of ESI/Medco as the new PBM effective 9/1/2012;
- 70% participation in Medicare Advantage and 83% participation in Part D plan, which was effective 1/1/2013; CY2013 CMS Subsidy values assumed for Part D Revenue.
- State Contribution rate of 1%; District Contribution rate of 0.55%; and Active Contribution rate of 0.65%.
- Enrollment assumptions based on GASB headcounts
- Medical trends: 7% for Care 1; 7% for Care 2; 7% for Care 3.
- Pharmacy trends: 7% for Care 2; 7% for Care 3; 7% for EGWP plans.
- Interest Rate = 1%

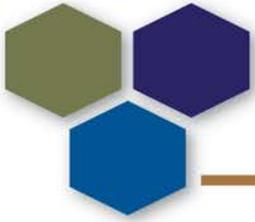




# Cost Drivers

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- ◆ Increase in medical costs
- ◆ Increase in Rx costs
- ◆ Maintaining access and choice in managing providers
- ◆ Increased utilization due to aging population
- ◆ Potential increase in number of retirees (Non-Medicare)
- ◆ Potential plan changes in Medicare program
- ◆ Technology increases and development of new biogenetic drugs
- ◆ CMS reimbursements for Medicare Advantage and Medicare Part D Plans



# TRS-ActiveCare

Health Care Program  
for Employees and Dependents of  
Public Education Entities



# History

- ◆ Coverage began on September 1, 2002
- ◆ Self-funded, managed care plan
- ◆ Effective September 1, 2013, three options offering medical and prescription drug benefits
- ◆ Medical benefits administered by Blue Cross Blue Shield
- ◆ Prescription drug benefits administered by Express Scripts
- ◆ Approximately 9.4% of the covered population has elected coverage in the fully insured HMO plans

# ActiveCare-1HD Plan Design Changes

	Prior Plan Designs		New Plan Design
	ActiveCare-1	ActiveCare -1HD	ActiveCare -1HD
Deductible*	\$1,200/\$3,000	\$2,400/\$2,400	\$2,400/\$4,800
Coinsurance Max*	\$2,000/\$6,000	\$3,000/\$5,000	\$3,850/\$4,200

\* Individual/Family

- ◆ ActiveCare-1 eliminated
- ◆ ActiveCare-1HD redesigned effective 9/1/2013
- ◆ 9% premium increase for Employee Only coverage

# ActiveCare-2 Plan Design Changes

	Prior Plan Design	New Plan Design
Deductible*	\$750/\$2,250	\$1,000/\$3,000
Coinsurance Max*	\$2,000/\$6,000	\$4,000/\$8,000
Retail Short-term drug copays**	\$15/\$35/\$60	\$20/\$40/\$65
Retail Maintenance drug copays**	\$20/\$45/\$75	\$25/\$50/\$80

\* Individual/Family

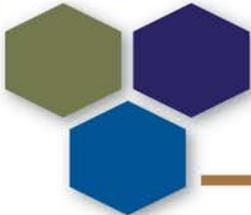
\*\* generic/preferred brand/non-preferred brand

◆ 15% increase in premiums

# ActiveCare-3 Plan Design

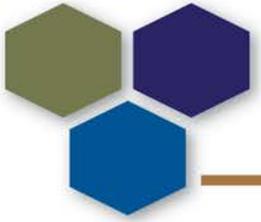
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- ◆ No changes in plan design
- ◆ Enrollment closed to new enrollees
- ◆ 25% increase in premiums

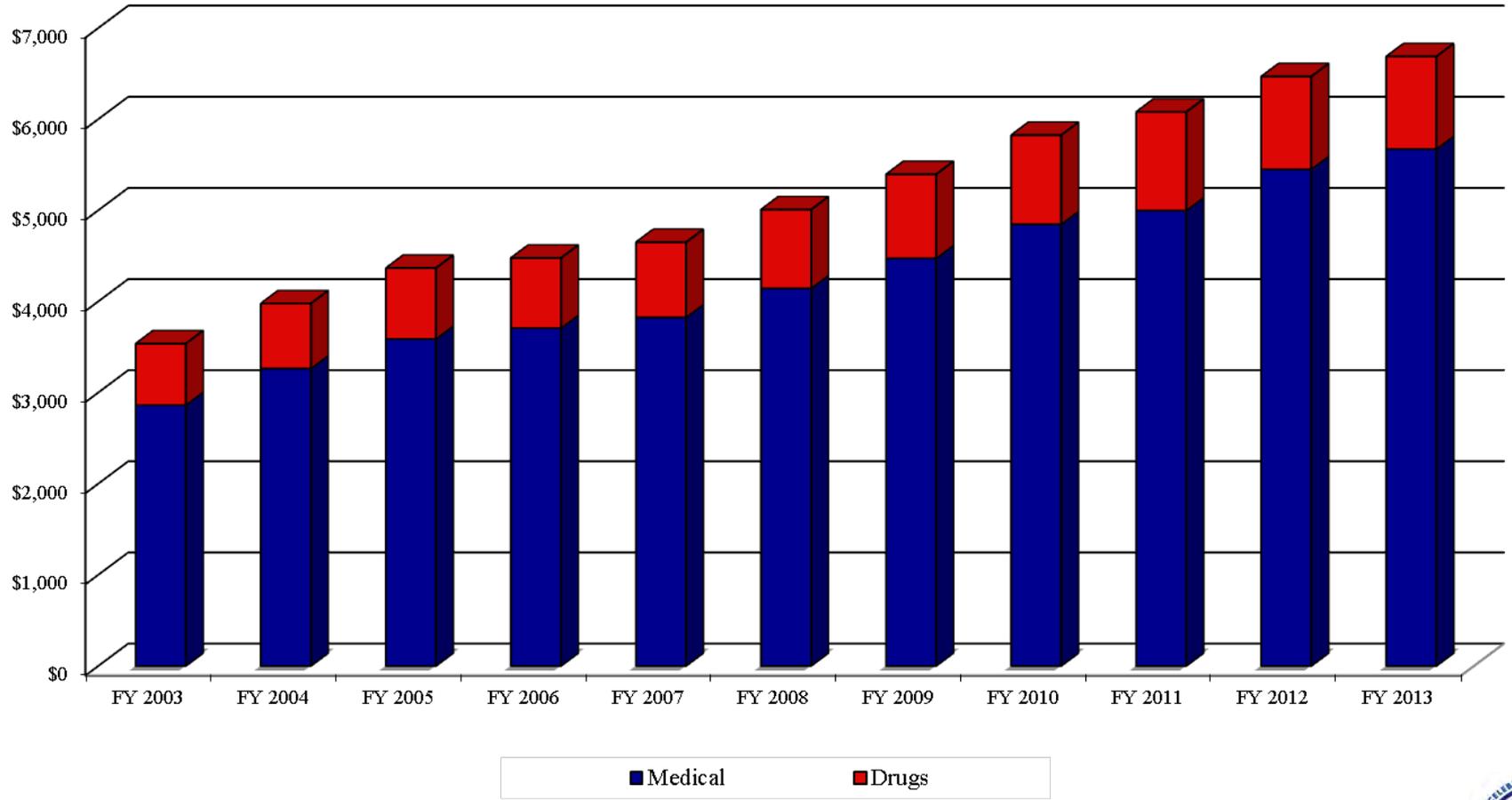


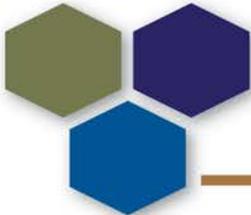
# TRS-ActiveCare Participation

Entity Type	# Eligible	# Participating	% Participating
Less than 500	820	805	98.2%
500 – 1,000	111	97	87.4%
More than 1,000	98	49	50.0%
Charter	193	152	78.8%
RSC	20	20	100.0%
Other Ed	5	5	100.0%
<b>Total</b>	<b>1,247</b>	<b>1,128</b>	<b>90.5%</b>



# TRS-ActiveCare Claims Cost



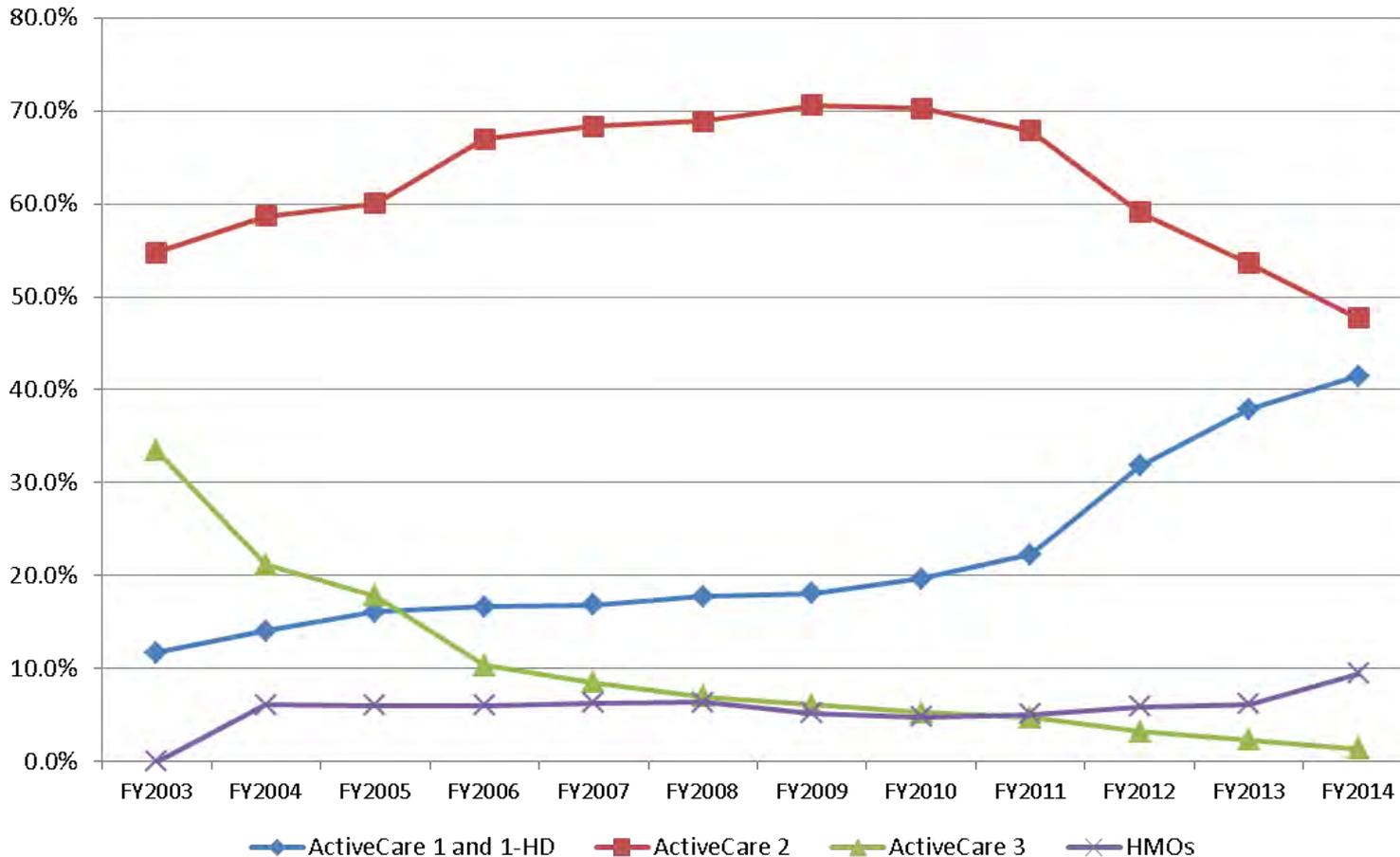


# TRS-ActiveCare Funding

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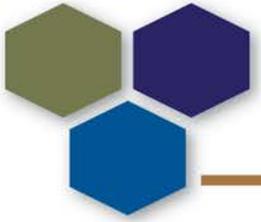
- ◆ District Funding
  - ▶ Required to contribute \$150 per month per employee (districts may elect to contribute more)
- ◆ State Funding
  - ▶ Contributes \$75 per month per employee, through school finance formulas
- ◆ Funding requirements for Districts and State have not changed since program inception in 2002.

# TRS-ActiveCare Participation

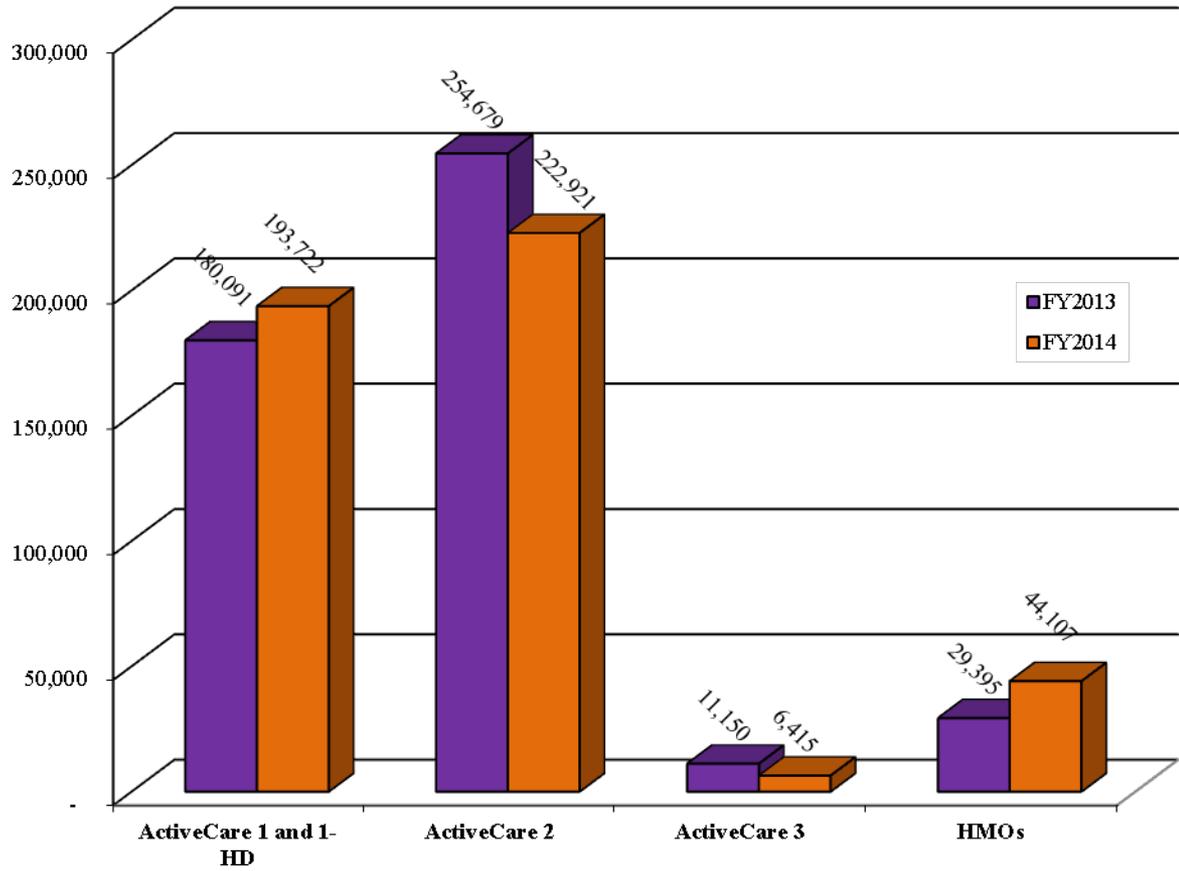


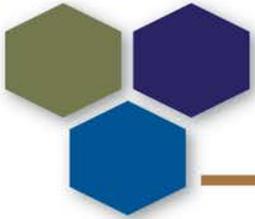
There has been a significant shift in enrollment as premiums have increased and benefits have been reduced.





# TRS-ActiveCare Participation

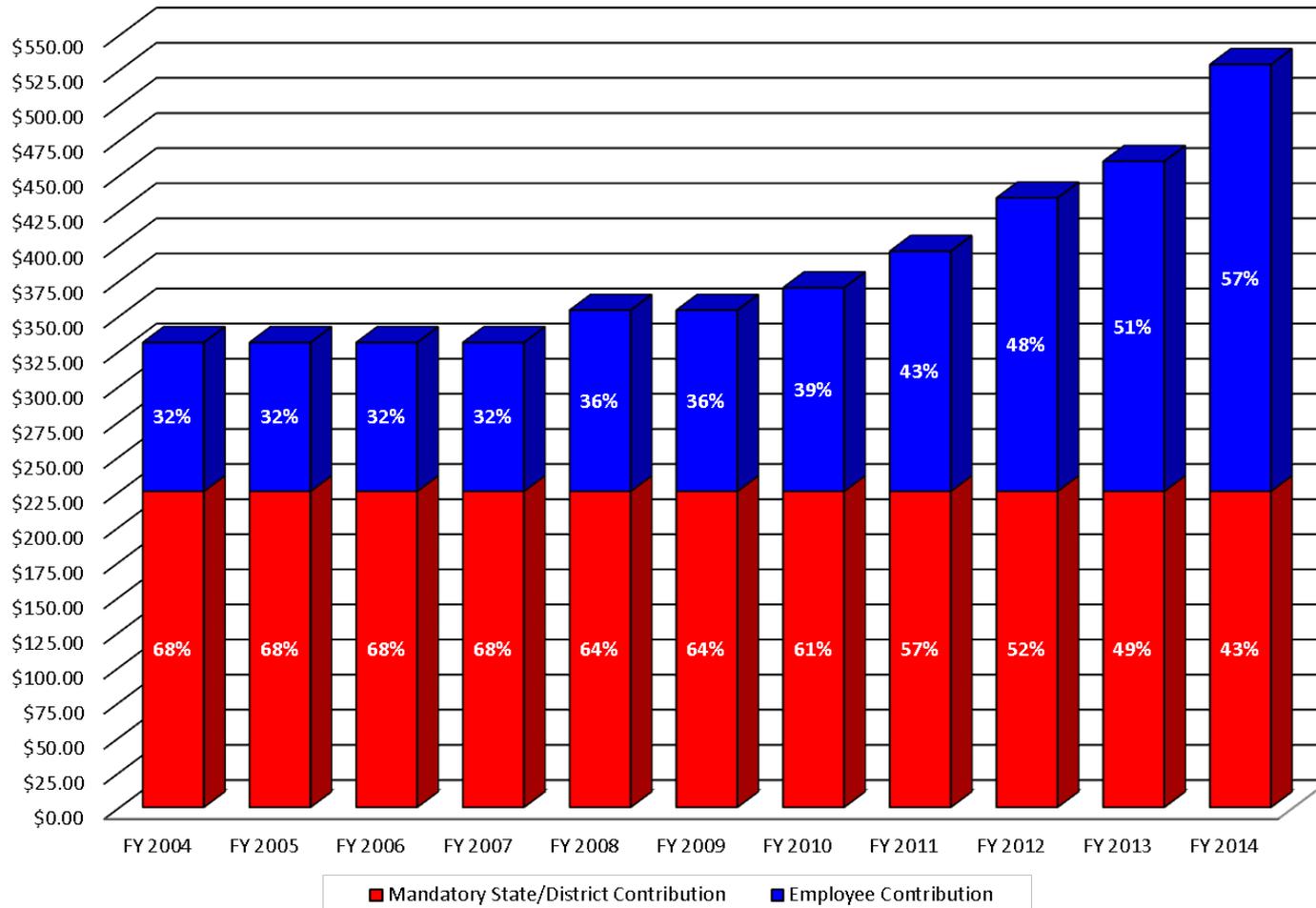


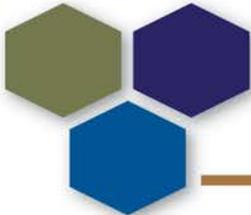


TRS-ActiveCare 2

# Monthly Contribution per Employee

TRS ActiveCare 2 Employee Only Contributions





# Cost Drivers

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- ◆ Increase in number of participating entities and employees
- ◆ Increase in medical costs
- ◆ Increase in pharmacy costs
- ◆ State and district contribution toward premium not linked to industry trend
- ◆ Technology increases and development of new biogenetic drugs
- ◆ Potential adverse selection due to the availability of public exchanges

# Tab 18

# Teacher Retirement System of Texas

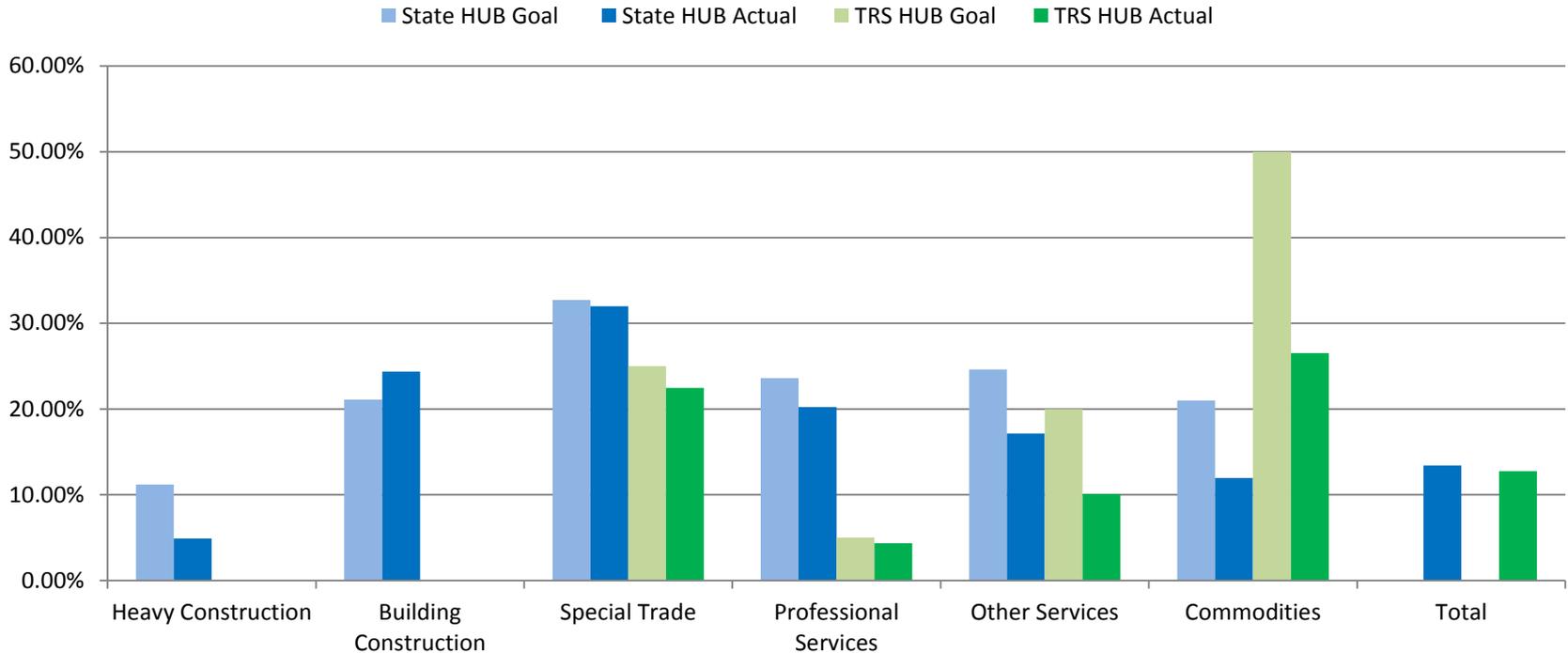


## *Historically Underutilized Business (HUB) Program*

*Annual Status Report - Fiscal Year 2013*



# TRS 2013 Comparison with State of Texas by HUB Category-Actual



	Heavy Construction	Building Construction	Special Trade	Professional Services	Other Services	Commodities	Total
State HUB Goal	11.20%	21.10%	32.70%	23.60%	24.60%	21.00%	
State HUB Actual	4.92%	24.37%	<b>31.99%</b>	<b>20.23%</b>	<b>17.16%</b>	<b>11.96%</b>	<b>13.42%</b>
TRS HUB Goal	0.00%	0.00%	25.00%	5.00%	20.00%	50.00%	
TRS HUB Actual	0.00%	0.00%	<b>22.47%</b>	<b>4.35%</b>	<b>10.08%</b>	<b>26.52%</b>	<b>12.77%</b>

\* There were two coding errors in the Building Construction and Special Trade categories that impacted the data above. This chart portrays TRS actual data and differs from Statewide HUB Program reported data.

# TRS HUB Expenditure Comparison FY2012 and FY2013-Actual



FY2012							
							State Annual
	Total Expenditures	Non-HUB Expenditures	Non-HUB %	HUB Expenditures	HUB %	TRS Goal %	Procurement Goal %
Heavy Construction	\$ -	\$ -		\$ -			11.20%
Building Construction	\$ 4,081.00	\$ 4,081.00	100.00%	\$ -	0.00%		21.10%
Special Trade	\$ 450,393.00	\$ 266,450.00	59.16%	\$ 183,943.00	40.84%	25.00%	32.70%
Professional Services	\$ 1,684,100.00	\$ 1,555,210.00	92.35%	\$ 128,890.00	7.65%	5.00%	23.60%
Other Services	\$ 11,234,438.00	\$ 10,240,129.00	91.15%	\$ 994,308.00	8.85%	20.00%	24.60%
Commodity Purchasing	\$ 2,852,947.00	\$ 1,970,039.00	69.05%	\$ 882,908.00	30.95%	50.00%	21.00%
<b>Total:</b>	<b>\$ 16,225,959.00</b>	<b>\$ 14,035,909.00</b>	<b>86.50%</b>	<b>\$ 2,190,049.00</b>	<b>13.50%</b>		
FY2013							
							State Annual
	Total Expenditures	Non-HUB Expenditures	Non-HUB %	HUB Expenditures	HUB %	TRS Goal %	Procurement Goal %
Heavy Construction	\$ -	\$ -		\$ -			11.20%
Building Construction	\$ -	\$ 44,575.00		\$ -			21.10%
Special Trade	\$ 566,306.00	\$ 439,056.00	77.53%	\$ 127,250.00	22.47%	25.00%	32.70%
Professional Services	\$ 3,169,241.00	\$ 3,031,491.00	95.65%	\$ 137,750.00	4.35%	5.00%	23.60%
Other Services	\$ 10,103,211.00	\$ 9,084,409.00	89.92%	\$ 1,018,801.00	10.08%	20.00%	24.60%
Commodity Purchasing	\$ 3,508,967.00	\$ 2,578,294.00	73.48%	\$ 930,672.00	26.52%	50.00%	21.00%
<b>Total:</b>	<b>\$ 17,347,725.00</b>	<b>\$ 15,177,825.00</b>	<b>87.49%</b>	<b>\$ 2,214,473.00</b>	<b>12.77%</b>		

# Analysis of Net Decline in Total HUB Program Expenditures from FY2012 to FY2013

Number of Competitive Contracts Awarded to HUBs				Total Expenditures in HUB-Reportable Categories			
FY2012	51	\$	2,190,049.00	FY2012	\$	16,225,958.00	
FY2013	62	\$	2,214,473.00	FY2013	\$	17,347,723.00	
% Change	21.57%		1.12%	% Change		6.91%	
HUB Expenditures				Non-HUB Expenditures			
Percentage Analysis by Category				Percentage Analysis by Category			
	FY2012 % HUB	FY2013 % HUB	Net % Change		FY2012 % Non-HUB	FY2013 % Non-HUB	Net % Change
Heavy Construction	0.00%	0.00%	0.00%	Heavy Construction	0.00%	0.00%	0.00%
Building Construction	0.00%	0.00%	0.00%	Building Construction	100.00%	0.00%	-100.00%
Special Trade	40.84%	22.47%	-18.37%	Special Trade	59.16%	77.53%	18.37%
Professional Services	7.65%	4.35%	-3.30%	Professional Services	92.35%	95.65%	3.30%
Other Services	8.85%	10.08%	1.23%	Other Services	91.15%	89.92%	-1.23%
Commodity Purchasing	30.95%	26.52%	-4.43%	Commodity Purchasing	69.05%	73.48%	4.43%
<b>Overall</b>	13.50%	12.77%	-0.73%	<b>Overall</b>	86.50%	87.23%	0.73%
Dollar Analysis by Category				Dollar Analysis by Category			
	FY2012 \$ HUB	FY2013 \$ HUB	Net % Change		FY2012 \$ Non-HUB	FY2013 \$ Non-HUB	Net % Change
Heavy Construction	\$ -	\$ -	0.00%	Heavy Construction	\$ -	\$ -	0.00%
Building Construction	\$ -	\$ -	0.00%	Building Construction	\$ 4,081.00	\$ -	-100.00%
Special Trade	\$ 183,943.00	\$ 127,250.00	-30.82%	Special Trade	\$ 266,450.00	\$ 439,056.00	64.78%
Professional Services	\$ 128,890.00	\$ 137,750.00	6.87%	Professional Services	\$ 1,555,210.00	\$ 3,031,491.00	94.92%
Other Services	\$ 994,308.00	\$ 1,018,801.00	2.46%	Other Services	\$ 10,240,129.00	\$ 9,084,409.00	-11.29%
Commodity Purchasing	\$ 882,908.00	\$ 930,672.00	5.41%	Commodity Purchasing	\$ 1,970,039.00	\$ 2,578,294.00	30.88%
<b>Total</b>	<b>\$ 2,190,049.00</b>	<b>\$ 2,214,473.00</b>	<b>1.12%</b>	<b>Total</b>	<b>\$ 14,035,909.00</b>	<b>\$ 15,133,250.00</b>	<b>7.82%</b>

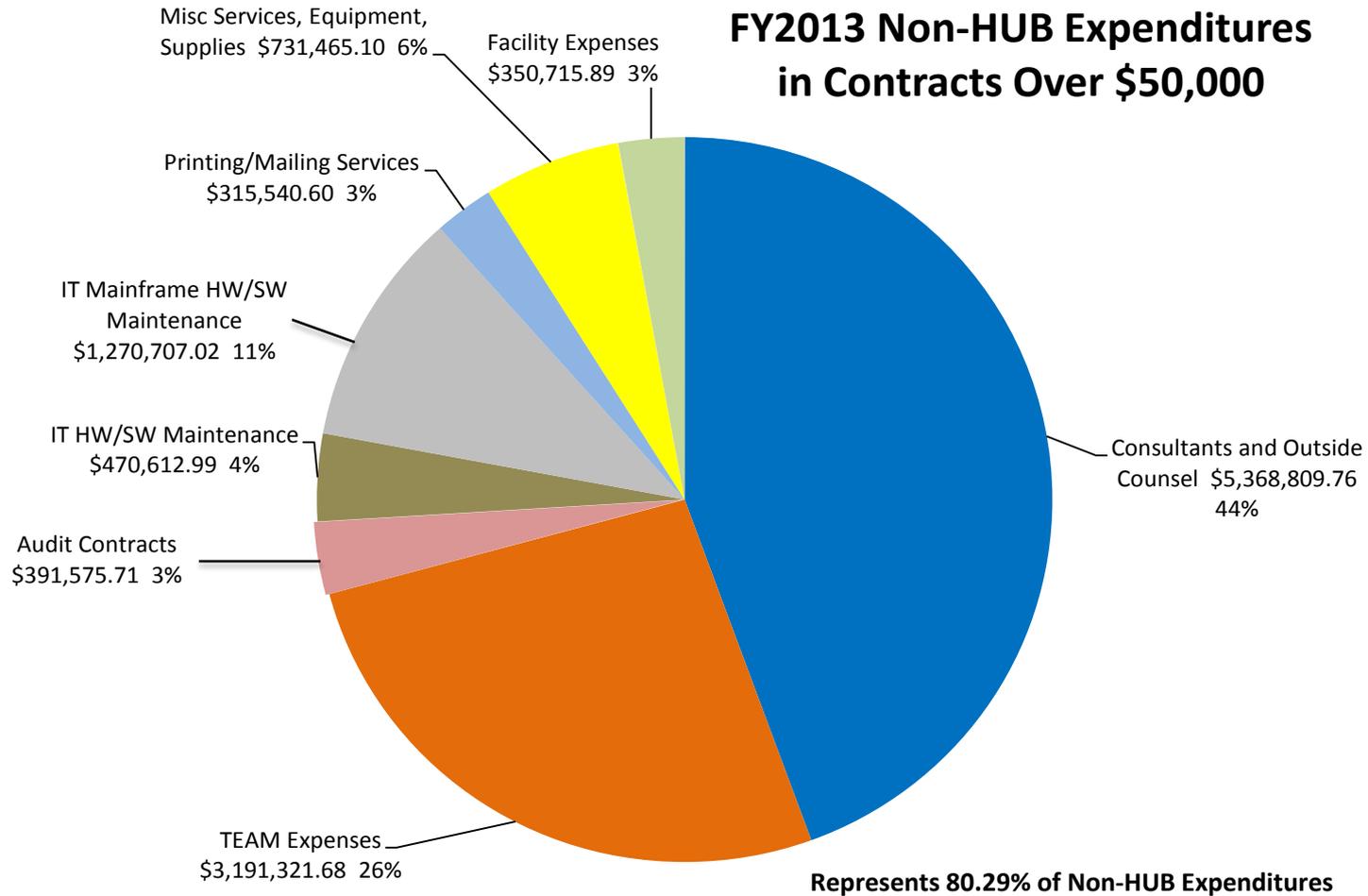
## Notes:

- Data in highlighted areas above are updated based on TRS actual spend.
- In FY2013, there were a number of additional large dollar non-HUB purchases for IT hardware/software infrastructure in preparation of TEAM.
- Two large TEAM projects were recently awarded (FSR PH1-\$2,200,000 and LOB-\$43,509,786). Payments made in FY2014 are expected to impact HUB utilization; therefore, a downward trend is anticipated.





# Primary Non-HUB Contracting Categories





# FY2014 TRS HUB Goal Resolution

**Whereas**, TRS staff met on November 8, 2013 and reviewed the report of the Texas Comptroller of Public Accounts on TRS HUB expenditures for fiscal year 2013 and discussed the 2013 HUB Program Annual Status Report to be presented to the TRS Board of Trustees (Board);

**Whereas**, TRS staff developed proposed HUB goals for fiscal year 2014 for the Board to consider; and

**Whereas**, The Board has received and discussed the HUB expenditure reports, and the Board desires to adopt TRS' HUB goals for fiscal year 2014; now, therefore, be it

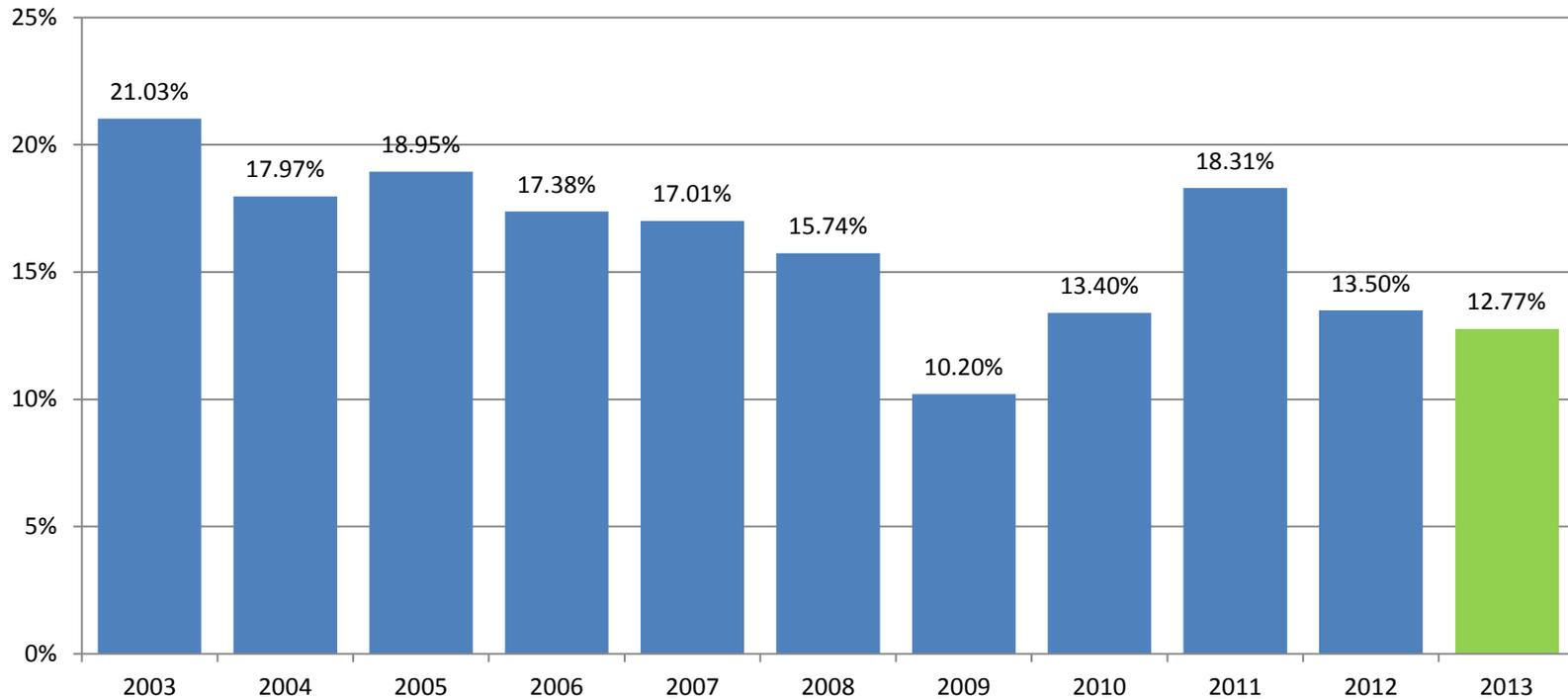
**Resolved**, That the Board hereby adopts the following HUB expenditure goals for fiscal year 2014:

Category	TRS FY13 Goals	TRS FY13 Actual	TRS FY14 Goals
Special Trade	25%	22.47%	25%
Professional Services	5%	4.35%	5%
Other Services	20%	10.08%	<b>15%</b>
Commodity Purchases	50%	26.52%	<b>35%</b>



# Historical Perspective

## TRS HUB Utilization 2003-2013



Note: FY 2013 Data is TRS Actual



# TRS Accomplishments

The following initiatives were accomplished during FY 2013 to increase procurement opportunities with HUB vendors:

- Co-hosted the 13th Annual HUB Forum with the Texas Workforce Commission February 5, 2013 with 19 Texas state agencies and 104 participants representing 60 vendors in attendance.
- Attended 4 additional forums in FY 2013; mentored HUB vendors on business opportunities with TRS and finding opportunities with other State agencies; and provided information to assist HUBs with certifications and renewals.
- TRS staff met one-on-one with 10 HUB vendors to discuss business opportunities with TRS, possible opportunities with other State agencies, and how best to find opportunities with the State.
- Paid \$857,298.78 to certified Texas HUBs via subcontracting on contracts with non-reportable expenditure codes.



# Future Initiatives

TRS will continue to:

- Support and implement responsibilities as determined by Texas Comptroller of Public Accounts (CPA)
- Host HUB Forums with other agencies and participate in local and selected statewide HUB events including CPA Forums
- Conduct one-on-one meetings with HUB vendors and assist with identifying business opportunities with TRS and other State agencies and assist vendors in becoming certified or re-certified as a Texas HUB
- Encourage vendor participation in the Mentor-Protégé Program
- Support and enhance the Emerging Managers program initiated by the Investments Division

While TRS' initiatives, including subcontracting and attendance of HUB Economic Opportunity Forums, have been successful, TRS is committed to improving its outreach to HUBs to increase their utilization and success.



# Conclusion

- Since the inception of the HUB Program, TRS' HUB utilization percentages have fluctuated from 1.25% in FY 1992 up to a high point of 25.83% in FY 2000. The FY 2013 percentage is 12.77%.
- TRS' overall HUB utilization performance is in-line with the overall State of Texas performance.
- TRS recognizes the importance of the HUB program and develops initiatives to promote and increase HUB opportunities. TRS is committed to achieving established goals and making a good faith effort in all areas.



# Appendix A – HUB Definition

A HUB is defined as a corporation, sole proprietorship, partnership or joint venture formed for the purpose of making a profit in which the principal place of business is in the State of Texas and at least 51% is owned, operated, and actively controlled and managed by one or more persons who are members of the following economically disadvantaged groups:

- Black Americans
- Hispanic Americans
- Asian Pacific Americans
- Native Americans
- American Women

*The Texas Legislature recently included Service-Disabled Veterans as HUBs. The Statewide HUB Program is working to implement this change.*



# Appendix B

## *Secrets of Selling To The State*

*Secrets of Selling to the State* is a presentation created in order to provide vendors a better understanding of the State's and TRS' contracting processes, the resources and tools readily available for use by vendors to identify and earn contracting opportunities, and instructions on how to use them. Vendors can benefit from this knowledge at no cost and with a minimum investment of time.

The presentation contains sections specific to those vendors seeking opportunities both as prime contractors and subcontractors.

This was first presented at the 10th Annual TRS-TWC HUB Forum and is available on TRS' website at:

[http://www.trs.state.tx.us/info.jsp?submenu=procurement&page\\_id=/procurement/selling\\_to\\_state](http://www.trs.state.tx.us/info.jsp?submenu=procurement&page_id=/procurement/selling_to_state)



# Appendix C

## *TRS' 12 Tips for Contracting with State Agencies*

*TRS' 12 Tips for Contracting with State Agencies* is a two page handout that covers all the basic information for any vendor that wants to do business with the State. This document provides essential information in a concise and easily understood format. It is provided to vendors at Economic Opportunity Forums, one-on-one meetings, and when vendors contact us about how to do business with TRS.

This document is also available on the TRS web site at:

[http://www.trs.state.tx.us/info.jsp?submenu=procurement&page\\_id=/procurement/contracting\\_tips](http://www.trs.state.tx.us/info.jsp?submenu=procurement&page_id=/procurement/contracting_tips)

# Questions?



**Whereas**, TRS staff met on November 8, 2013 and reviewed the report of the Texas Comptroller of Public Accounts on TRS HUB expenditures for fiscal year 2013 and discussed the 2013 HUB Program Annual Status Report to be presented to the TRS Board of Trustees (Board);

**Whereas**, TRS staff developed proposed HUB goals for fiscal year 2014 for the Board to consider; and

**Whereas**, The Board has received and discussed the HUB expenditure reports, and the Board desires to adopt TRS' HUB goals for fiscal year 2014; now, therefore, be it

**Resolved**, That the Board hereby adopts the following HUB expenditure goals for fiscal year 2014:

Category	TRS FY13 Goals	TRS FY13 Actual	TRS FY14 Goals
Special Trade	25%	22.47%	25%
Professional Services	5%	4.35%	5%
Other Services	20%	10.08%	<b>15%</b>
Commodity Purchases	50%	26.52%	<b>35%</b>

**Tab 20**

# **Teacher Retirement System of Texas**

**TEAM Program:**

**Independent Program Assessment**

**Board Presentation**

**December 13, 2013**



- Independent Program Assessment (IPA):
  - Provide independent reporting and oversight to the TRS Board and Executive Director or designee regarding critical risks related to the TRS Enterprise Application Modernization (TEAM) Program to enable informed decision-making.
  
  - Critical Risks Focus:
    - Failure to meet TEAM objectives
    - Lack of user acceptance
    - Program substantially delayed
    - Program substantially over budget

# IPA Current Scorecard

<b>TEAM Program Governance</b>	<b>Prior Score</b>	<b>Current Score</b>	<b>Observation</b>
1. Program/Project Management	2	2	4,5
2. Risk Management	1	1	
3. Issues Management and Tracking	1	1	
4. Program Communication	1	1	
5. Change Management/ Quality Control	1	1	
6. Staffing and Organization	2	2	4
7. Budget Tracking	2	2	12
<b>TEAM Projects</b>			
1. LOB Implementation	1	1	9,11
2. FSR Implementation	2	2	
3. Data Management	2	2	
4. Reporting Entity Outreach	1	1	10
5. Organizational Change Management	1	1	
6. Business Rules Development	1	1	
7. Business Procedures and Training	NA	NA	
8. Legacy System Decommissioning	NA	NA	
9. External Website Enhancement	NA	NA	
10. Legacy System Decommissioning	N/A	N/A	

**Legend**

- 1 = LOW
- 2 = GUARDED
- 3 = CAUTION
- 4 = ELEVATED
- 5 = SEVERE

N/A= Project not started, rating is not applicable at this time



# SUMMARY List of Observations – *Planning Risk*

ID #	Date	Observation	Status
1	Jan '13	Re-engineering of internal controls has not yet been addressed within the TEAM Program	Addressed & Monitor
2	Jan '13	Approach not formalized and timely for hiring and retention of high tech IT staff	Addressed & Monitor
3	Feb '13	Project plan inconsistent with project reporting	Addressed & Monitor
4	Feb '13	Team and project staffing plan is not detailed enough	In Progress
5	Feb '13	Project interdependencies have not been documented	Addressed & Monitor
6	Feb '13	Financial System Replacement (FSR) contingency plan has not been developed	Addressed & Monitor
7	Feb '13	Organizational Change Management project scope and plan have not been clearly identified	Addressed & Monitor
8	Feb '13	Change Management and Quality Assurance Procedures have not been finalized and published	Addressed & Monitor

# SUMMARY List of Observations – *Planning Risk*

ID #	Date	Observation	Status
9	Apr '13	Line of Business (LOB) and Financial System Replacement (FSR) system implementation projects are executed concurrently, increasing demand on TRS staff	In Progress
10	Apr '13	Data Management Project delayed deliverables, and lack of quality control in deliverable acceptance	In Progress
11	Apr '13	FSR project Statement of Work (SOW) requirements are overly complex and could result in increased cost and timeline	Closed & Monitor
12	Jun '13	TEAM Program Budget Tracking and Reporting not detailed enough	In Progress

**Legend – Risk Score**

- 1 = LOW
- 2 = GUARDED
- 3 = CAUTION
- 4 = ELEVATED
- 5 = SEVERE



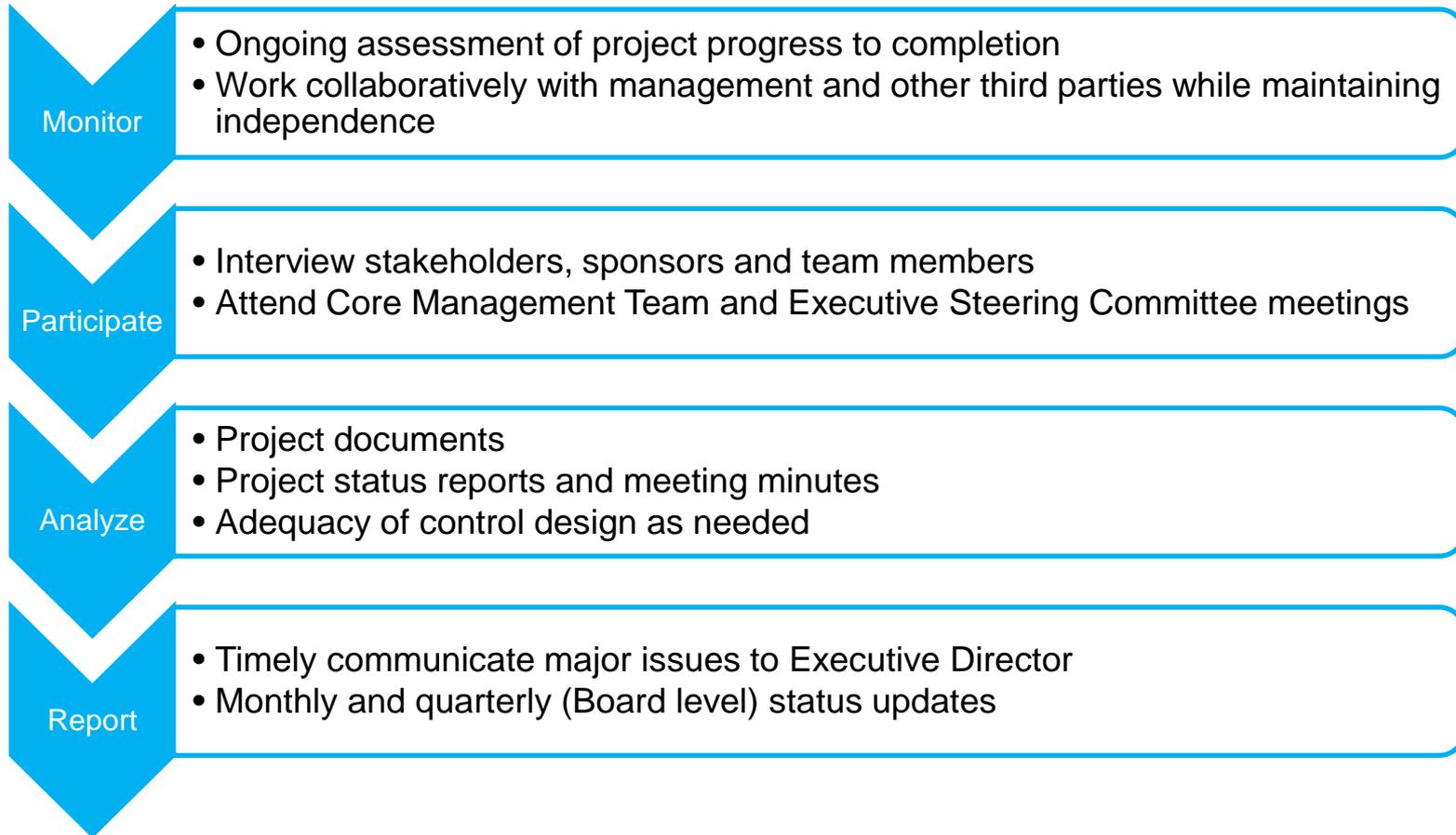
# A change in focus

- Up to now, the IPA activities have focused on identifying planning risks.
- Now that the LOB and FSR vendors are engaged, that focus will change.
- The IPA activities will focus on risks associated with executing the TEAM Program.
- This report will focus on the LOB project.

# To put our observations in context

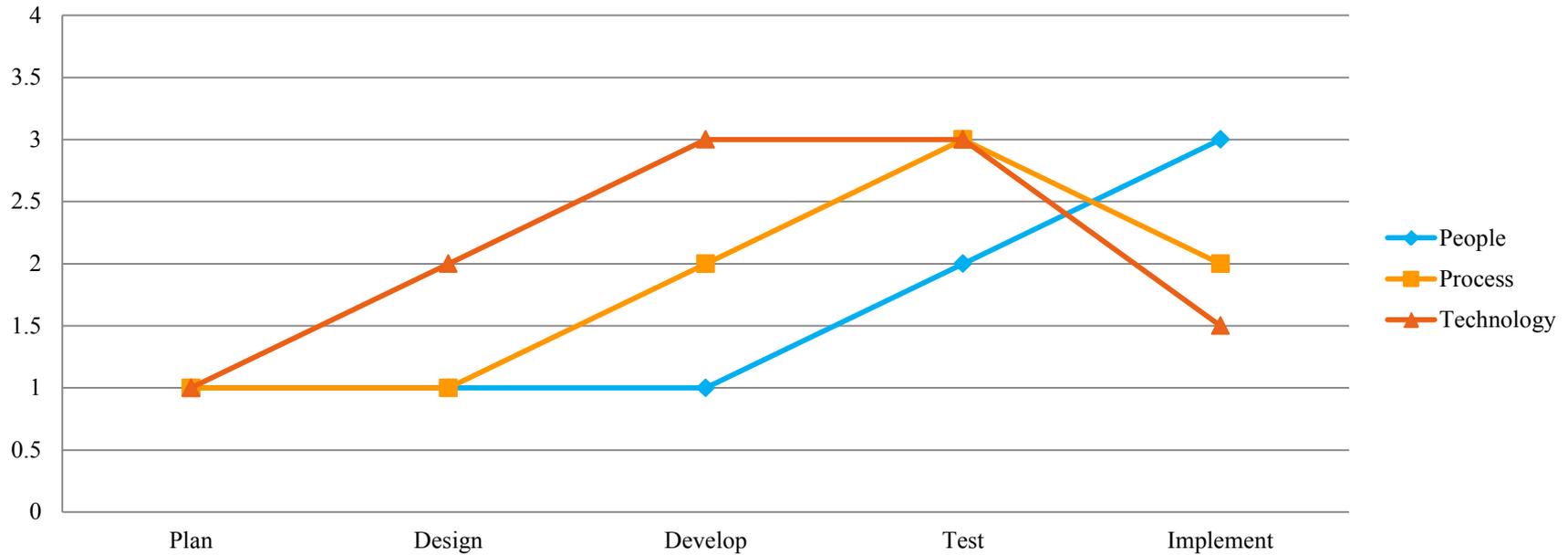
- TRS has selected a competent, respected partner, HP.
- The underlying technology is proven and scalable.
- These risks are typical of a program of this nature.
- TRS understands the underlying risks associated with executing a project of this size and complexity.

# Risk-based Approach



# Risk Summary

## Illustrative Risk Trends



Legend:

1 = Low

2 = Medium

3 = High

- Bridgepoint Consulting reviewed the LOB contract and related documents and identified risks in the following areas:
  - Technical Architecture
  - Infrastructure
  - Functional Fit
  - Staffing
  - Testing

# LOB Execution Risks - Architecture

## Observation:

The HP Clarety Pension system was last implemented in 2011. The proposed TRUST implementation includes multiple architectural changes including:

- Transitioning the member management functions to Microsoft Dynamics CRM
- Replacing the embedded rules with the Corticon rules engine
- Replacing IBM's WebSphere web server with Redhat's JBoss Web Server

In addition, the Clarety solution has not been deployed in a similar size pension fund.

## Risk:

Implementing a complex architectural change in one of the largest public pensions systems may:

- Cause additional effort and delays due to integrating new technologies
- Impact the performance of the TRUST system

## Mitigation:

TRS has hired a competent partner and is leveraging proven technologies.

# LOB Execution Risks - Infrastructure



## **Observation:**

TRS has assumed responsibility for procuring, configuring and installing the underlying servers, network and end user computers to support TRUST.

In addition, the HP contract specifies a 99.99% uptime warranty. This warranty excludes the data center, servers and network.

## **Risk:**

TRS has assumed responsibility for the TRUST system infrastructure. The system may have significant performance issues or outages that would be TRS's responsibility.

## **Mitigation:**

HP has validated the technical architecture that TRS will use. The architecture is scalable and proven.

# LOB Execution Risks – Functional Fit



## **Observation:**

The Best and Final Offer from HP indicates that the proposed Clarety solution has an approximately 75% functional fit to the requirements for TRUST. Based on the efforts during the design phase this level of fit may have been overestimated.

## **Risk:**

The LOB project could take significantly longer and could require significantly more effort than anticipated if the functional fit estimate is incorrect.

## **Mitigation:**

TRS developed a comprehensive Request for Offer and has spent a significant amount of time meeting with HP to clarify requirements. This risk will significantly decrease after the design phase of the project.

# LOB Execution Risks – Staffing

## **Observation:**

TRS operates most enterprise systems in a mainframe environment. Transitioning to a server based environment will require a significant change in the mix of technology skills necessary to maintain TRUST.

Three months after implementation of Phase 2 TRS will be responsible for all moderate and minor impact defects related to TRUST. After 18 months TRS will assume complete responsibility for TRUST.

## **Risk:**

TRS may not have the appropriate technology skills to maintain a large-scale enterprise system based on a diverse set of technologies that are relatively new to the organization.

## **Mitigation:**

TRS has developed a plan to train existing staff on the new technologies being deployed and to hire additional resources that are skilled in the technologies.

# LOB Execution Risks – Testing

## **Observation:**

The final test of the TRUST system prior to production deployment is the Acceptance Test. TRS is responsible for conducting the Acceptance Test. TRS has not conducted this type and magnitude of test in the past, and this test has historically been a challenge for organizations during large-scale enterprise system deployments.

## **Risk:**

TRS may not have the skills or ability to conduct an appropriate Acceptance Test to ensure that TRUST is ready for production deployment.

## **Mitigation:**

TRS has ample time to plan and execute the Acceptance Test for TRUST.

# LOB Execution Risks – HP

At TRS's request, the following inherent risks were identified by HP during the Best and Final Offer:

1. Failure to understand or clearly elicit requirements
2. Failure to control and manage delivery
3. Failure to gain buy-in and adoption from the user community
4. Complexity of process and effort necessary to automate
5. Poor or incomplete data

## **Observation:**

These risks are directly or indirectly under TRS's control.

## **Risk**

Even though TRS has contracted HP to deliver TRUST, a significant part of the responsibility and risk for project success remains with TRS.

## **Mitigation:**

TRS has completed an extensive requirements development process, included organizational change management in the program and started early on identifying data migration issues.

# Activities Completed – Current Period



1. Attended weekly ESC and CMT meetings and Project Team Meetings including Communications sub-team meeting, Project Interdependency and PMO Team Meetings.
2. Continued with a detailed project management documentation review, including: overall TEAM Program Management status report, and also individual project schedules and status reports, project Action and Decision Logs and other program/project related reports.
3. Reviewed LOB Project Quality Assurance (QA) plan and guidelines and provided feedback to PMO Program Manager.
4. Completed the review and analysis of the FSR vendor SOW with CGI, documented observations and provided feedback to TEAM Program Management.
5. Completed the review and analysis of LOB vendor selection results, and final contract and Best And Final Offer (BAFO) procurement documentation. Provided feedback to TEAM Program Management.
6. Prepared and presented the IPA monthly TEAM Status Reports.

# Activities for Next Period

1. Continue to attend and observe weekly Executive Steering Committee (ESC) and Core Management Team (CMT) meetings.
2. Review and evaluate TEAM Program IT resource planning documentation (if completed), including specific technical skillsets required for implementation and ongoing maintenance aligned with proposed technical architecture in support of LOB and FSR system.
3. Continue to review current Data Management and Program Management vendor invoice payments and deliverable acceptance approvals; document observations and review with Project Managers and PMO.
4. Review and evaluate updated consolidated TEAM Program timeline, including LOB and FSR Project Plans and Timelines and related interdependencies.
5. Review and evaluate updated TEAM Program financial reporting including actual to budget variances and alignment with Program timeline.
6. Monitor TRS risk mitigation activities related to execution risks.

# IPA Budget Status

## IPA Financial summary status through October 31, 2013

➤ Total hours incurred	1,204
➤ Total calculated cost incurred	\$215,900
➤ Total billings for deliverables	\$215,000
➤ Variance	\$ 900

# **Tab 21**

# Teacher Retirement System of Texas



## *TEAM Program Management Update*

*Jay Masci – Provaliant*

*December 2013*



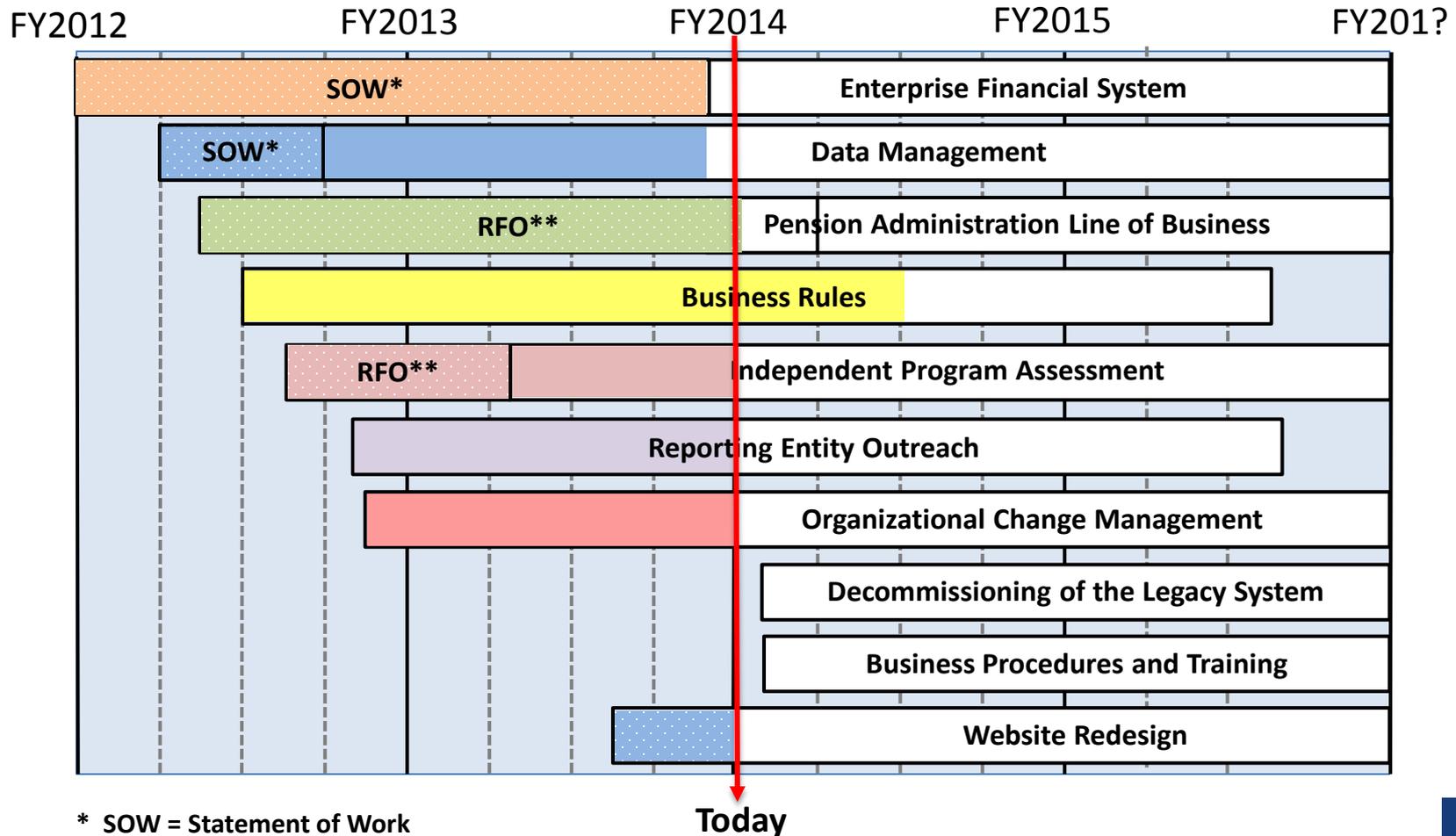
## Agenda

- TEAM Program Progress
- TEAM Program Budget Summary
- TEAM Program Project Interdependencies
- Update on the Pension Line of Business Project
- TEAM Project Milestones
- TEAM Project Accomplishments



# TEAM PROGRAM

## TEAM Program Progress as of August 30th

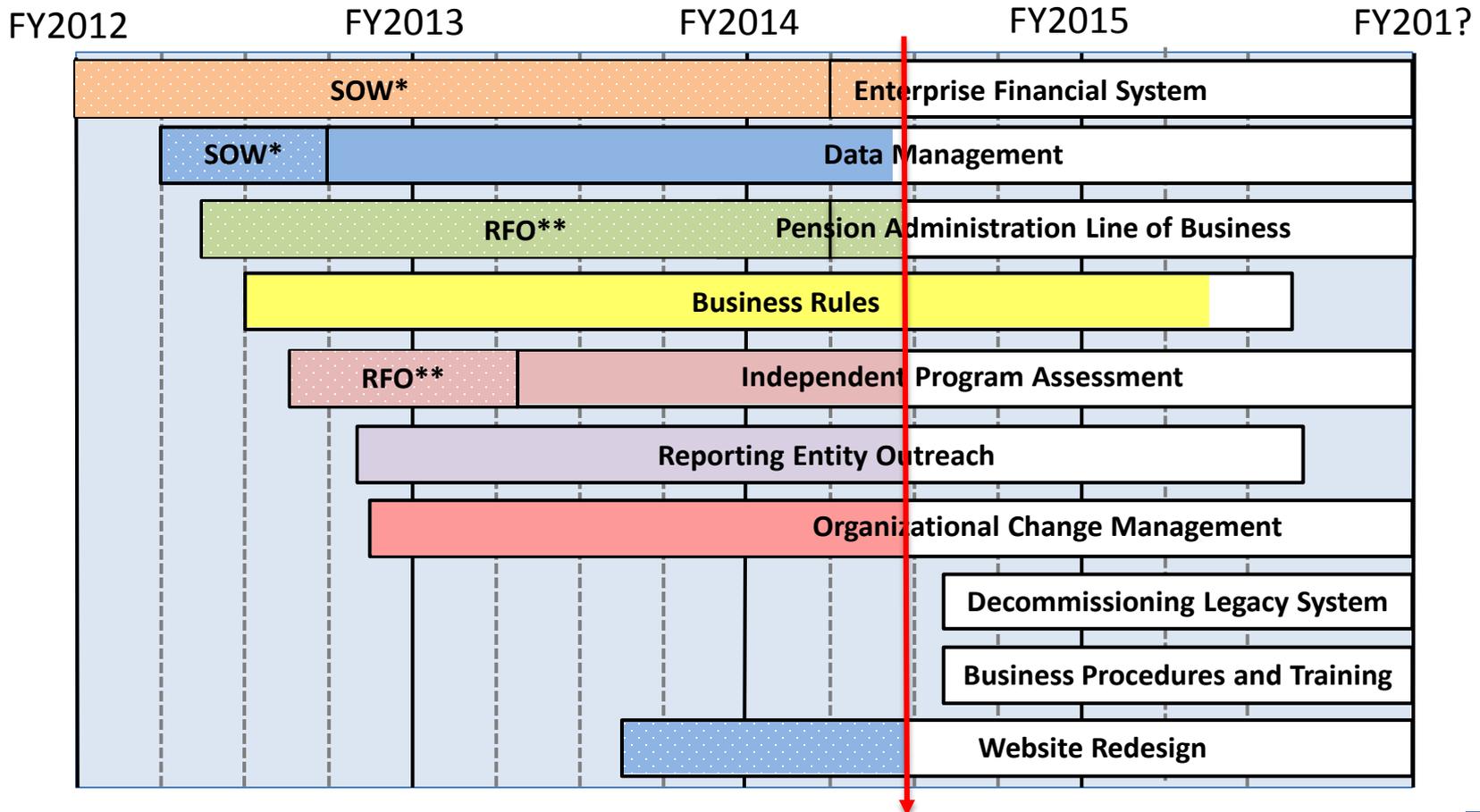


\* SOW = Statement of Work  
 \*\* RFO = Request for Offer



# TEAM PROGRAM

## TEAM Program Progress as of November 22nd



\* SOW = Statement of Work  
\*\* RFO = Request for Offer

Today

# Teacher Retirement System of Texas



## *TEAM Program Budget Summary*

*Barbie Pearson*

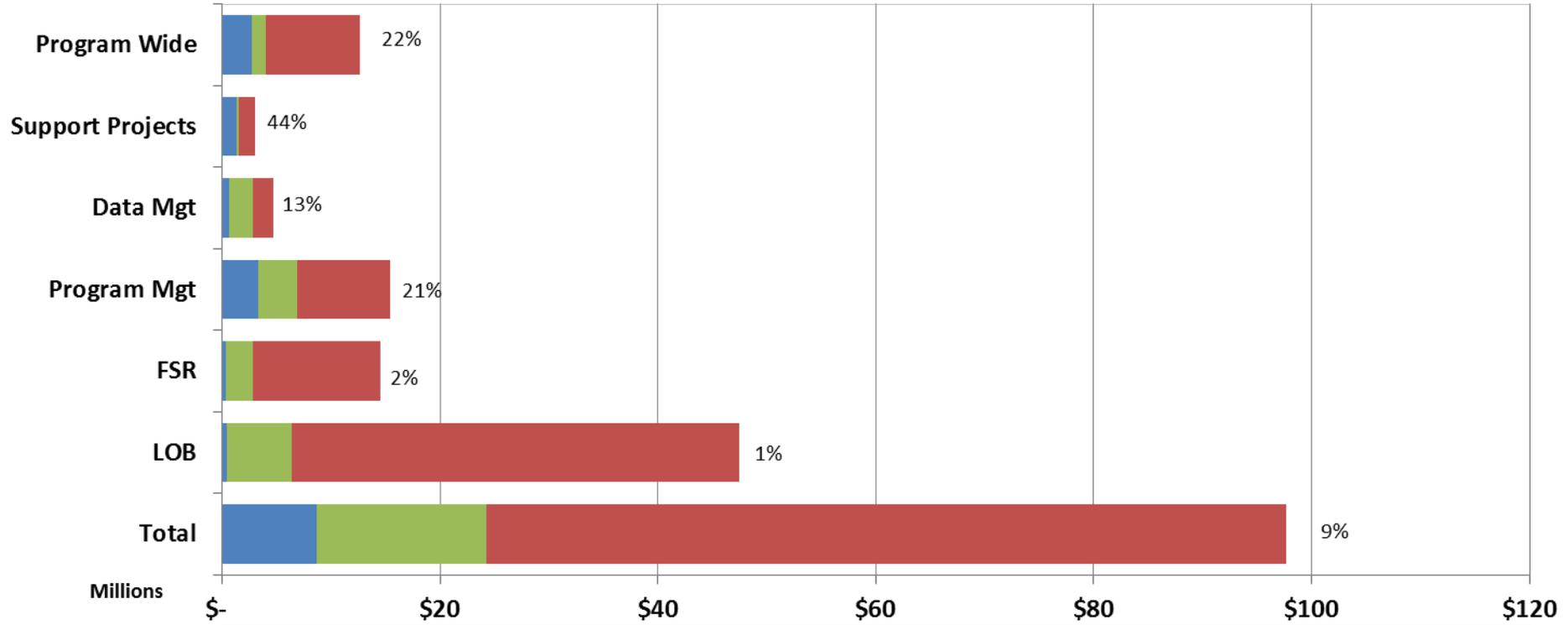
*December 2013*





# Program Budget by Project

(% spent indicated)



	Total	LOB	FSR	Program Mgt	Data Mgt	Support Projects	Program Wide
Expended	\$8,615,269	\$372,556	\$353,261	\$3,252,473	\$599,078	\$1,304,384	\$2,733,517
Encumbered	\$15,613,310	\$6,005,000	\$2,407,970	\$3,567,795	\$2,153,194	\$224,710	\$1,254,641
Remainder	\$73,471,271	\$41,117,972	\$11,758,306	\$8,625,514	\$1,908,976	\$1,455,081	\$8,605,423

NOTE: The total project cost of \$97.7 million now includes a contingency amount for the LOB contract and contracted expenditures that extend beyond the life of the program.

# Teacher Retirement System of Texas



## *TEAM Program Interdependencies*

*Jay Masci*

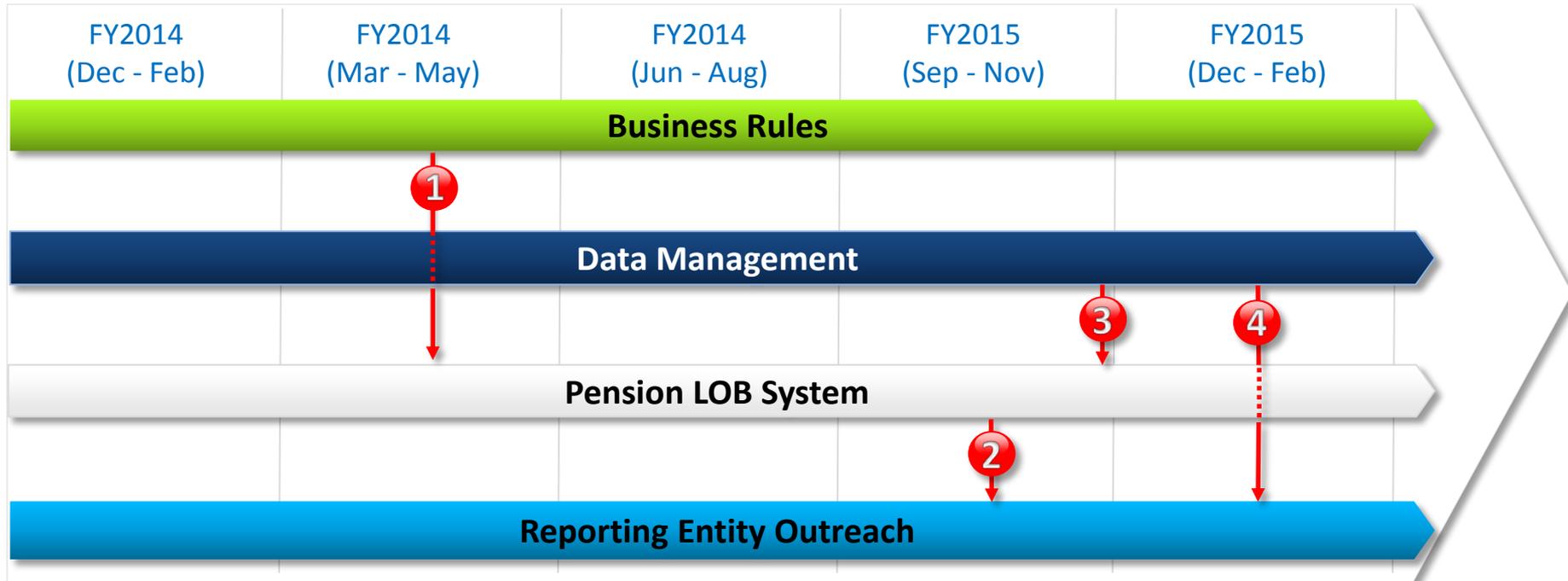
*December 2013*





# TEAM PROGRAM

## TEAM Project Interdependencies

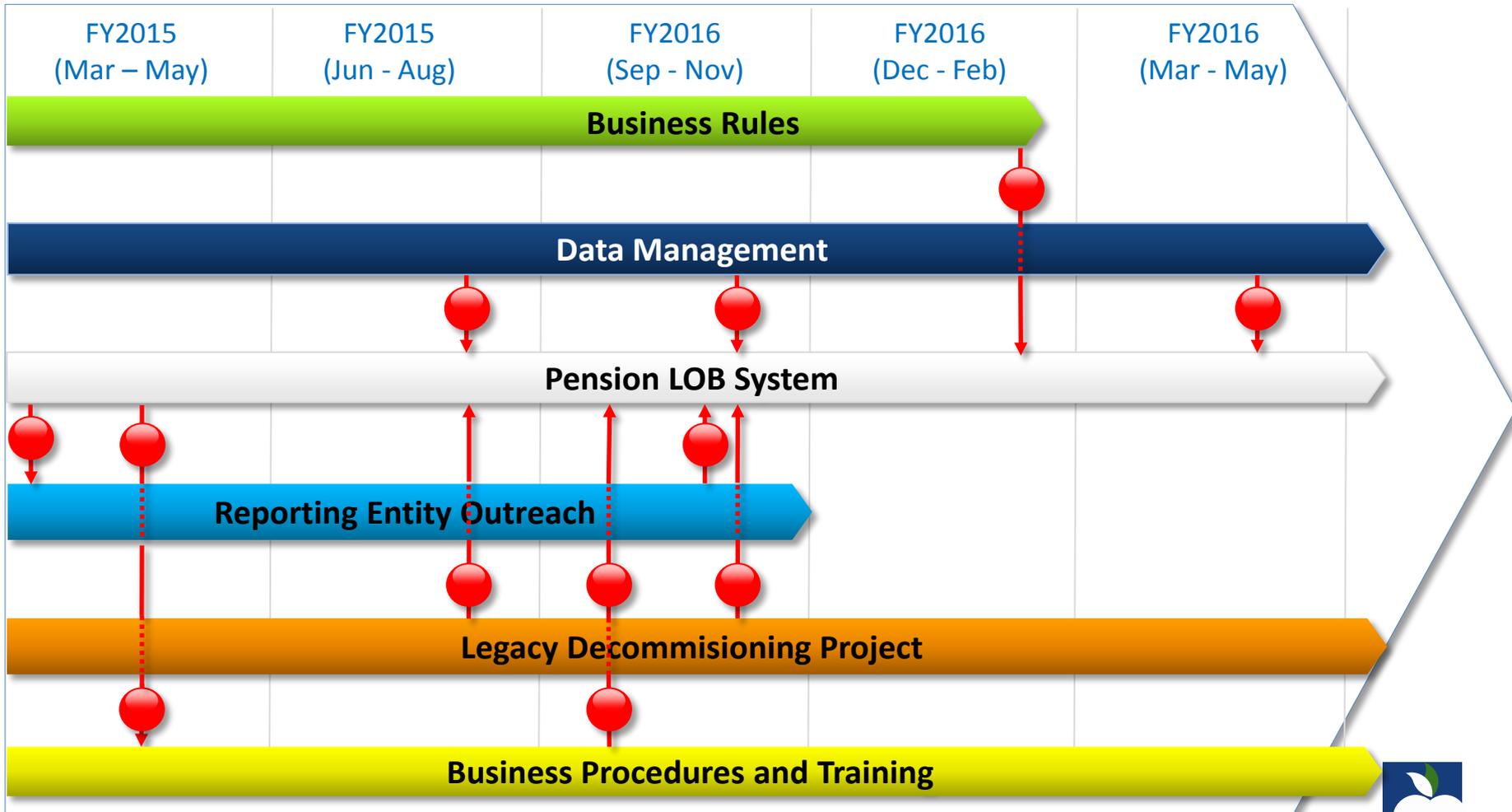


- 1 04/21/14 – The LOB project needs the business rules for the detailed requirements gathering
- 2 10/10/14 – The Reporting Entity Outreach project needs the employer reporting file layout
- 3 11/24/14 – The LOB project needs assessed and migrated data for testing
- 4 01/12/15 – The Reporting Entity Outreach project needs assessed and migrated data for user acceptance testing



# TEAM PROGRAM

## TEAM Project Interdependencies



# Teacher Retirement System of Texas



## *TEAM Program Management Pension Line of Business Project Update*

*Adam Fambrough*

*December 2013*



## **Pension Line of Business Project Timeline**

- November 15, 2011 – Provaliant hired to provide TEAM Program Management Services
- March 2012 – Commitment gathering sessions began
- January 2013 – Request for Offer (RFO) issued
- April 2013 – RFO responses received
- July 2013 – Two week proof-of-concept
- October 4, 2013 – Contract Signed with HP for a new Pension Administration System



# TEAM PROGRAM



LOB contract signing with  
HP and TRS Negotiations  
Team



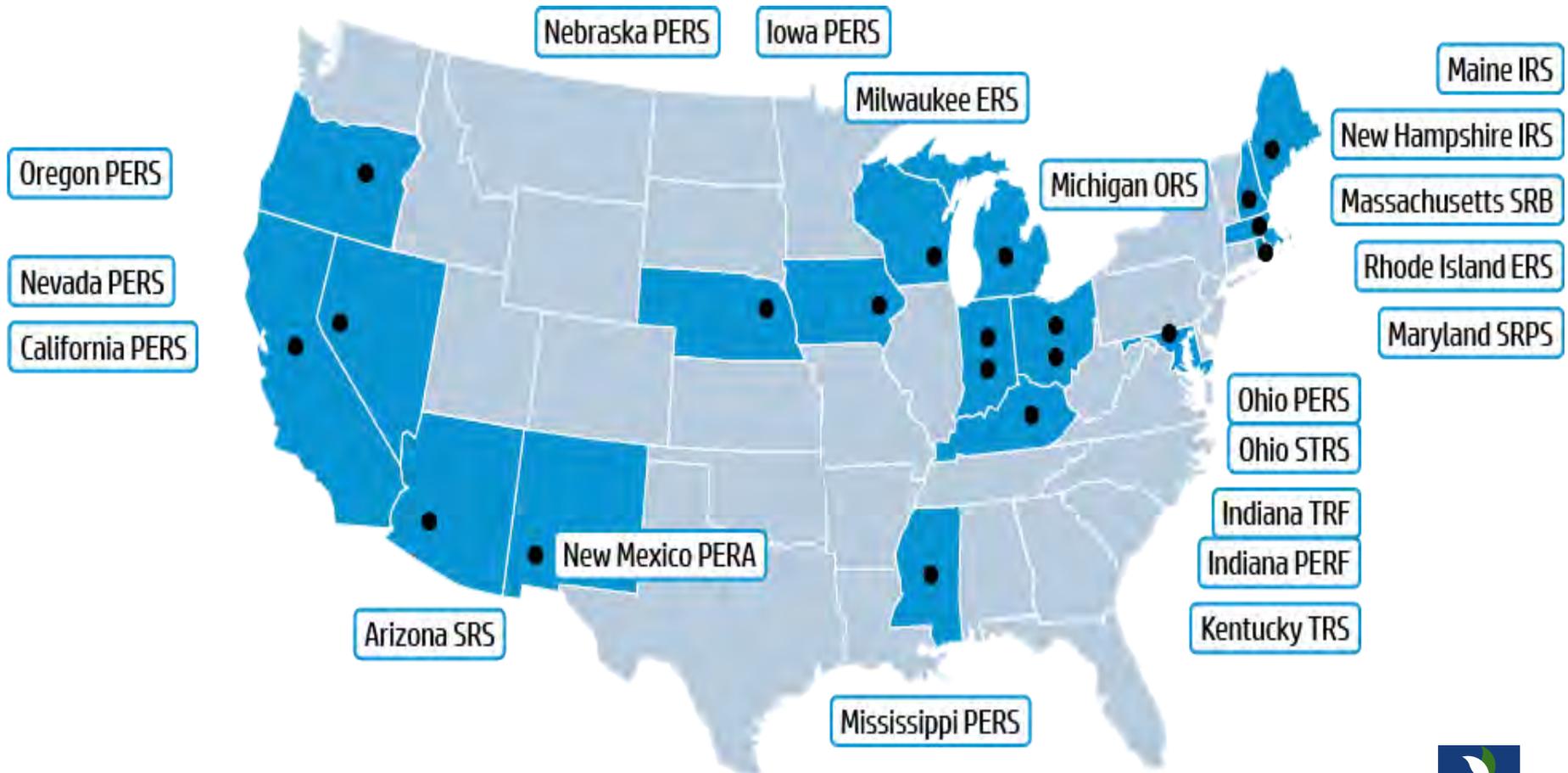
## HPSL Background

- 20 years of successfully implementing retirement solutions for complex public sector retirement systems in the United States, United Kingdom and New Zealand
- Implemented the HP Clarety Solution in 11 public retirement agencies including Oregon PERS, Nebraska PERS, Michigan ORS
- Provided IT services to an additional 8 state and local retirement systems
- 100+ full-time equivalents dedicated to HP Clarety software practice



# TEAM PROGRAM

## Map of HPSL Public Retirement Projects in the United States



## HP Clarety Solution

- Purpose-built, framework-based public retirement administration system
- Provides flexibility for complexities unique to TRS
- Can be modified due to benefit changes, legislative mandates, process changes and technology changes as TRS evolves and grows

# TEAM PROGRAM

## HP CLARETY SOLUTION

<u>Functionality</u>	<u>Software Solution</u>
Pension Administration System	Clarety
Customer Relationship Management (CRM)	MS Dynamics CRM
Workflows	MS Dynamics CRM
e-Signatures	Silanis
Correspondence Management	HP Exstream
Rules Engine	Corticon
Chat	WhosOn
SMS/Text Messaging	StrikeIron



# TEAM PROGRAM

## Next Steps

**Phase 0 – Project Planning and Start Up**

Estimated End – 01/2014



**Phase 1 – Membership Implementation**

Estimated End – 09/2015



**Phase 2 – Benefits Implementation**

Estimated End – 05/2017

## Phase 0 - Project Start-up and Planning

- Define the project plan in detail
- Establish major milestones
- Establish interdependencies with other TEAM projects
- Procure hardware to establish development environment
- Setup initial baseline HP Clarity Solution on the development environment in TRS data center

# Teacher Retirement System of Texas



## *TEAM Program Management Update Milestones and Accomplishments*

*Barbie Pearson*

*December 2013*



# TEAM PROGRAM

## TEAM Project: Milestones

Planned Milestones (from September Board Meeting)	Planned Date	Actual Date	Status
Complete LOB Vendor Negotiations	10/21/2013	10/04/2013	Ahead of Schedule
Start Pension LOB Project	11/4/2013	11/4/2013	On Schedule
Start Enterprise Financial System Replacement Project	11/4/2013	11/4/2013	On Schedule

Upcoming Milestones	Previous Planned Date	Current Planned Date	Status
Complete LOB Phase 0	01/31/2014	01/31/2014	On Schedule

## TEAM Project Accomplishments Since Last Board Meeting

- Renovated 207E and 208E for the TEAM Program



207E Before



207E After

# TEAM PROGRAM

## TEAM Project Accomplishments (continued)

- Renovated 207E and 208E for the TEAM Program



208E Before



208e After

## TEAM Project Accomplishments (continued)

- Held an internal Pension LOB and FSR project kick-off



## TEAM Project Accomplishments (continued)

- The FSR Vendor (CGI) conducted a ESC and CMT executive kickoff meeting



## **TEAM Project Accomplishments (continued)**

- Finalized contract with LOB vendor (Hewlett Packard) and began project work
- Started development of the RFO for Website Redesign project that includes work for design, development and implementation
- Started work on the Envision Phase of FSR with CGI on-site
- Hired two additional HR staff to assist with OCM Project

## **TEAM Project Accomplishments (continued)**

- Developed initial baseline Project Interdependency schedule for the TEAM Program
- Completed Phase 1/Level 1 data assessment
- Completed Phase 1/Level 2 data assessment
- Began work on conditioning items identified by contractor in Phase 1/Levels 1 & 2

## **TEAM Project Accomplishments (continued)**

- Started familiarization training for the FSR project
- Established a prototype environment for FSR
- Started OCM training for the FSR project
- Started executive meetings with TRS employees (TEAM Huddles)
-

## **TEAM Project Accomplishments (continued)**

- The FSR Vendor (CGI) core team and engagement managers arrived onsite
- CGI conducted several demonstrations of their system and tools
- CGI started training sessions with TRS FSR core team
- Completed organizational change management (OCM) vendor prep training for General Accounting staff

## **TEAM Project Accomplishments (continued)**

- TRS held numerous technology discussions with LOB Vendor (HP) as part of the Best and Final Offer
- HP Pension LOB team arrived onsite at TRS and began their Phase 0 Quick Start activities
- TRS and HP reviewed all Pension LOB commitments and determined their appropriate Phase
- TRS and HP reviewed all of the hardware and software needed as part of the Pension LOB project

## TEAM Project Accomplishments (continued)

- Core Program Team (CPT) developed a standardized correspondence template to be used by LOB
- Data Management Team defined data rules for Contribution/Wage History for Data Level 3
- Data Management Team completed initial data assessment of Employment History Data Level 2
- Data Management Team added 2 resources (1 TRS and 1 ACI) to support continuing data assessment work

## **TEAM Project Accomplishments (continued)**

- TRS Business Rules Team completed writing and approving the first draft of all business rules relating to TRS Laws and Rules ahead of schedule
- HP defined the required design elements for the first deployment of the Website Redesign
- Website Redesign Project Team made a decision to have a single RFO for the Website Redesign that would be broken into two phases: Phase 1 Design and Phase 2 implementation

**Tab 22 A**

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TEACHER RETIREMENT SYSTEM OF TEXAS  
BOARD REPORT  
SUMMARY OF DISBURSEMENTS

PAGE 1

	June 1, 2013 through August 31, 2013		
	NUMBER OF PAYMENTS	GROSS PAYMENT TOTAL	AVERAGE PAYMENT
Service Retirees	9,002	21,883,616.71	2,430.97
Disability Retirees	209	248,906.53	1,190.94
Survivor Benefits	319	80,450.00	252.19
Survivor Benefit Lump Sum Payment	2,878	17,259,906.74	5,997.18
Life Annuity as Death Settlement	54	93,840.79	1,737.79
60 Monthly Payments as Death Settlement	55	64,061.33	1,164.75
Refund of Deposit as Death Settlement	126	2,622,074.62	20,810.11
Twice Annual Salary as Death Settlement	329	11,326,623.24	34,427.42
Lump Sum DROP Member Payment	23	4,196,932.08	182,475.30
5 Annual DROP Member Payments			
10 Annual DROP Member Payments	1	36,490.13	36,490.13
60 Monthly DROP Member Payments			
120 Monthly DROP Member Payments	5	9,982.36	1,996.47
DROP Payments to Beneficiary of Active Member			
12 Month Partial Lump Sum Option Payment	882	30,497,192.04	34,577.31
24 Month Partial Lump Sum Option Payment	473	33,386,770.68	70,585.13
36 Month Partial Lump Sum Option Payment	1,302	132,155,093.40	101,501.60
Totals:	15,658	253,861,940.65	16,212.92

SUMMARY OF DISBURSEMENTS  
Glossary

The Summary of Disbursements on the preceding page provides data related to annuitants added to the payroll during the quarter. Specifically, for each category listed, the data includes: (1) the number of new payment inceptions, (2) the gross total of all new payments, and (3) the average of all payments. The categories are defined as follows:

**Service Retirees:** Members who have met the eligibility requirements and applied for a monthly service retirement annuity.

**Disability Retirees:** Members who have met the eligibility requirements, applied and been approved for a monthly disability retirement annuity.

**Survivor Benefits:** Monthly survivor benefits paid to eligible beneficiaries of deceased active members and retirees.

**Survivor Benefit Lump Sum Payment:** Single lump-sum survivor benefit, or reduced lump-sum in conjunction with monthly survivor benefit, paid to eligible beneficiaries of deceased active members and retirees.

**Life Annuity as Death Settlement:** Actuarially reduced monthly life annuity payment to eligible beneficiary of deceased active member. (One of several options which may be payable upon the death of an active member.)

**60 Monthly Payments as Death Settlement:** Monthly standard annuity payment, for a period of 60 months, to eligible beneficiary of deceased active member.

**Refund of Deposit as Death Settlement:** Payment of accumulated contributions and interest to beneficiary of deceased active member.

**Twice Annual Salary as Death Settlement:** Lump-sum payment equal to twice the member's annual salary rate, not to exceed \$80,000, paid to beneficiary of deceased active member.

**Lump Sum DROP Member Payment:** One-time, lump-sum distribution, at retirement, of member's DROP account balance. (One of several DROP distribution options that may be elected by a retiree.)

**5 Annual DROP Member Payments:** Initial or subsequent annual DROP payment under this DROP distribution election.

**10 Annual DROP Member Payments:** Initial or subsequent annual DROP payment under this DROP distribution election.

**60 Monthly DROP Member Payments:** Initial or subsequent monthly DROP payment under this DROP distribution election.

**120 Monthly DROP Member Payments:** Initial or subsequent monthly DROP payment under this DROP distribution election.

**DROP Payments to Beneficiary of Active Member:** Lump-sum distribution of DROP account balance to beneficiary of deceased active member who participated in DROP prior to death.

**12 Month Partial Lump Sum Option Payment:** Lump-sum payment to retiree who elected a partial lump-sum option (PLSO) distribution equal to 12 months of standard annuity.

**24 Month Partial Lump Sum Option Payment:** Lump-sum payment to retiree who elected a partial lump-sum option (PLSO) distribution equal to 24 months of standard annuity.

**36 Month Partial Lump Sum Option Payment:** Lump-sum payment to retiree who elected a partial lump-sum option (PLSO) distribution equal to 36 months of standard annuity.

**Tab 22 B**

**TEACHER RETIREMENT SYSTEM OF TEXAS  
MEDICAL BOARD MEETING  
OPEN SESSION AGENDA  
September 17, 2013**

The Medical Board of the Teacher Retirement System of Texas met at 12:00 p.m. Tuesday, September 17, 2013 in the TRS offices.

**The following members were present:**

Dr. Alice Cox, Fredericksburg  
Dr. James Allen Reinartz, Austin  
Dr. Larry Wilson, Austin

**Others present:**

Ms. Marianne Woods Wiley, Chief Benefit Officer, TRS  
Ms. Beckie Smith, Legal Service, TRS  
Ms. Cindy Collins, Legal Services, TRS  
Ms. Kirsten Morgan, Legal Services, TRS  
Mr. Mike Rehling, Manager, Benefit Processing, TRS  
Mr. Adam Fambrough, Assistant Manager, Benefit Processing, TRS  
Ms. Andrea Torrez, Benefit Consultant, Benefit Processing, TRS  
Ms. Denise Hope, Benefit Consultant, Benefit Processing, TRS

**Dr. Wilson called the meeting to order at 12:17 p.m.**

**1. REVIEW OF MINUTES FROM THE JULY 9, 2013 MEETING.**

The minutes of the July 9, 2013 meeting were reviewed and approved.

**2. CONSIDERATION OF FILES OF TRS MEMBERS WHO ARE CURRENTLY APPLYING FOR DISABILITY RETIREMENT AND THE FILES OF DISABILITY RETIREES WHO ARE DUE A RE-EXAMINATION REPORT.**

Dr. Wilson announced that the Medical Board would enter into Executive Session, as provided by section 551.078 of the Texas Government Code, to deliberate medical information of individual members and retirees.

The Board entered into closed session at 12:21 p.m.  
The meeting was re-opened at 12:46 p.m.

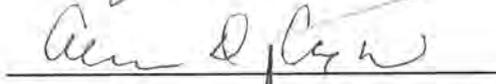
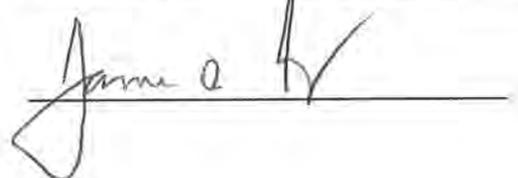
**3. REVIEW OF DISABILITY STATISTICS.**

**PG. 2 TRS Medical Board Minutes  
September 17, 2013**

- 4. DISCUSSION OF ITEMS TO BE PLACED ON FUTURE AGENDAS.**
- 5. DISCUSSION OF THE DATE OF NEXT BOARD MEETING.**

The next Medical Board meeting was scheduled for November 12, 2013.  
The meeting was adjourned at 12:57 p.m.

**Dr. Larry Wilson, Chairman  
TRS Medical Board**

**Attest:**

  
**Denise Hope**

**TEACHER RETIREMENT SYSTEM OF TEXAS  
MEDICAL BOARD MEETING  
OPEN SESSION AGENDA  
July 9, 2013**

The Medical Board of the Teacher Retirement System of Texas met at 12:00 p.m. Tuesday, July 9, 2013 in the TRS offices.

**The following members were present:**

Dr. Alice Cox, Fredericksburg  
Dr. James Allen Reinartz, Austin  
Dr. Larry Wilson, Austin

**Others present:**

Ms. Marianne Woods Wiley, Chief Benefit Officer, TRS  
Ms. Beckie Smith, Legal Services, TRS  
Ms. Kirsten Morgan, Legal Services, TRS  
Mr. Mike Rehling, Manager, Benefit Processing, TRS  
Mr. Adam Fambrough, Assistant Manager, Benefit Processing, TRS  
Ms. Andrea Torrez, Benefit Consultant, Benefit Processing, TRS  
Ms. Denise Hope, Benefit Consultant, Benefit Processing, TRS

**Dr. Wilson called the meeting to order at 12:09 p.m.**

**1. REVIEW OF MINUTES FROM THE MAY 14, 2013 MEETING.**

The minutes of the May 14, 2013 meeting were reviewed and approved.

**2. CONSIDERATION OF FILES OF TRS MEMBERS WHO ARE CURRENTLY APPLYING FOR DISABILITY RETIREMENT AND THE FILES OF DISABILITY RETIREES WHO ARE DUE A RE-EXAMINATION REPORT.**

Dr. Wilson announced that the Medical Board would enter into Executive Session, as provided by section 551.078 of the Texas Government Code, to deliberate medical information of individual members and retirees.

The Board entered into closed session at 12:17 p.m.  
The meeting was re-opened at 12:30 p.m.

**3. REVIEW OF DISABILITY STATISTICS.**

**PG. 2 TRS Medical Board Minutes  
July 9, 2013**

**4. DISCUSSION OF ITEMS TO BE PLACED ON FUTURE AGENDAS.**

Charts for TRS Care premiums

**5. DISCUSSION OF THE DATE OF NEXT BOARD MEETING.**

The next Medical Board meeting was scheduled for September 10, 2013.  
The meeting was adjourned at 12:51 p.m.

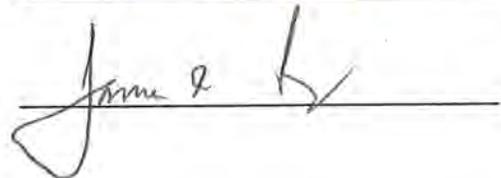
**Dr. Larry Wilson, Chairman  
TRS Medical Board**



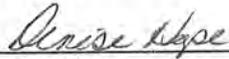
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**Attest:**



**Denise Hope**