



# INVESTMENT MANAGEMENT COMMITTEE



**September 2015**

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## Minutes of the Investment Management Committee

June 11, 2015

The Investment Management Committee of the Board of Trustees of the Teacher Retirement System of Texas met on June 11, 2015 in the boardroom located on the fifth floor of the TRS East Building offices located at 1000 Red River Street, Austin, Texas. The following committee members were present:

Todd Barth, Chair  
David Corpus  
David Kelly  
Nanette Sissney

### Others present:

Christopher Moss, TRS Trustee  
Anita Palmer, TRS Trustee  
Karen Charleston, TRS Trustee  
Dolores Ramirez  
Brian Guthrie, TRS  
Ken Welch, TRS  
Jerry Albright, TRS  
Amy Barrett, TRS  
Katrina Daniel, TRS  
Carolina de Onís, TRS  
Britt Harris, TRS  
Jerry Albright, TRS  
Thomas Albright, TRS  
Carolyn Hansard, TRS  
Joseph Hurtekant, TRS

Dan Junell, TRS  
Eric Lang, TRS  
Lynn Lau, TRS  
Scot Leith, TRS  
Hugh Ohn, TRS  
Mike Pia, TRS  
Neil Randall, TRS  
Courtney Villalta, TRS  
Grant Walker, TRS  
Carter Ware, TRS  
Steve Huff, , Fiduciary Counsel, Reinhart Boerner Van Deuren s.c.  
Dr. Keith Brown, Investment Advisor  
Steve Voss, Hewitt EnnisKnupp  
Philip Mullins, Texas Retired Teachers Association  
Ted Melina Raab, Texas American Federation of Teachers

Mr. Barth called the meeting to order at 1:10 p.m. A quorum was present.

### **1. Consider the approval of the proposed minutes of the March 26, 2015 committee meeting – Todd Barth.**

On a motion by Ms. Sissney, the committee unanimously voted to approve the proposed minutes of the March 26, 2015 meeting, as presented.

### **2. Receive an update on and review External Private Markets, including – Eric Lang:**

#### **A. A review of private equity – Neil Randall.**

Mr. Lang provided an overview of the Private Equity Portfolio, including its performance, size, emphasis on principal investments, risk impact, and team structure. Mr. Lang confirmed for Mr. Kelly that the number of premier list managers was less than it was three or four years ago, but that the number should stay in the same range for the next five years. Responding to questions from Dr. Brown, Mr. Lang said that observed volatilities were actual marks on a quarterly basis.

Mr. Randall spoke about the outstanding performance of the portfolio, its diversity, and its team structure. In response to questions from Mr. Kelly, Mr. Barth, and Dr. Brown, Mr. Randall addressed issues regarding venture capital exposure. He then discussed the portfolio's capital plan and projected net asset value. Regarding the portfolio's funding, Mr. Randall said that half of the premier list managers had been funded over the course of the last two years. He also mentioned that the private equity team was looking to grow the principal investments aspect of the portfolio from 13 to 25 percent. Mr. Randall stated that the allocation shift from buyout to growth equity investments had been positive for performance.

In response to a question from Mr. Barth, Mr. Randall stated that the target drop in the last couple of years was due to movement associated with the Energy and Natural Resources Portfolio. He also stated that the portfolio had outperformed the State Street Private Equity index in 13 of the past 15 years and had generally exceeded eight percent of the actuarial rate of return in all vintage years. Mr. Randall addressed Mr. Barth's inquiry regarding the 2014 internal rate of return by explaining that internal rates of return were negatively affected in the early states of venture capital funds because fees were paid on capital that was committed, but not yet invested.

Mr. Randall highlighted the performance accomplishments of the past year and the priorities set for the near future. He and Mr. Lang answered for Dr. Brown that good solid manager and security selection, as well as the focus on principal investments, had been key in ensuring stellar portfolio performance. Mr. Randall noted that one of the highest priorities was to be the preferred destination for larger types of investments. He also stated that another priority would be to evaluate small-to-mid buyout and international developed investments to determine whether different approaches might improve overall portfolio performance.

Mr. Randall then discussed the overvalued nature of the private equity market. He said that the amount of capital that limited partners were committing to funds was above the long-term average, but below where the market was in 2007. He also said that realizations were about 50 percent greater than what was seen at the peak. Mr. Randall said that the amount of dry powder in the industry was the highest it had ever been and that pricing was on the high end of valuation. Dr. Brown and Mr. Barth asked if the overvalued market would become the new normal. Mr. Randall answered that some risk repricing was taking place, but that it was too soon to know whether that would have an impact in the near future.

## **B. A review of real assets – Grant Walker.**

Mr. Walker provided an overview of the Real Assets Portfolio, including its performance, expected market return, allocation structure, volatility, and team structure. Mr. Walker also discussed the portfolio's capital plan, projected net asset value, premier managers, principal investments, and leverage. He stated that the portfolio had outperformed the ODCE benchmark in five of the past seven years. Mr. Walker then discussed the portfolio's 2014 accomplishments and 2015 priorities. He stated that one of the highest priorities is to focus on being the preferred destination for attractive investments. He also stated that other priorities included taking a deeper dive into the opportunistic part of the portfolio and focusing on quarterly strategic planning. In response to funding questions from Mr. Barth, Mr. Walker and Mr. Lang confirmed that the portfolio team



planned to fund one-half of the premier list managers because of their strong track record and portfolio fit. Mr. Walker also answered for Mr. Barth that the portfolio had historically funded one-half to two-thirds of premier list managers.

Mr. Walker then discussed market conditions stating that net capital flows and REIT offerings were substantially higher than they were in 2007 and more investments were taking place outside of the traditional fund model. He said that cap rates were back to peak pricing levels because of the low interest rate climate and that real estate remained fairly valued. Mr. Walker also said that the portfolio team would bear in mind that all property types remained in a growth phase, but were probably closer to the end of the growth cycle, as it developed capital plans. In addition, Mr. Walker said that the portfolio had 39 principal investments in which \$6<sup>1</sup>/<sub>2</sub> billion had been committed. Finally, he said that the principal investments had produced just over \$4 billion in distributions and an inception rate of return of 16.6 percent.

### **3. Receive a review of the Energy and Natural Resources Portfolio – John Ritter and Carolyn Hansard.**

Mr. Lang provided an overview of the Energy and Natural Resources Portfolio, including its performance, allocations, low volatility, and team structure. He said that the portfolio's main purpose was to provide inflation protection and that investment draw down had muted investment returns. In response to questions from Mr. Barth, Mr. Lang stated that recent performance indicated portfolio growth.

Ms. Hansard spoke about the portfolio's capital plan and premier list managers. She said that the portfolio team was building a diversified portfolio with 80 percent of investments being inflation sensitive and 20 percent being infrastructure. Ms. Hansard addressed portfolio returns stating that portfolio dry powder would eventually boost returns. She said that the portfolio team committed \$1<sup>1</sup>/<sub>4</sub> billion to seven investments last year. Mr. Barth inquired about commodity hedging analytics, due diligence, and investment monitoring. Ms. Hansard explained that the portfolio team was focused on the commodity hedging practices of portfolio managers, since such practices were playing a large role in whether energy companies weather the current down cycle.

In addressing the portfolio's capital plan, Mr. Ritter stated that the portfolio team was planning to invest in nine out of 12 funds and that one-half of plan commitments were to principal investments. He then spoke about market conditions for oil and natural gas, describing how oversupply had been linked with falling prices. Mr. Ritter said that the amount of capital that had recently been raised in this environment has been surprising. He then addressed the portfolio's principal investments, stating that the portfolio had eight investments producing an inception internal rate of return of around 23.2 percent. Mr. Lang summarized by stating that he thought that performance would be viewed satisfactorily in three or four years.

The meeting adjourned at 2:25 p.m.



APPROVED BY THE **INVESTMENT MANAGEMENT COMMITTEE** OF THE BOARD OF TRUSTEES OF THE TEACHER RETIREMENT SYSTEM OF TEXAS ON THE 24TH DAY OF SEPTEMBER, 2015.

ATTESTED BY:

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Dan Junell  
Secretary to the TRS Board of Trustees

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Date





## Public SPN Deep Dive/Quarterly SPR Update

Mike Pia, Director  
Grant Birdwell, Senior Investment Manager  
September 2015

# Agenda

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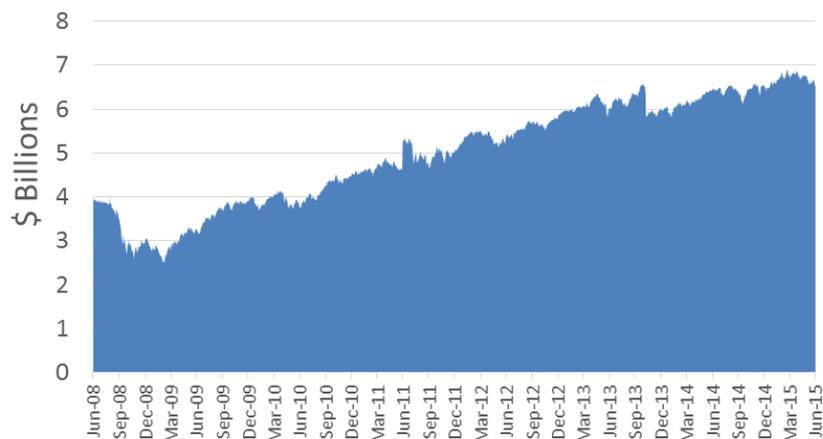
- I. Performance
- II. SPR Overview
- III. Public SPN Deep Dive
- IV. Private SPN and Market Intelligence
- V. Accomplishments and Priorities

# Public Markets SPN Performance

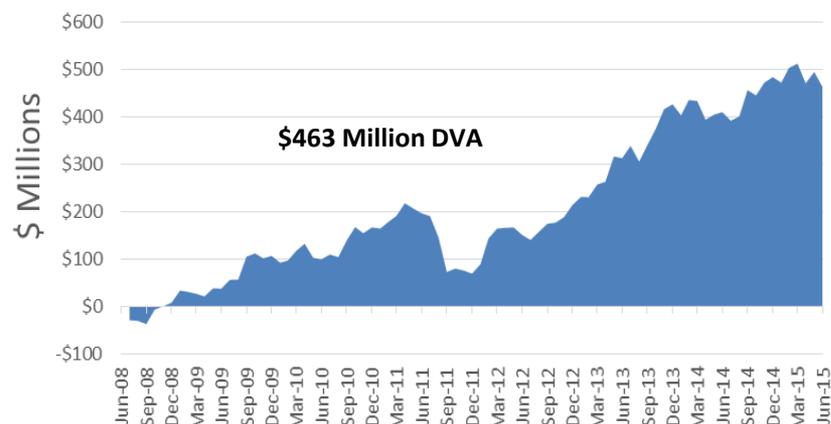
As of June 30, 2015

Program	Assets		Annualized Return %			Annualized Alpha %			Tracking Error %			Information Ratio		
	NAV (\$ millions)	% of Trust	1-Year	3-Year	Since Incept.	1-Year	3-Year	Since Incept.	1-Year	3-Year	Since Incept.	1-Year	3-Year	Since Incept.
BlackRock	1,617	1.2%	3.6	10.3	6.8	2.8	1.6	1.0	1.9	2.0	2.0	1.5	0.8	0.5
JP Morgan	1,709	1.3%	2.4	11.1	7.5	1.6	2.4	1.7	2.1	1.9	2.3	0.8	1.2	0.7
Morgan Stanley	1,616	1.2%	0.4	10.3	6.8	-0.4	1.5	1.0	3.2	2.5	1.9	-0.1	0.6	0.5
Neuberger Berman	1,616	1.2%	0.0	9.1	6.6	-0.8	0.3	0.9	2.2	1.6	2.1	-0.4	0.2	0.4
<b>Total Public SPN</b>	<b>6,558</b>	<b>5.0%</b>	<b>1.6</b>	<b>10.2</b>	<b>6.9</b>	<b>0.8</b>	<b>1.4</b>	<b>1.2</b>	<b>1.6</b>	<b>1.3</b>	<b>1.4</b>	<b>0.5</b>	<b>1.1</b>	<b>0.8</b>

Public Markets SPN Assets Under Management



Total Public SPN Cumulative Relative DVA



Source: State Street and TRS Investment Operations

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# SPR Mandates

## Public Investments

- Manage, oversee and monitor four **unique long-term investment relationships in the public markets** around the world

## Private Investments

- Work closely with two industry-leading private markets specialist partners to **identify and allocate capital to attractive private opportunities**

## Market Intelligence

- **Integrate global-macro-based products and services** into public and private investment decisions across the Trust to enhance returns

## Research Provider

- Work with heavily resourced partners to provide **customized, timely investment research and training** that meets the needs of the IMD

## Headlight Systems

- Use and disseminate views and positioning data from partners to **provide insight and support to other groups** in the Trust

## Center of Excellence

- Leverage the TRS investment network to **develop new products and superior processes** to help ensure that the IMD is world-class in every respect

# Strategic Partnerships & Research Group (SPR)



**Mike Pia, CFA, CAIA**  
**Director**  
BS Mechanical Engineering, United States Naval Academy  
MS Software Engineering, University of West Florida  
MBA, Texas Christian University

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## INVESTMENTS TEAM

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### PUBLIC MARKETS



**Grant Birdwell**  
**Senior Investment Manager**  
BBA Finance, Texas A&M

### PRIVATE MARKETS



**Courtney Villalta**  
**Senior Investment Manager**  
BS Finance, St. Edward's University



**Christopher White**  
**Associate**  
BS Engineering Management,  
United States Military Academy  
MBA Finance, UT Austin

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## ANALYTICS TEAM

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**Patricia Cantu**  
**Senior Associate**  
AA Business Management, Austin  
Community College



**Susan White**  
**Analytics and Support**  
BS French, The Pennsylvania State  
University  
Claritas Investment Certification

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## MARKET INTELLIGENCE TEAM

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**Curt Rogers, CAIA, CFA, FRM**  
**Director**  
BS & MS, Aeronautical Engineering,  
Massachusetts Institute of  
Technology  
MBA, Finance, UT Austin



**Phillip Auth, CFA**  
**Investment Manager**  
BS Economics, University of New Mexico  
MBA International Finance, UT Austin



**Matt Wey, CPA**  
**Analyst**  
BBA Accounting, Texas A&M  
MS Finance & Mathematics, Texas A&M

# History of the Public Markets SPN

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- First major initiative using external managers in public markets
- Firms manage customized and risk-controlled global mandates
- Benchmark weights and tactical ranges based on TRS public markets asset allocation policy
- Four partners selected (BlackRock, JP Morgan, Morgan Stanley, Neuberger Berman) after a thorough review of multiple candidates
- Funded at \$1 billion each in July 2008
  - Portfolio value has grown to \$6.6 billion

# Principles of Public Markets Strategic Partnerships

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1. Deliver full range of valuable investment products and services
2. Customize products and services to specific TRS requirements
3. Operates globally with a sustainable business model
4. Produce proprietary, value-added investment research
5. Share significant resources and knowledge
6. Share long-term compensation philosophy compatible with TRS
7. Fully committed team, beginning with senior management

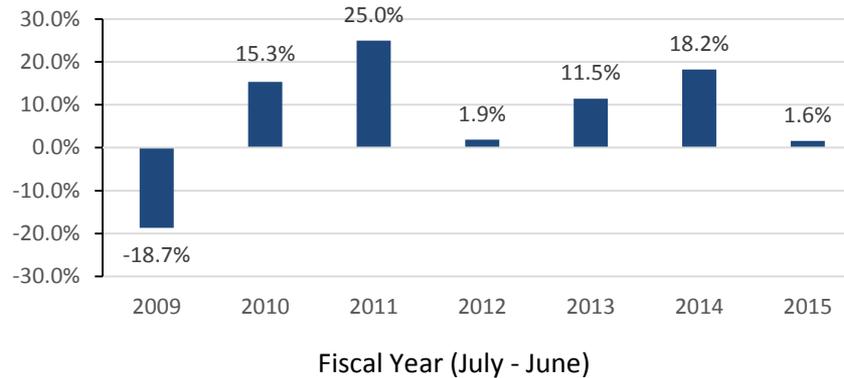
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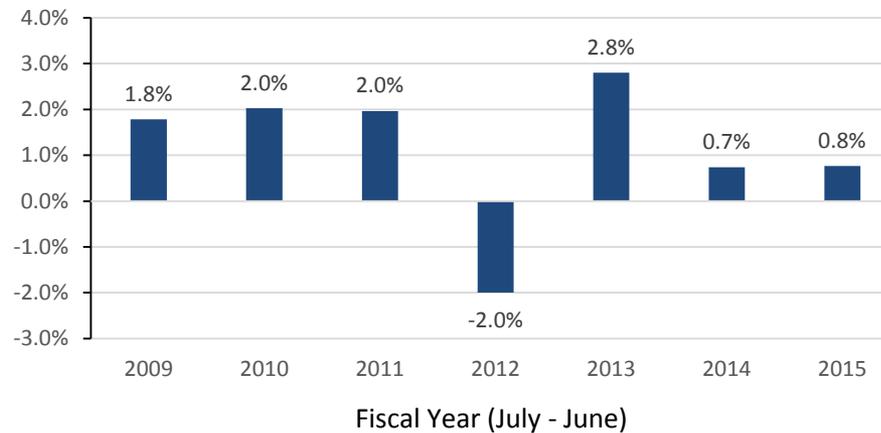
# Public Markets SPN Performance

Periods Ending June 30

### Net Return By Public Markets SPN



### Net Alpha By Public Markets SPN



Source: State Street

Note: Fiscal year for the Public Markets SPN runs from July to June due to inception of the structure in July 2008



# TUCS Public Markets SPN Performance Comparison

*Public Plans > \$1 Billion for Periods Ending June 30*

Time Period	Percentile Rank
1 Year	88%
3 Year	60%
5 Year	19%
7 Year	10%

## Key Drivers of Recent Relative Short-Term Headwinds:

- No private asset classes in Public SPN during a period of strong private equity performance
- Longer duration of stable value benchmark relative to most peers
- Above average strategic allocation to emerging markets relative to peers
- Alpha run-rate below target

Source: Wilshire Trust Universe Comparison Service: June 30, 2015, SPR team

# Public Markets SPN Positioning

## Tactical "Headlight System" Example

### Relative Positioning as of 06/30/2015

Partner	Global Equity				Stable Value				Real Return				
	Total	US	Non-US		Total	US Long	Non \$	Credit	Cash	Total	Inflation	Com	REITs
		USA	EAFE	EM		Treasury	Sov Debt				Linked		
BlackRock	2.2%	-1.6%	4.6%	-0.9%	5.6%	-16.6%	15.3%	6.9%	0.0%	0.1%	0.0%	0.1%	0.0%
JP Morgan	5.6%	5.0%	6.6%	-6.0%	-10.5%	-14.3%	-1.6%	5.4%	-0.1%	0.1%	0.0%	0.0%	0.0%
Morgan Stanley	1.2%	-5.4%	7.4%	-0.8%	-19.6%	-6.6%	-3.2%	-9.8%	13.4%	5.0%	3.8%	1.2%	0.0%
Neuberger Berman	12.4%	2.9%	7.2%	2.4%	10.3%	-7.2%	9.8%	7.7%	-1.3%	-1.3%	-0.9%	-0.4%	0.0%
<b>Total (Average)</b>	<b>5.3%</b>	<b>0.2%</b>	<b>6.4%</b>	<b>-1.3%</b>	<b>-3.6%</b>	<b>-11.2%</b>	<b>5.1%</b>	<b>2.5%</b>	<b>3.0%</b>	<b>1.0%</b>	<b>0.8%</b>	<b>0.2%</b>	<b>0.0%</b>

### Change in Relative Positioning since 03/31/2015

BlackRock	-4.2%	-0.9%	-1.6%	-1.6%	6.3%	-6.5%	12.8%	0.1%	0.0%	6.7%	1.9%	2.7%	2.1%
JP Morgan	1.9%	-0.3%	1.9%	0.3%	-10.0%	0.3%	-6.1%	-1.7%	-2.5%	-6.9%	-2.8%	-2.3%	-1.8%
Morgan Stanley	-1.7%	-3.1%	-0.2%	1.6%	-10.1%	-9.8%	-0.9%	-9.8%	10.4%	8.5%	6.8%	1.8%	0.0%
Neuberger Berman	5.3%	-1.3%	4.6%	2.1%	1.5%	0.3%	2.3%	1.1%	-2.2%	-0.4%	-0.4%	0.1%	-0.2%
<b>Total (Average)</b>	<b>0.3%</b>	<b>-1.4%</b>	<b>1.1%</b>	<b>0.6%</b>	<b>-3.1%</b>	<b>-3.9%</b>	<b>2.0%</b>	<b>-2.6%</b>	<b>1.4%</b>	<b>2.0%</b>	<b>1.4%</b>	<b>0.6%</b>	<b>0.0%</b>



Source: Partner self-reported, reconciled with SSB

Note: Relative positioning includes impacts of embedded leverage as well as adjustments for duration in the Stable Value bucket

# SPN Summits

## *Center of Excellence*

- Held five times per year: 2 Public, 2 Private, 1 Joint
- Topics covered include positioning, performance, and relevant market topics
- Key tool to encourage accountability and collaboration

Key Topics of Discussion	
Sept '14 Public Summit	Environment for active equity management
Nov '14 Private Summit	Asian private equity/Special situations
April '15 Public Summit	FX Drivers/Implications of Fed liftoff for different asset classes
April '15 Private Summit	Energy market dynamics/ Credit market opportunities
July '15 Joint Summit	PE trends/Credit cycle/ Supply side weakness

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# Market Intelligence

## Analyze Global Macro Events

- Publish Flash Notes and Daily Summaries that explain global macro events and daily economic releases.
- Focus on placing events in context of the big picture.

G r e x i t

Gold

Janet Yellen

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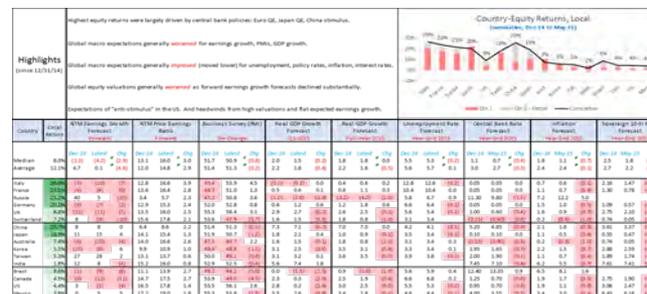
## Develop Innovative Alpha Strategies

- Co-develop innovative alpha generating investment strategies through the SPR Incubator.
- Conduct the annual “Best Ideas” survey of IMD external managers.



## Build Models & Dashboards

- Building macro models and dashboards that support IMD’s investment evaluation process.



## Support Investment Analysis

- Analyze investment global macro assumptions for select private market opportunities.
- Support IPM during allocation/rebalancing efforts.



# Accomplishments and Priorities

## Accomplishments Since Sept '14

- Over the Public SPN's most recent fiscal year ending in June 2015, the partnership generated 80 bps of alpha.
- Successfully delivered 6 value-add research projects
- Significant improvements in Public SPN signals for TAA
- Successfully executed 5 SPN Summits
- Developed a standalone capital plan and semiannual portfolio review process for the Private Markets SPN
- Public SPN IMA refresh/SAA update

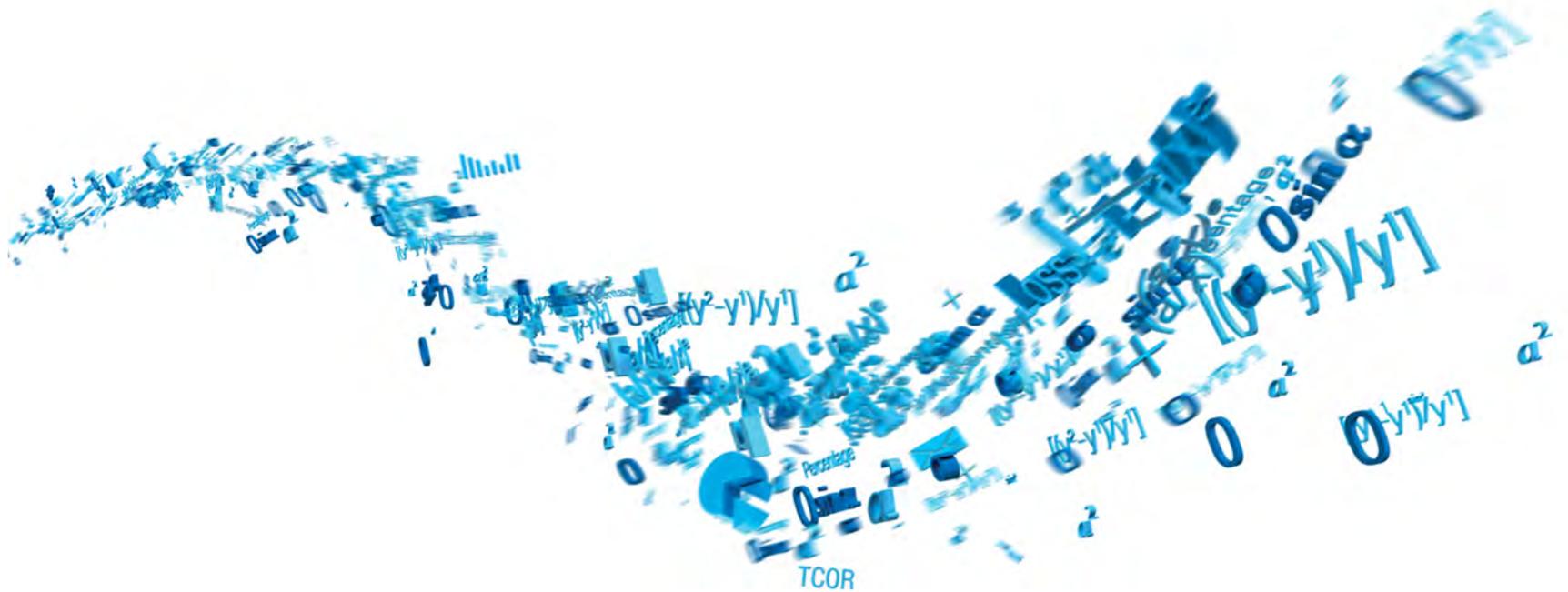
## Current Priorities

- Implement Private SPN Phase 2 (SPN-Strategic) and new SPN-Tactical Value portfolio
- Market Intelligence integration/enhancements
- Development of Actionable Ideas/Incubator framework
- Generate 2% annualized alpha

# APPENDIX

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# Teacher Retirement System of Texas Hedge Fund Discussion

September 2015

**Aon Hewitt**  
Retirement and Investment

Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.

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## What is a Hedge Fund?

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- **Hedge Funds** are investment vehicles structured to take advantage of diverse or unique opportunity sets, often using broad guidelines that are benchmark agnostic
- Hedge funds **are not an asset class**, rather structures to implement strategies
- The term “hedge fund” really refers to the legal and operational structure
- Effectively, hedge funds are private funds investing in public markets
- While the exact nature of any particular hedge fund can vary widely, one trait common to all is that investors rely primarily on **manager skill** (i.e., alpha) rather than market returns (i.e., beta)
- Refer to section 2.6 of the TRS Investment Policy Statement for further description and the TRS 9-point test

# Summary – Hedge Funds: Perceptions and Realities...

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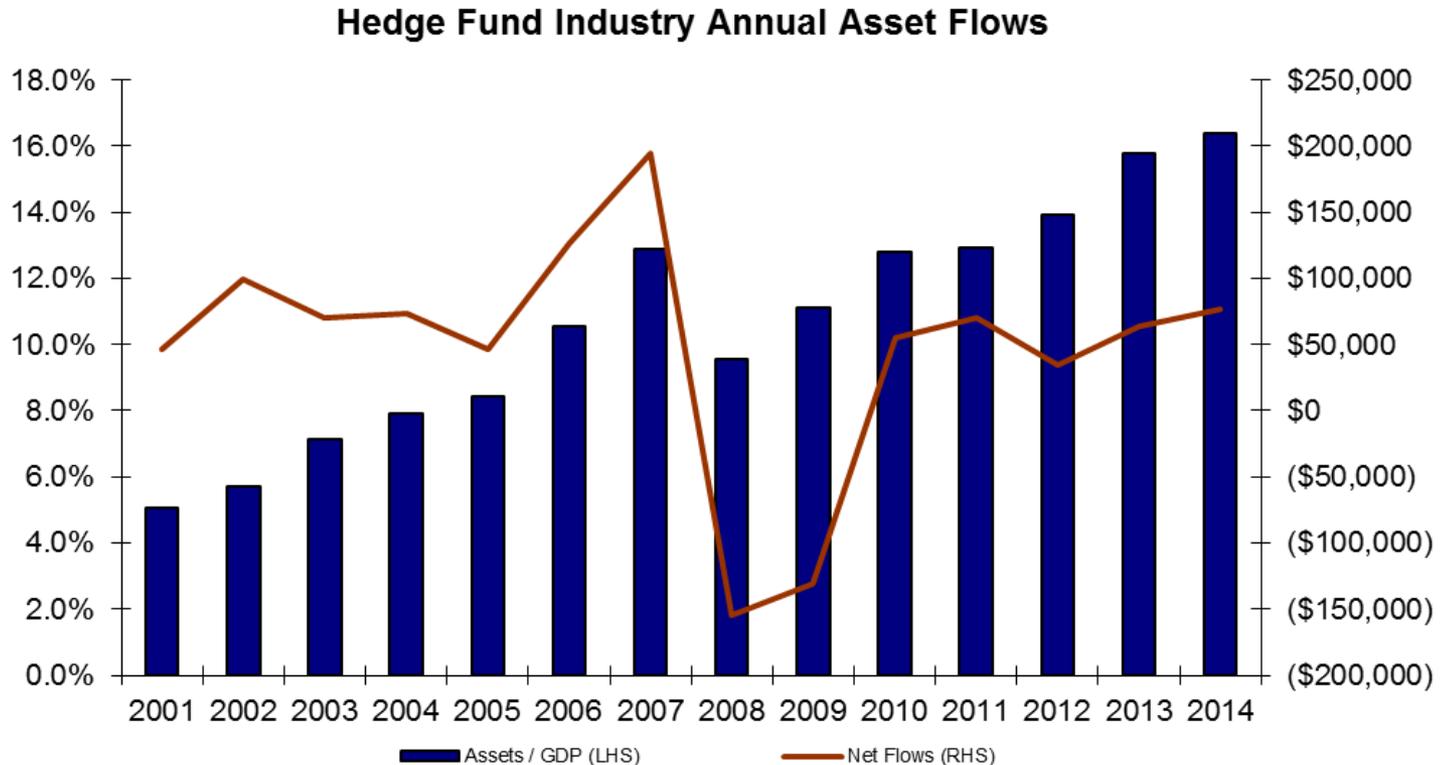
## Perceptions ...

- High risk investments
- Run for rich people by even richer people
- Opaque processes not readily understood
- Caused or contributed to financial market crises
- A dredge on society
- Use inordinate amounts of leverage to take market bets
- A single asset class

## Reality ...

- Often designed to reduce risk
- Predominantly institutional investors with pay-for-performance structure
- Managers articulate transparent and tangible investment processes
- No evidence of systemic risk
- Increases market efficiency and promotes the best allocation of capital
- Aim to make money in all market conditions; focus on alpha, not beta
- Wide variety of strategies

# How Large is the Hedge Fund Marketplace?

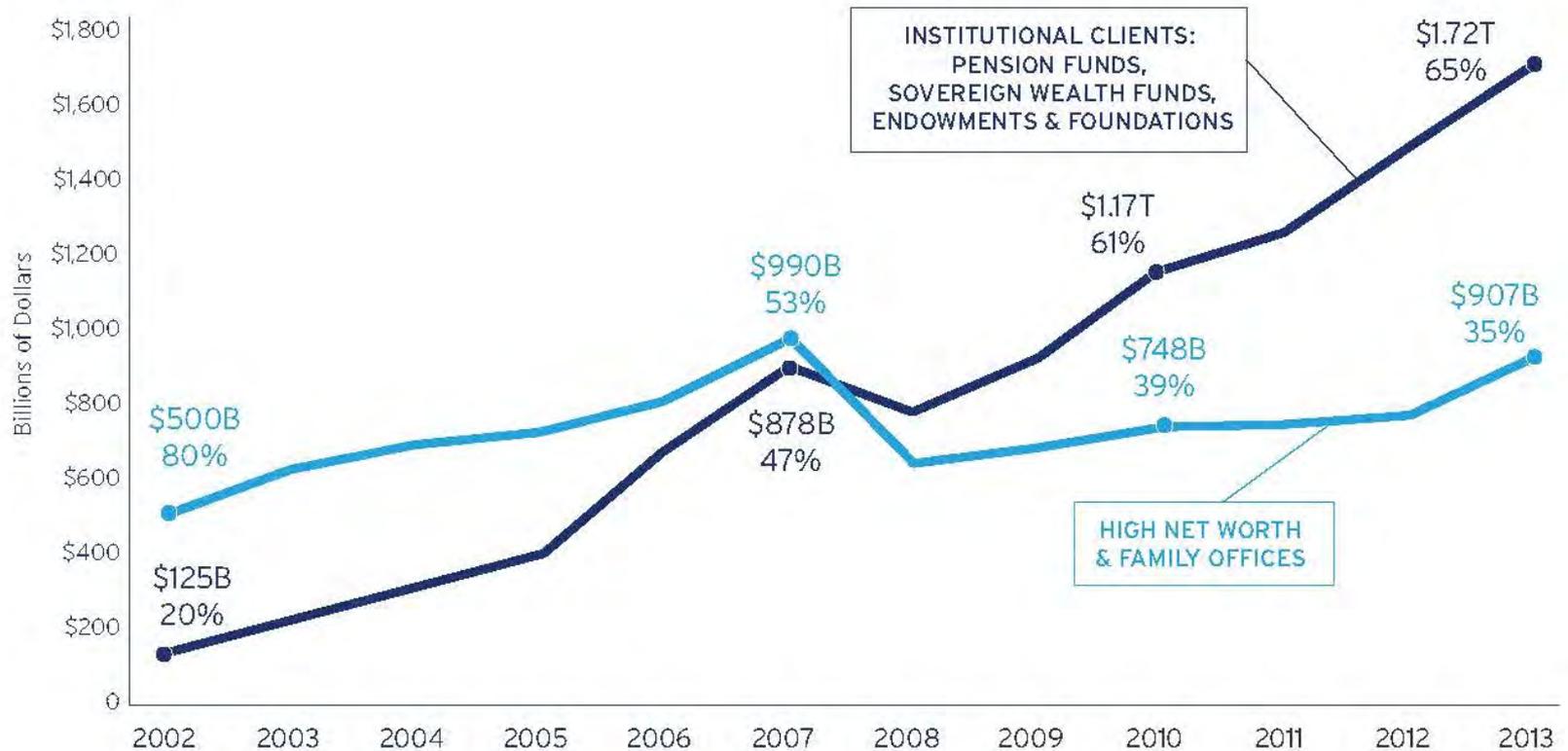


- Hedge fund assets under management increased to \$2.9 trillion during Q1 2015, and now represent 16% of U.S. GDP
- HFR estimates that there are 10,149 hedge funds (1,718 being fund of funds) as of 3/31/2015

<sup>1</sup>Source: Hedge Fund Research, Inc

<sup>2</sup>Global GDP as sourced from U.S. Dept. of Commerce's Bureau of Economic Analysis

# Institutional Usage of Hedge Funds?



- Institutional assets continue to climb as a percentage of overall investments in the hedge fund market

Source: Citi Investor Services – Opportunities and Challenges for Hedge Funds in the Coming Era of Optimization (2014)

## Peer Public Fund Asset Allocation Change (4-Year Changes in Targets)

Asset Class	TRST	AHIC Peer Average	BNY Mellon Public > Billion \$ Universe*
U.S. Equity	-7%	-3%	-5%
Non U.S. Equity	-3%	-2%	1%
Private Equity	3%	3%	
Hedge Funds/Oppportunistic*	4%	3%	9%
Real Assets	8%	2%	
Real Estate	4%	2%	
Domestic Fixed Income	-4%	-5%	-6%
International/Global Fixed Income		2%	1%
High Yield		2%	
TIPS	-5%	-2%	
Cash		-1%	

Color Key	
Allocation = Increased	
Allocation = Neutral	
Allocation = Decreased	
No Allocation	

- A detailed review of peer practices was conducted through the construction of a customized universe of our largest public retirement system clients
  - The above custom peer comparison is based on a universe of AHIC's 11 largest public pension plans with total assets ranging from \$14 to \$146 billion

\* BNY Mellon peer information is based on actual peer weights. The alternative investment allocation includes private equity.

# Pros and Cons of Hedge Fund Exposure

## Pros

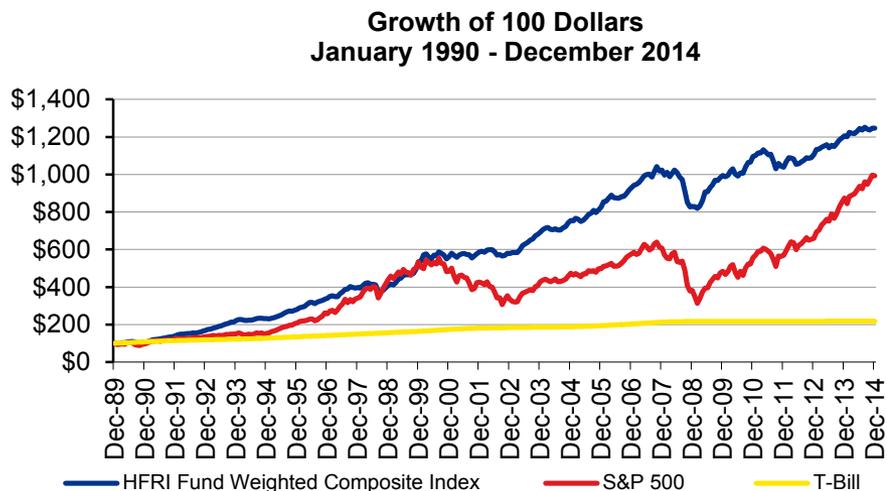
- Enhanced return
- Diversification
- Downside protection
- Volatility reduction
- Addresses the structural inefficiencies of long-only, traditional managers
- Emphasis on alpha and not market beta
- Broader opportunity set
- Access to “best in class” talent
- Alignment of investors’ and managers’ interests
- TRS – Adds to expected long term return without proportional increase in Trust risk

## Cons

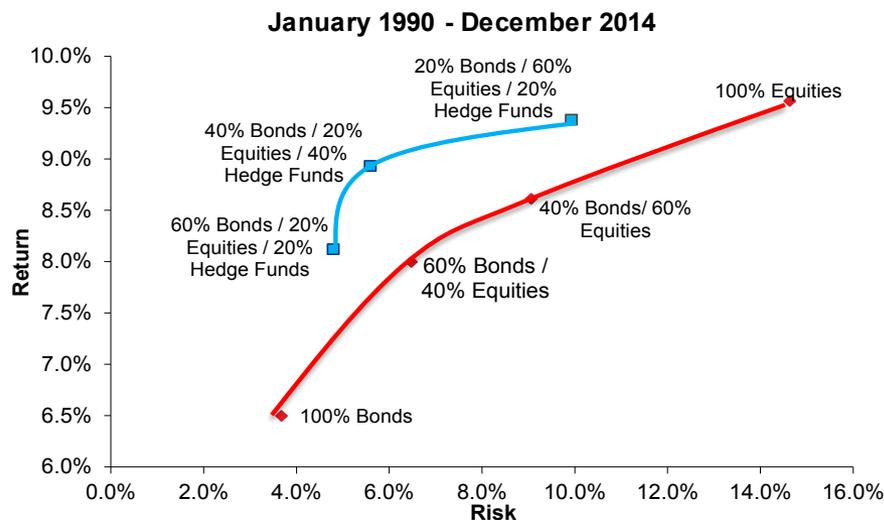
- Key Man Risk
- Complexity
- Asset growth/capacity
- Access
- Fees
- Operational risks
- Headline risk
- Transparency
- Illiquidity
- Leverage
- Potential Concentration

# Why Invest in Hedge Funds? Diversification

- Differentiated Performance



- Diversification Benefits



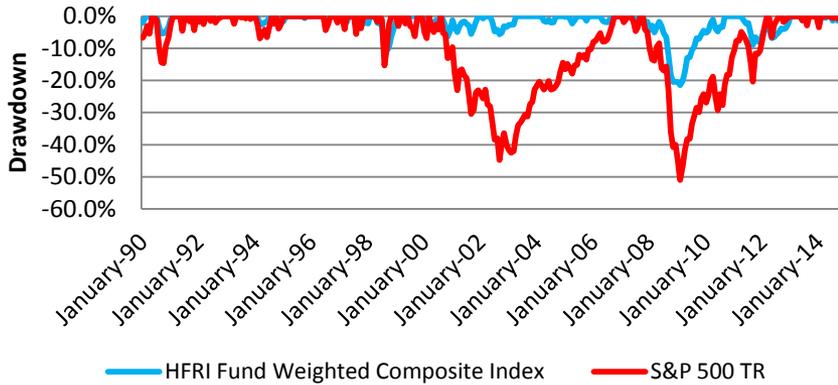
- Institutional investors have been able to further diversify their investment programs by utilizing hedge funds

# Why Invest in Hedge Funds?

## Downside Protection

- Extreme Loss Mitigation

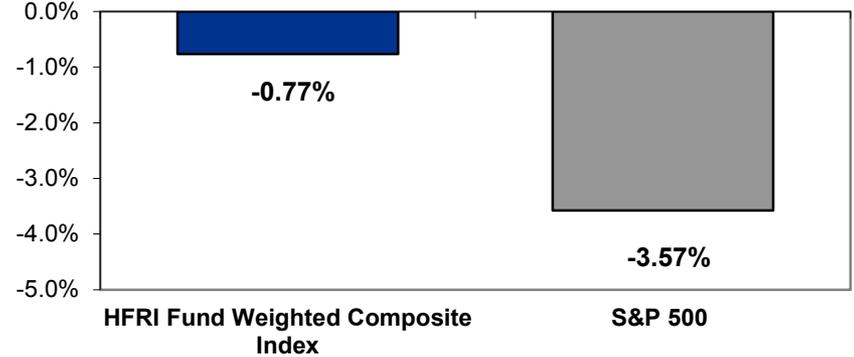
**Underwater Drawdown - (Jan 1990-Dec 2014)**



- Downside Protection

**Downside Protection, January 1990 - December 2014**

Average Monthly Return During 105 Negative Months for the S&P 500



- Hedge funds have exhibited lower drawdowns during periods of market dislocation than equities

## A Look at Hedge Fund Performance

	1 Year Return	3 Years Return	Since October 2011 Return	5 Years Return
MSCI All Country World (Net) with USA Gross	1.0	13.4	14.3	12.3
Barclays Long Treasury Index	6.3	1.2	2.5	6.2
TRST Stable Value Hedge Funds	5.2	5.2	4.1	N/A
Stable Value Hedge Fund Benchmark	2.6	5.5	4.6	N/A
TRST Directional Hedge Funds	1.4	8.8	7.8	N/A
HFRI Fund of Fund Composite Index	3.8	6.2	5.1	N/A
TRST Total Hedge Funds	3.1	7.1	5.9	5.2
Total Hedge Funds Benchmark	3.3	5.9	4.9	4.2

- Over recent periods equities have produced strong returns, and have outperformed hedge funds
- Fixed income has continued to produce strong returns due to the decline in interest rates over recent periods

\* October 2011 represents the inception of the TRST Directional Hedge Fund Portfolio

# Aon Hewitt Views on Hedge Funds and TRS' Exposure

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- We believe hedge funds remain an appropriate investment for TRS
  - Hedge funds are equipped with competitive advantages among active managers:
    - Relaxed constraints (exposure, liquidity, geography, concentration, instruments)
    - Flexible portfolios to exploit market inefficiencies
    - Top industry talent
  
- Strategic Advantages available to TRS:
  - Access to best in class managers, strategies, and investment opportunities
  - Experienced successful investment team
  - Deep internal resources
  - High quality external resources available through Albourne
  - Ability to use its size and long term investment horizon to negotiate competitive fee arrangements
  
- Benefits for TRS include:
  - Asset and return diversification
  - Alpha generation
  - Downside protection
  - Volatility reduction
  - Principal investments sourced from the hedge fund relationships



## External Public Markets

Dale West, Senior Managing Director

Susanne Gealy, Director

Brad Gilbert, Director

September 2015

# Agenda

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- I. Performance and Investment Summary
- II. Update on 2014 Priorities
- III. External Public Markets Team and Processes
- IV. Long-Oriented Update
- V. Hedge Fund Update
- VI. 2015 Priorities

# Executive Summary

## As of June 30, 2015

EXTERNAL PUBLIC MARKETS							
Total Assets (\$ millions)	Percent of Trust	1-Year Return	3-Year Return	5-Year Return	1-Year Alpha	3-Year Alpha	5-Year Alpha
\$39,618	30.1% <sup>1</sup>	0.6%	11.2%	9.6%	-0.3%	0.9%	0.6%

PERFORMANCE									
Program	1-Year Return	3-Year Return	5-Year Return	1-Year Alpha	3-Year Alpha	5-Year Alpha	1-Year TUCS Peer Quartile	3-Year TUCS Peer Quartile	5-Year TUCS Peer Quartile
US Portfolio	4.4%	16.5%	16.5%	-2.9%	-1.3%	-1.2%	3 <sup>rd</sup>	3 <sup>rd</sup>	3 <sup>rd</sup>
Non-US Developed	-1.1%	13.4%	9.5%	4.2%	2.2%	0.5%	2 <sup>nd</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
Emerging Markets	-6.3%	4.2%	3.9%	-1.2%	0.5%	0.2%	3 <sup>rd</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
World Equity	-0.1%	14.4%	12.6%	-1.1%	1.3%	0.6%	3 <sup>rd</sup>	3 <sup>rd</sup>	3 <sup>rd</sup>
Total Hedge Funds	3.1%	7.1%	5.2%	-0.1%	1.2%	1.0%			
Stable Value Hedge Funds	5.2%	5.2%	n/a	2.5%	-0.3%	n/a			
Directional Hedge Funds	1.4%	8.8%	n/a	-2.4%	2.5%	n/a			
Other Absolute Return	23.1%	44.3%	28.1%	20.9%	42.0%	25.8%			

ASSETS					
Program	June 2014 Assets	June 2015 Assets	June 2015 % of Trust	Long-Term Target % of Trust	Asset Class % of Target
	(\$ millions)				
<b>External Managers</b>	<b>\$30,283</b>	<b>\$27,685</b>	<b>21.1%</b>	<b>18.5%</b>	
US Portfolio (16 portfolios)	10,161	8,444	6.4%	4.8%	38.1%
Non-US Developed (7 portfolios)	5,896	5,387	4.1%	4.1%	43.2%
Emerging Markets (9 portfolios)	8,571	7,717	5.9%	5.7%	68.1%
World Equity (5 portfolios)	5,655	6,136	4.7%	4.0%	
<b>Hedge Funds</b>	<b>\$11,634</b>	<b>\$11,778</b>	<b>9.0%</b>	<b>8.0%</b>	
Stable Value (26 portfolios)	5,193	5,374	4.1%	4.0%	100.0%
Directional (23 portfolios)	6,442	6,404	4.9%	4.0%	100.0%
<b>Other Absolute Return (2 portfolios)</b>	<b>\$296</b>	<b>\$155</b>	<b>0.1%</b>	<b>0.0%</b>	

<sup>1</sup>30.1% includes fund-based investments, including hedge funds. 22.2% of the 30% Agency Agreement authority is currently utilized (see Appendix).  
Source: State Street Bank - Performance is annualized and net of fees

# Investment Highlights

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- Alpha achieved on a 3- and 5-year basis; disappointing short-term result
  - US equity portfolios lagged markets with poor alpha in large caps
    - US equities have returned 6.8% with 1.2% alpha since inception in September 2007
  - Developed International portfolio outpaced overseas markets
  - Value exposure in emerging markets contributed to negative results
- Stable Value Hedge Funds continued to play a low risk, diversifying role in the portfolio
  - Since portfolio split in October 2011, Stable Value Hedge Funds have outperformed long-term Treasuries with one quarter of the volatility and little correlation to equities
- Directional Hedge Funds have exceeded 8% returns over the past three years with 38% of the equity market volatility and have outperformed public equities during 94% of negative market months
- Overall \$930 million in added value over 5 years compared to benchmarks

# Update on 2014 Top Priorities

2014 Goals	Actual	Detail																																
Generating alpha across all portfolios	<ul style="list-style-type: none"> <li>Positive alpha from Non-US Developed equity managers, US Small Cap managers and Stable Value Hedge Funds</li> <li>Short-term result was negative in US, Emerging Markets, World Equity and Directional Hedge Fund portfolios</li> <li>3-year positive alpha in 4 of 6 asset classes: Non-US Developed, Emerging Markets, World Equity and Directional Hedge Funds</li> <li>3-year positive alpha at the total External Public level</li> </ul>	<table border="1"> <thead> <tr> <th><i>As of June 30, 2015</i></th> <th><u>1-Year Alpha</u></th> <th><u>3-Year Alpha</u></th> </tr> </thead> <tbody> <tr> <td>US Portfolio</td> <td>-2.9%</td> <td>-1.3%</td> </tr> <tr> <td>Non-US Developed</td> <td>4.2%</td> <td>2.2%</td> </tr> <tr> <td>Emerging Markets</td> <td>-1.2%</td> <td>0.5%</td> </tr> <tr> <td>World Equity</td> <td>-1.1%</td> <td>1.3%</td> </tr> <tr> <td>Total Hedge Funds</td> <td>-0.1%</td> <td>1.2%</td> </tr> <tr> <td>    Directional Hedge Funds</td> <td>-2.4%</td> <td>2.5%</td> </tr> <tr> <td>    Stable Value Hedge Funds</td> <td>2.5%</td> <td>-0.3%</td> </tr> <tr> <td><u>Other Absolute Return</u></td> <td><u>20.9%</u></td> <td><u>42.0%</u></td> </tr> <tr> <td>Total External Public Markets</td> <td>-0.3%</td> <td>0.9%</td> </tr> </tbody> </table>			<i>As of June 30, 2015</i>	<u>1-Year Alpha</u>	<u>3-Year Alpha</u>	US Portfolio	-2.9%	-1.3%	Non-US Developed	4.2%	2.2%	Emerging Markets	-1.2%	0.5%	World Equity	-1.1%	1.3%	Total Hedge Funds	-0.1%	1.2%	Directional Hedge Funds	-2.4%	2.5%	Stable Value Hedge Funds	2.5%	-0.3%	<u>Other Absolute Return</u>	<u>20.9%</u>	<u>42.0%</u>	Total External Public Markets	-0.3%	0.9%
<i>As of June 30, 2015</i>	<u>1-Year Alpha</u>	<u>3-Year Alpha</u>																																
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<u>Other Absolute Return</u>	<u>20.9%</u>	<u>42.0%</u>																																
Total External Public Markets	-0.3%	0.9%																																
Streamline External Public process for maximum efficiency	<ul style="list-style-type: none"> <li>Continuous improvement</li> </ul>	<ul style="list-style-type: none"> <li>Projects in the last twelve months have included: <ul style="list-style-type: none"> <li>Improved hedge fund risk monitoring systems</li> <li>Refined compensation review process</li> <li>Improved IIC templates</li> <li>Deal-closing templates and operational checklists</li> <li>Automation of regular reporting</li> </ul> </li> </ul>																																
Solid risk management as markets become extended	<ul style="list-style-type: none"> <li>Ongoing dialogue with managers on key risks in their portfolios, absolute and relative to the market</li> <li>Hedge fund portfolios produced positive returns, successfully navigating the return of volatility in equity and interest rate markets</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring top-level risks to portfolios including leverage, liquidity and concentration</li> <li>Monitoring exposures to market factors such as China, energy and geopolitics</li> <li>2015 Active Management summit to discuss current backdrop for stock picking and portfolio construction</li> </ul>																																



Source: State Street Bank  
Note: Performance is annualized and net of fees

# External Public Markets



**Dale West, CFA**  
**Sr. Managing Director**  
 MBA, Stanford

## INVESTMENTS TEAM



**Susanne Gealy, CAIA**  
**Director, Global Equity**  
 MBA, University of Chicago



**Brad Gilbert, CFA, CAIA**  
**Director, Hedge Funds**  
 BBA, UT Austin



**Joel Hinkhouse, CFA**  
**Sr. Investment Manager**  
 MBA, University of Chicago



**Lulu Llano, CFA**  
**Investment Manager**  
 BBA, UT Austin



**Komson Silapachai, CFA**  
**Investment Manager**  
 BBA, Texas A&M



**Steven Wilson, CAIA**  
**Investment Manager**  
 MBA, Rice University



**Rachel Clark, CAIA**  
**Associate**  
 BA, UT Austin



**Scott Gonsoulin**  
**Associate**  
 MS, Texas A&M



**Mikhael Rawls**  
**Sr. Analyst**  
 AB, Harvard



**Nick Croix**  
**Sr. Analyst**  
 MS, UT Austin



**Ben Wechter**  
**Sr. Analyst**  
 MS, UT Austin

## ANALYTICS



**Joe Tannehill, CFA**  
**Sr. Investment Manager**  
 MBA, UNC Chapel Hill



**Kevin Taylor**  
**Associate**  
 MS, UT Austin



**Patty Steinwedell**  
**Analyst**  
 BA, North Carolina State



**Courtney Dunn**  
**Analyst**  
 BBA, UT San Antonio

## EXPERIENCE SUMMARY

Experienced investment team  
 Strong analytics  
 6 CFAs, 3 CAIAs, 9 Master's Degrees

## RELATIONSHIP MANAGEMENT



**Jon Klekman**  
**Analyst**  
 BA, SUNY Binghamton

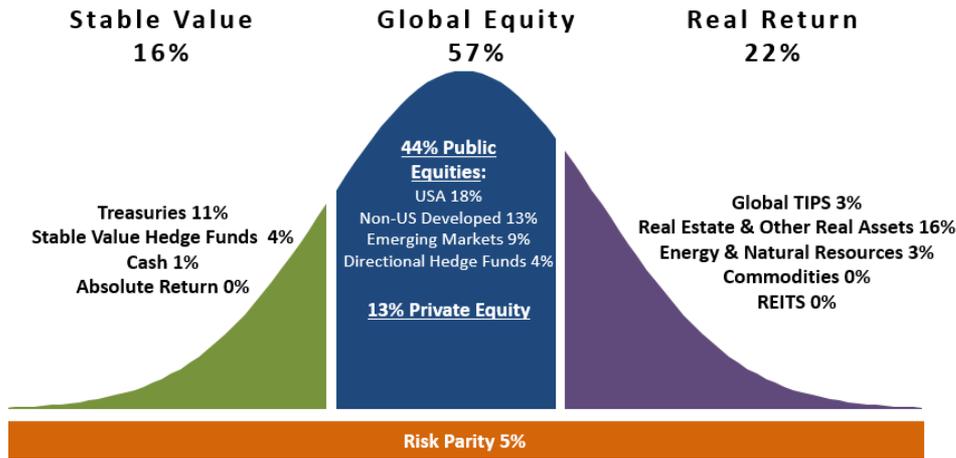
## ADVISORS

Albourne  
 Aon Hewitt  
 The Rock Creek Group

# External Public Markets Portfolio Role

- Legislative cap for Agency Agreements: 30%
  - Does not include fund-based investments such as hedge funds
- Legislative cap for Hedge Funds: 10%
- Target tracking error for external Global Equity portfolios: 3-5%
  - Internal Global Best Ideas (GBI): 0-2%

Program	Long-Term Target	Percent of Trust	
		6/30/2015	6/30/2014
<b>External Managers</b>	<b>18.5%</b>	<b>21.1%</b>	<b>23.3%</b>
US Portfolio	4.8%	6.4%	7.8%
Non-US Developed	4.1%	4.1%	4.5%
Emerging Markets	5.7%	5.9%	6.6%
World Equity	4.0%	4.7%	4.3%
<b>Hedge Funds</b>	<b>8.0%</b>	<b>9.0%</b>	<b>8.9%</b>
Stable Value	4.0%	4.1%	4.0%
Directional	4.0%	4.9%	4.9%
<b>Other Absolute Return</b>	<b>0.0%</b>	<b>0.1%</b>	<b>0.2%</b>
<b>Total</b>	<b>26.5%</b>	<b>30.1%</b>	<b>32.4%</b>

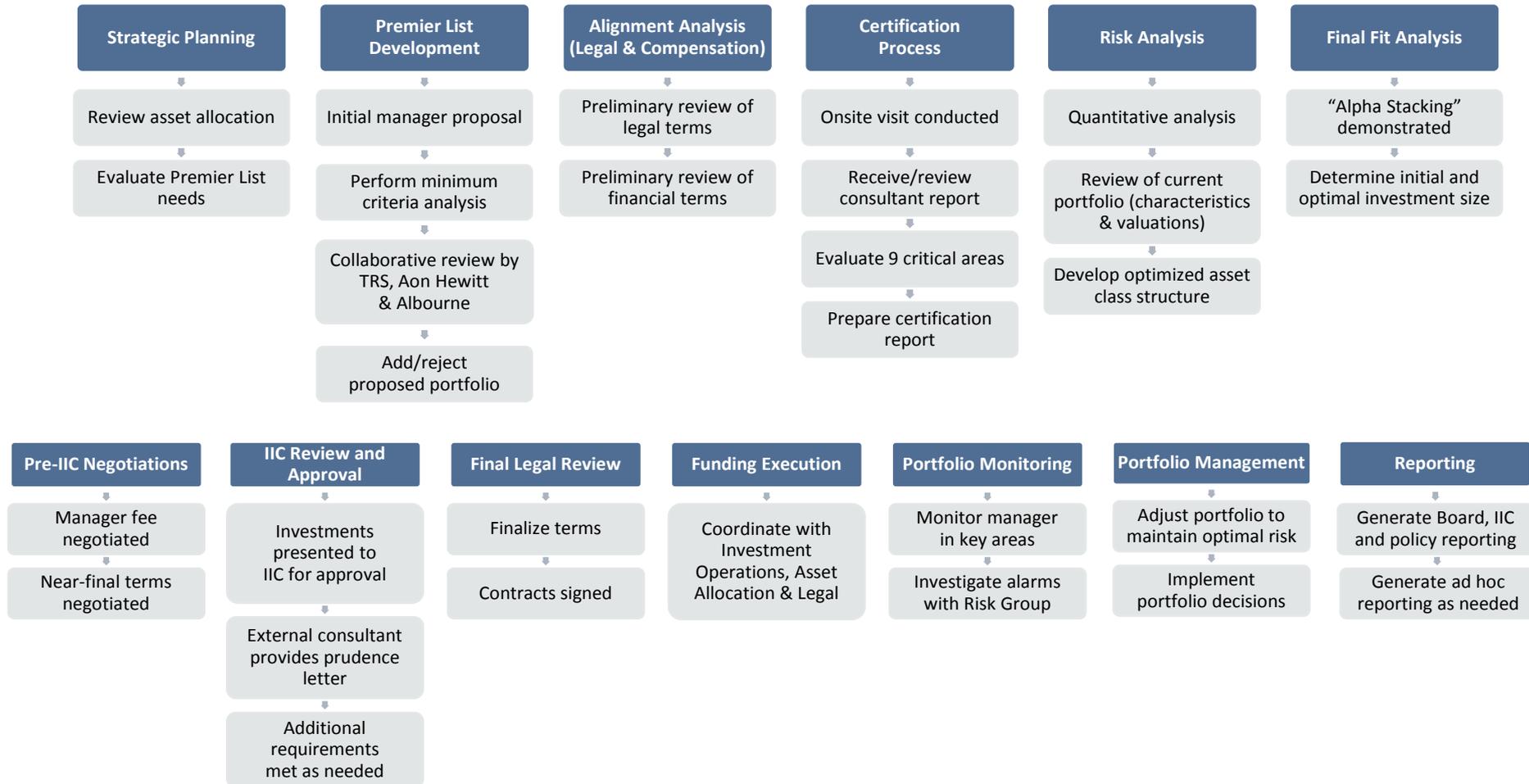


Source: State Street Bank



# External Public Critical Processes

## Texas Way



# Investment Process

## Texas Way

Organization	Investment Process	Performance	Portfolio Exposure
History	Benchmark	Beta	Country
Investment Philosophy	Objective	Correlation	Market Capitalization
Culture	Style	CUSUM	Policy Violations
Competitive Advantage	Region	Environmental Analysis	Fund Positions
Key Personnel	Instruments	Fund Track Record	
Professional Team	Idea Generation	Hit Ratio	
Ownership	Portfolio Construction	Information Ratio	
Compensation Philosophy	Strategy Implementation and Research	Maximum Drawdown	
Conflicts of Interest	Portfolio Concentration	Performance	
Employee Turnover	Portfolio Monitoring	Portfolio Volatility	
Succession Plan	Hedging	Up/Down Capture	
Firm Infrastructure		Sharpe Ratio	
Long-term Solvency			
Firm Assets			
Target Assets			
Subscription Capacity			
Client Base			
Placement Agent			

Risk Management	Diversification Impact	Fund Terms	Operation Check	Transparency
Market Risk Factors	Versus Peers	Fees	Pricing	Transparency Level
Leverage	Versus Asset Class	Hurdle Rate	Settlement Process	Transparency Frequency
Drawdown History	Versus Internal	Lock Up Period	Back Office	
Liquidity	Versus Fund	Early Redemption Penalty	Prime Brokers	
Risk Management Systems		High Water Mark	Administrator	
Audit History		Redemption Gate	Counterparty Exposure	
		Redemption Notice	Legal Resources	
		Redemption Period	Consultant Report	
		Subscription Period	Reference Check	
		Hedge Fund Test	Background Check	

# Update on Long-Oriented Global Equity Portfolio

## Long-Oriented Global Equity Portfolios

As of 06/30/2015

	Assets (\$ millions)	1-Year		3-Year	
		Return	Alpha	Return	Alpha
<b>US Portfolio</b>	<b>\$8,444</b>	<b>4.4%</b>	<b>-2.9%</b>	<b>16.5%</b>	<b>-1.3%</b>
<i>MSCI USA IMI</i>		7.3%		17.8%	
<b>Non-US Developed</b>	<b>\$5,387</b>	<b>-1.1%</b>	<b>4.2%</b>	<b>13.4%</b>	<b>2.2%</b>
<i>MSCI EAFE + Canada</i>		-5.3%		11.2%	
<b>Emerging Markets</b>	<b>\$7,717</b>	<b>-6.3%</b>	<b>-1.2%</b>	<b>4.2%</b>	<b>0.5%</b>
<i>MSCI Emerging Markets</i>		-5.1%		3.7%	
<b>World Equity</b>	<b>\$6,136</b>	<b>-0.1%</b>	<b>-1.1%</b>	<b>14.4%</b>	<b>1.3%</b>
<i>MSCI AC World</i>		0.9%		13.1%	

- Stock selection in large cap U.S. markets detracted from performance
  - Effect in both US and World Equity portfolios
  - Small cap stock selection was positive
- Non-US Developed portfolios benefitted from positive positioning in Japan
- Manager turnover at roughly 10%
  - Four new manager relationships and four terminations



Source: State Street Bank  
Note: Performance is net of fees

# Responses to Performance

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- Stick to the process
  - Underperformance at the manager level is identified by continuous monitoring and a well-developed alarm process
  - In each case, a hiring/firing decision reflects our view on future performance
- Focus on improving terms and alignment with managers
  - Over the last twelve months, we have negotiated improved terms and fee concessions with 20 managers across the long-oriented and hedge fund portfolios
- Patience
  - Prior periods of cyclically low alpha for active managers, for example the late 1990s, were followed by success for active management

# Hedge Fund Update

Hedge Fund Portfolios					
As of 6/30/2015					
	Assets (\$ Millions)	1-Year		3-Year	
		Return	Alpha	Return	Alpha
<b>Directional Hedge Funds</b>	<b>\$6,404</b>	<b>1.4%</b>	<b>-2.4%</b>	<b>8.8%</b>	<b>2.5%</b>
<i>HFRI Fund of Funds Composite</i>		3.8%		6.2%	
<b>Stable Value Hedge Funds</b>	<b>\$5,374</b>	<b>5.2%</b>	<b>2.5%</b>	<b>5.2%</b>	<b>-0.3%</b>
<i>HFRI Fund of Funds Conservative</i>		2.6%		5.5%	

- In 2011, the Texas Legislature approved an increase in the limit to hedge funds from 5% to 10% of Trust assets
  - The Board approved splitting the hedge fund portfolio into Directional and Stable Value components in September 2011
- The Board lowered the long-term target hedge fund allocation to 8% in September 2014
  - As of June 30, 2015, TRS has 9.0% invested in external hedge funds
    - Hedge funds contribute less than 2% of total fund risk (VaR)
  - Hedge fund assets will fall slightly as risk parity and private market allocations increase



Sources: State Street Bank, Bloomberg  
 Note: Performance is net of fees

# Directional Hedge Fund Portfolio

Directional Hedge Fund Objectives	Status	Details
Focus on equity and market sensitive hedge funds		<ul style="list-style-type: none"> <li>Correlation to MSCI AC World: 0.8</li> <li>Average Sharpe Ratio: 1.8</li> </ul>
Core strategies have moderate market sensitivity, lower volatility than equities		<ul style="list-style-type: none"> <li>Beta to MSCI AC World: 0.3</li> <li>Directional HF Volatility: 4.4%</li> <li>MSCI AC World Volatility: 11.6%</li> </ul>
Expected to outperform equities when markets are down, but will underperform strong markets		<ul style="list-style-type: none"> <li>94% hit rate vs. equity in equity down months</li> <li>Average monthly excess return over equities in down months: 1.6%</li> <li>Inception to date return of 7.8% versus MSCI AC World 14.3%</li> </ul>
Expected to outperform US Treasuries over the long term		<ul style="list-style-type: none"> <li>7.8% vs. Treasuries<sup>1</sup> 2.5%</li> <li>Current 10-year Treasury yield-to-maturity: 2.4%</li> </ul>
HFRI Fund of Funds Composite benchmark with target tracking error of 6%		<ul style="list-style-type: none"> <li>2.6% ahead of HFRI benchmark since inception</li> <li>Tracking Error: 2.0%</li> </ul>

Sources: State Street Bank, Bloomberg

Dates: October 2011 to June 2015

Note: Performance is annualized except where noted and is net of fees

<sup>1</sup>Return of BarCap Long Term Treasury from October 2011 to June 2015

# Stable Value Hedge Fund Portfolio

Stable Value Hedge Fund Objectives	Status	Details
Focus on absolute return hedge funds		<ul style="list-style-type: none"> <li>Return: 4.1%</li> <li>Stable Value HF Volatility: 2.5%</li> <li>Average Sharpe Ratio: 1.6</li> </ul>
Core strategies have low to negative market sensitivity		<ul style="list-style-type: none"> <li>Correlation to MSCI AC World: 0.1</li> <li>Beta to MSCI AC World: 0</li> </ul>
Expected to have positive returns when markets are down		<ul style="list-style-type: none"> <li>Hit rate of 100% versus world equities in down months, outperforming by an average of 2.3%. Positive returns in 63% of 16 down equity months since the split.</li> </ul>
Expected to outperform US Treasuries over the long term		<ul style="list-style-type: none"> <li>4.1% return vs. Treasuries<sup>1</sup> 2.5%</li> <li>2.5% volatility vs. Treasuries<sup>1</sup> 11.2%</li> <li>Current 10-year Treasury yield-to-maturity: 2.4%</li> </ul>
HFRI Fund of Funds Conservative benchmark with target tracking error of 4%		<ul style="list-style-type: none"> <li>Return of 4.1% vs. the HFRI benchmark of 4.6%</li> <li>Tracking Error: 2.3%</li> </ul>

Sources: State Street Bank, Bloomberg

Dates: October 2011 to June 2015

Note: Performance is annualized except where noted and is net of fees

<sup>1</sup>Return of BarCap Long Term Treasury from October 2011 to June 2015

# TRS Hedge Fund Portfolios: Alpha and Beta

- Analysis to separate the equity market (beta) return and alpha returns of the hedge fund portfolios reveals that both portfolios have produced a positive alpha return
- As expected, the Directional portfolio has a positive beta return while the Stable Value portfolio has a negligible beta return

Oct 2011 - June 2015 (Returns are Annualized)	Beta to MSCI AC World Index	Beta Return	Alpha Return	Total Return
Directional HF Portfolio	0.31	4.5%	3.3%	7.8%
HFRI FoF Composite	0.21	3.0%	2.1%	5.1%
MSCI AC World Index				14.3%
BarCap Long Term Treasury Index				2.5%

Oct 2011 - June 2015 (Returns are Annualized)	Beta to MSCI AC World Index	Beta Return	Alpha Return	Total Return
Stable Value HF Portfolio	0.02	0.2%	3.9%	4.1%
HFRI FoF Conservative	0.13	1.8%	2.8%	4.6%
MSCI AC World Index				14.3%
BarCap Long Term Treasury Index				2.5%



Source: State Street Bank, Bloomberg and TRS calculations  
 Note: Performance is annualized since October 2011 portfolio split. Performance is net of fees.

# 2015 Priorities

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- Generate 2% alpha across all asset class portfolios
  - Continuing focus on US equity portfolios
- Be leaders in the industry conversation about improving alignment of interests
- Solid risk management in a low-return environment

# APPENDIX

# Delegation Authority Detail

As of June 30, 2015

External Managers	# of Portfolios			Assets (\$ billions)			Percentage of Trust		
	Agency	LP	Total	Agency	LP	Total	Agency	LP	Total
US Portfolio	13	3	16	\$6.6	\$1.8	\$8.4	5.1%	1.4%	6.4%
Non-US Developed	5	2	7	3.5	1.8	5.3	2.7%	1.4%	4.0%
Emerging Markets	8	1	9	6.6	1.1	7.7	5.0%	0.8%	5.9%
World Equity	4	1	5	5.6	0.6	6.1	4.2%	0.4%	4.7%
<b>Total Equity</b>	<b>30</b>	<b>7</b>	<b>37</b>	<b>\$22.3</b>	<b>\$5.3</b>	<b>\$27.6</b>	<b>17.0%</b>	<b>4.0%</b>	<b>21.0%</b>
<b>Other Absolute Return</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>\$0.0</b>	<b>\$0.2</b>	<b>\$0.2</b>	<b>0.0%</b>	<b>0.1%</b>	<b>0.1%</b>
<b>Public Market SPN</b>	<b>4</b>		<b>4</b>	<b>\$6.6</b>		<b>\$6.6</b>	<b>5.0%</b>		<b>5.0%</b>
<b>Other</b>	<b>2</b>		<b>2</b>	<b>\$0.4</b>		<b>\$0.4</b>	<b>0.3%</b>		<b>0.3%</b>
<b>Totals</b>	<b>36</b>	<b>9</b>	<b>45</b>	<b>\$29.2</b>	<b>\$5.5</b>	<b>\$34.7</b>	<b>22.2%</b>	<b>4.1%</b>	<b>26.4%</b>

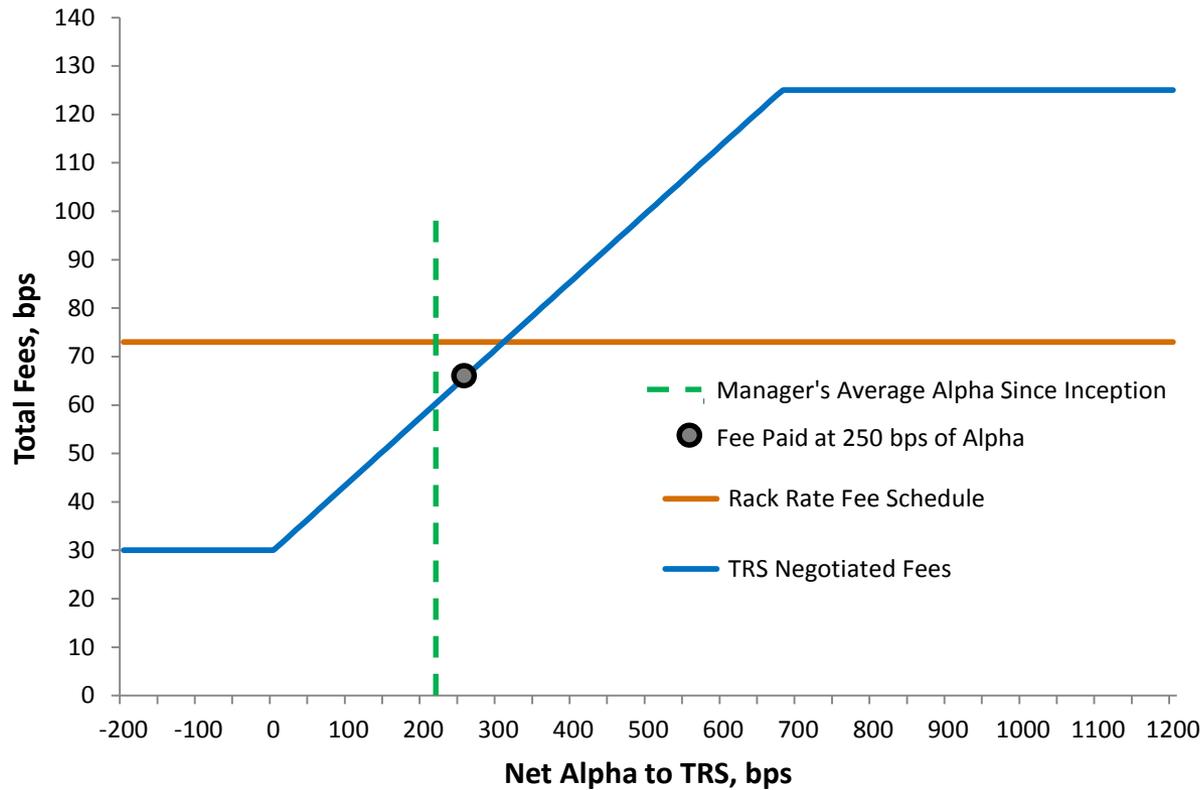
- 22.2% of the 30% Agency Agreement authority is currently utilized

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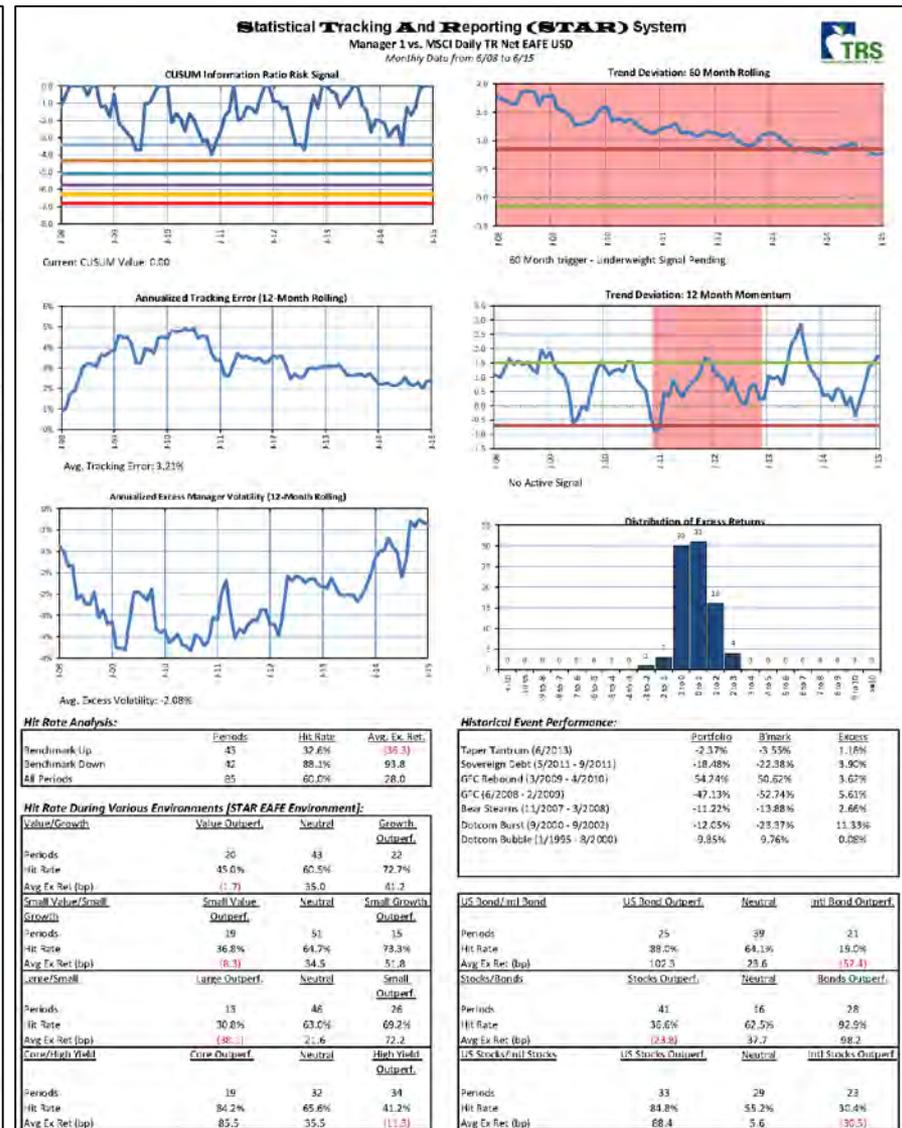
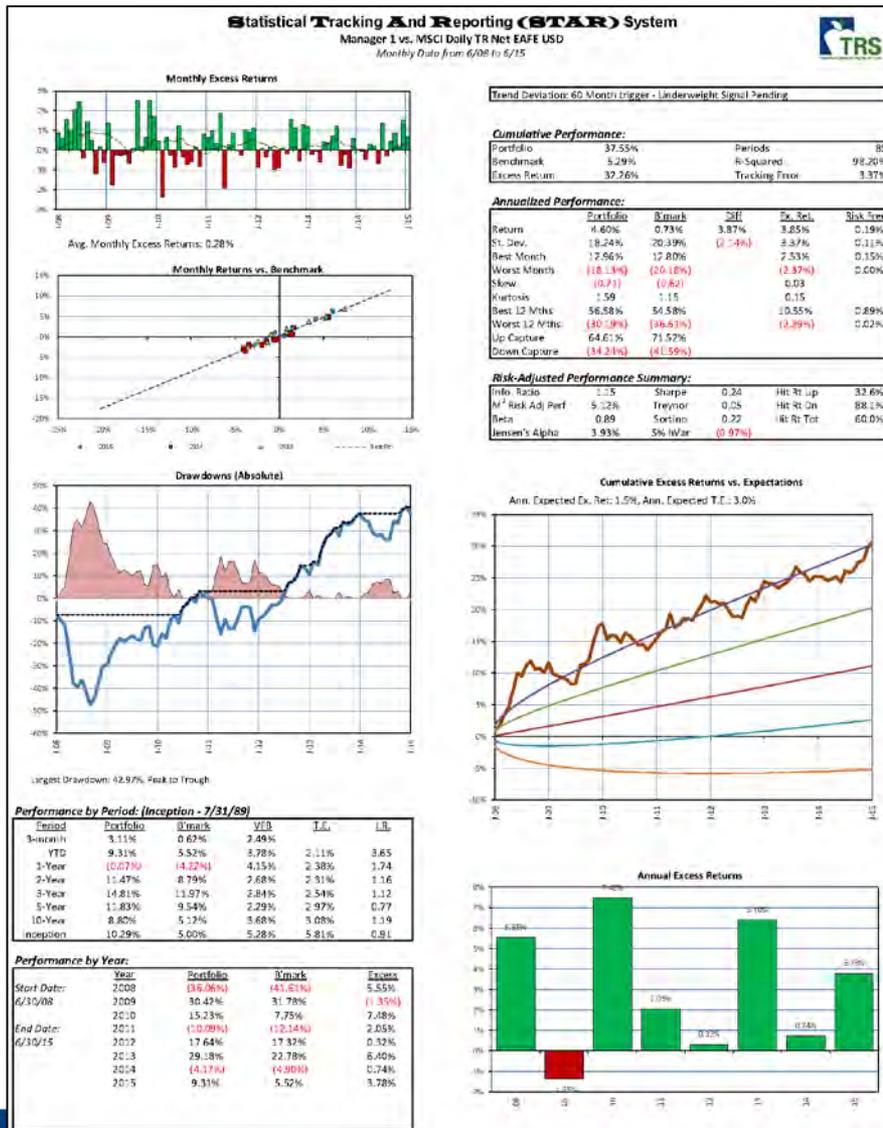
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# Preferred Fee Arrangement Example

## US Small Cap Manager



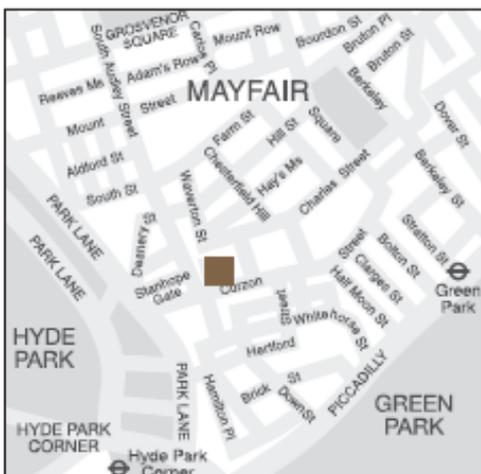
# STAR Example (06/2008 – 06/2015)





## TRS London

Jerry Albright  
Deputy CIO  
September 2015



# Status of TRS London Office

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## Current

- ✓ August 19<sup>th</sup> began process to create legal entity
- ✓ August 28<sup>th</sup> Corporation formed as Teacher Retirement Investment Company of Texas Ltd.
- ✓ August 30<sup>th</sup> Office space at 14 Curzon Street acquired
- ✓ Budget amended to reflect changes due to loss of KKR space
- ✓ Vaughn Brock [REDACTED] relocated

## Next Steps

- During September and October
  - Establish TRS Culture
  - Establish Roles & Responsibilities (Texas vs London)
  - Establish operating procedures
  - Establish bank accounts
  - Install servers and establish IT connectivity
  - Formalize metrics for measurement
  - Define communication and reporting
  - Complete staffing plans
  - Plan for soft opening in October
- November 1<sup>st</sup>
  - Begin 18-month Performance Period
  - Coordinate official opening