

NOTICE OF A MEETING AND AGENDA
SPECIAL MEETING OF THE PORTFOLIO RISK COMMITTEE
OF THE BOARD OF THE INVESTMENTS
LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION
300 N. LAKE AVENUE, SUITE 810, PASADENA, CALIFORNIA 91101

*8:00 A.M., MONDAY MARCH 5, 2018

*The Committee may take action on any item on the agenda,
and agenda items may be taken out of order.*

- I. CALL TO ORDER
- II. APPROVAL OF MINUTES
 - A. Approval of the Minutes of the special meeting of November 2, 2017.
- III. PUBLIC COMMENT
- IV. CONSENT ITEMS
- V. NON-CONSENT ITEMS
 - A. None.
- VI. REPORTS
 - A. Risk and Analytic Systems Review
Jon Grabel, Chief Investment Officer
(Memo dated February 22, 2018)
- VII. REPORT ON STAFF ACTION ITEMS
- VIII. GOOD OF THE ORDER
(For Information Purpose Only)

IX. ADJOURNMENT

*The Board of Investments has adopted a policy permitting any member of the Board to attend a standing committee meeting open to the public. Members of the Board of Investments who are not members of the Committee may attend and participate in a meeting of a Committee but may not vote on any matter discussed at the meeting. The only action the Committee may take at the meeting is approval of a recommendation to take further action at a subsequent meeting of the Board.

The Chair of the Board of Investments may appoint alternate voting members if absences result in less than 3 voting members.

Documents subject to public disclosure that relate to an agenda item for an open session of the Board of Investments that are distributed to members of the Board of Investments less than 72 hours prior to the meeting will be available for public inspection at the time they are distributed to a majority of the Board of Investments Members at LACERA's offices at 300 N. Lake Avenue, Suite 820, Pasadena, CA 91101, during normal business hours of 9:00 a.m. to 5:00 p.m. Monday through Friday.

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MINUTES OF THE SPECIAL MEETING OF THE PORTFOLIO RISK
COMMITTEE OF THE BOARD OF INVESTMENTS*

LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

300 N. LAKE AVENUE, SUITE 810, PASADENA, CALIFORNIA 91101

*8:00 A.M., THURSDAY, NOVEMBER 2, 2017

PRESENT: Diane Sandoval, Vice Chair

Wayne Moore

Ronald Okum, Alternate

MEMBERS AT LARGE:

Herman Santos

Michael Schneider

ABSENT: Shawn Kehoe

Joseph Kelly

STAFF, ADVISORS, PARTICIPANTS

Jon Grabel, Chief Investment Officer

Esmeralda Del Bosque, Investment Officer

Meketa Investment Group

Stephen McCourt, Managing Principal

Tim Filla, Vice President

State Street TruView Total Fund Risk Report Review

Stephen Kim, Vice President

I. CALL TO ORDER

The meeting was called to order by Ms. Sandoval at approximately 8:40 a.m., in the Board Room of Gateway Plaza.

II. APPROVAL OF THE MINUTES

A. Approval of the Minutes of the Special Meeting of June 14, 2017.

Mr. Moore made a motion, seconded by Ms. Sandoval to approve the minutes of the special meeting of June 14, 2017. The motion passed unanimously.

III. PUBLIC COMMENT

There were no requests from the public to speak.

IV. CONSENT ITEMS

There were no items.

V. NON-CONSENT

A. None

VI. REPORTS

A. State Street Global Exchange
LACERA Risk Committee Presentation – Total Fund Report
Stephen Kim, Vice President

Mr. Kim was present and answered questions from the committee.

VII. REPORT ON STAFF ACTION ITEMS

There were no items to report.

VIII. GOOD OF THE ORDER
(For Information Purposes Only)

There was nothing to report.

IX. ADJOURNMENT


There being no further business to come before the Committee, the meeting was adjourned at approximately 9:05 a.m.

***The Board of Retirement and Board of Investments have adopted a policy permitting any member of the Boards to attend a standing committee meeting open to the public. In the event five (5) or more members of either Board of Retirement and/or the Board of Investments (including members appointed to the Committee) are in attendance, the meeting shall constitute a joint meeting of the Committee and the Board of Retirement and/or Board of Investments.**



February 22, 2018

TO: Each Member
Portfolio Risk Committee

FROM: Jonathan Grabel 
Chief Investment Officer

FOR: March 5, 2018 Portfolio Risk Committee Meeting

SUBJECT: **INVESTMENT OFFICE RISK & ANALYTICS SYSTEMS REVIEW**

As a continuation of the Committee's education on portfolio risk, Staff has prepared the attached Risk and Analytics Systems Review. The presentation covers the risk and analytics software that the investment office currently uses to monitor investment manager portfolios, asset category composites, and the Total Fund.

Attachment

EDB:cq

Investment Office Risk & Analytics Systems Review

Board of Investments – Portfolio Risk Committee

March 5, 2018

**Jonathan Grabel
Chief Investment Officer**

LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

Executive Summary

- Risk and performance measurement needs to be multi-dimensional, even more so in a low expected return environment
- LACERA uses a variety of analytical tools at the Total Fund and asset category level
- This presentation provides an inventory of risk and performance systems currently utilized
- These tools are the foundation upon which LACERA can enhance its risk management function
- LACERA Investment Belief
 - “... LACERA will evaluate risk holistically, incorporating quantitative measures and qualitative assessments in managing its portfolio”



Total Fund and Portfolio-Wide Solutions

- Total Fund level analytics can lead to more robust portfolio management
 - Adherence to Strategic Asset Allocation
 - Exposures (Geography, Sector, Security Type, Counterparty, Market Cap, Currency)
 - Attribution and Sources of Return
 - Value-at-Risk
 - Scenario Testing
 - Over/Underweights for portfolio rebalancing
- Asset Category analytics help identify manager and strategy characteristics
 - Style Drift
 - Sensitivity to Market Directionality
 - Performance vs. Peer Universes
 - Manger due diligence and searches
 - Portfolio optimization – under/over diversification

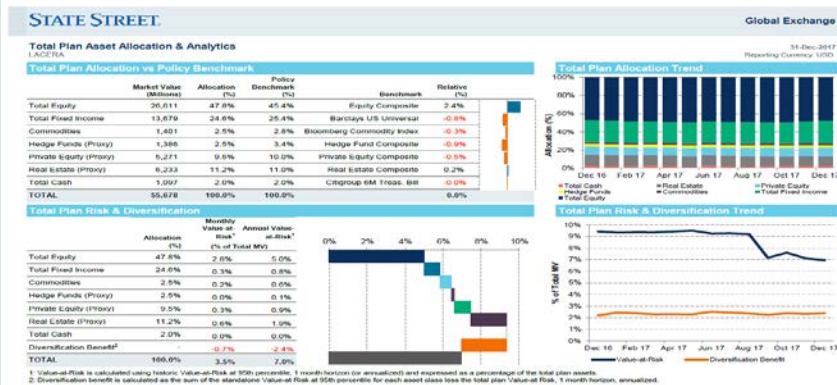
Overview of Analytical Systems

Source	Product	Function/Purpose	Frequency of Usage	Measurement	
				Total Fund Level	Asset Category Level
External	State Street TruView	Custodian risk reporting	Monthly	✓	✓
	MyStateStreet	Custodian performance and characteristics reporting	Daily/ Monthly	✓	✓
	Zephyr StyleADVISOR & Zephyr AllocationADVISOR	Performance and risk analytics; portfolio allocation tool	Monthly/ Quarterly	✓	✓
	eVestment	Manager universe performance, risk analytics, and research	Monthly/ Quarterly		✓
	FactSet	Manager performance attribution, risk analytics, and market research	Daily		✓
	Bloomberg	Macroeconomic and security research, performance attribution, and risk analytics	Daily		✓
	Fund of Fund Manager and Consultant Reports	Risk analytics and performance attribution for Hedge Funds, Real Estate, and Private Equity	Monthly/ Quarterly		✓
Proprietary	Public Equity Factors Model	Factors-based risk analytic and monitoring tool developed in-house	Monthly		✓
	Fixed Income Flash Report	Excel based compliance and basic exposures monitoring tool developed in-house	Monthly		✓
Prospective	ESG - Performance Analytics	Assess absolute and relative ESG factor exposures	Varies		✓
	Private Equity - eVestment TopQ	Private Equity due diligence tool for the creation, analysis, and distribution of manager data	Varies		✓



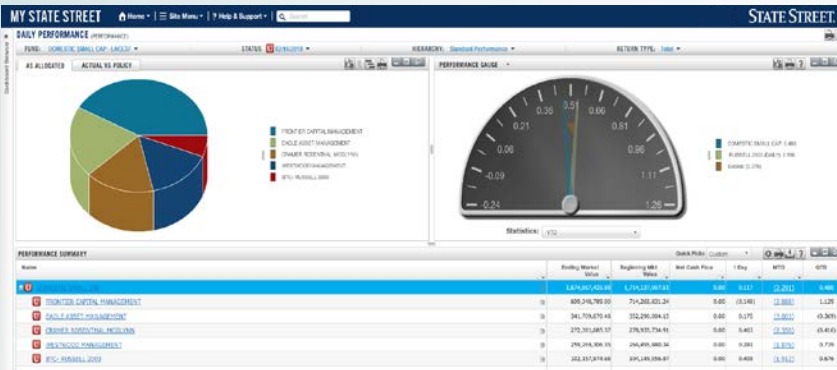
Total Fund – State Street

State Street TruView



- Multi-asset class risk measurement
- Trend analysis
- Stress testing

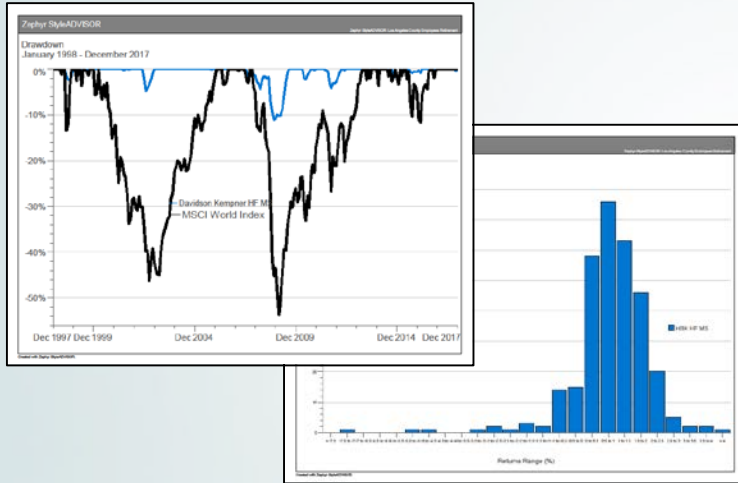
MyStateStreet



- Exposure reporting (sector, geography)
- Portfolio vs. benchmark return
- Investment characteristics (maturity, P/E, yield)

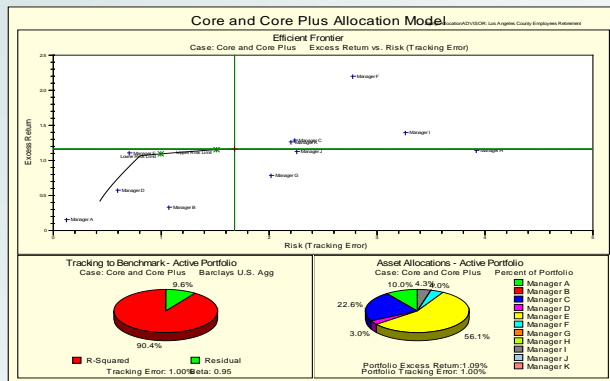
Total Fund - Zephyr

Zephyr StyleADVISOR



- Performance analysis tool
- Manager search tool
- Calculates 60+ performance & risk metrics

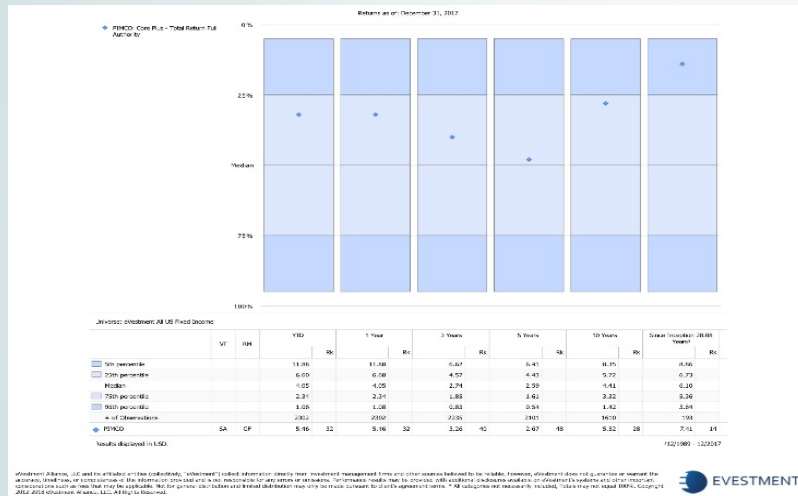
Zephyr AllocationADVISOR



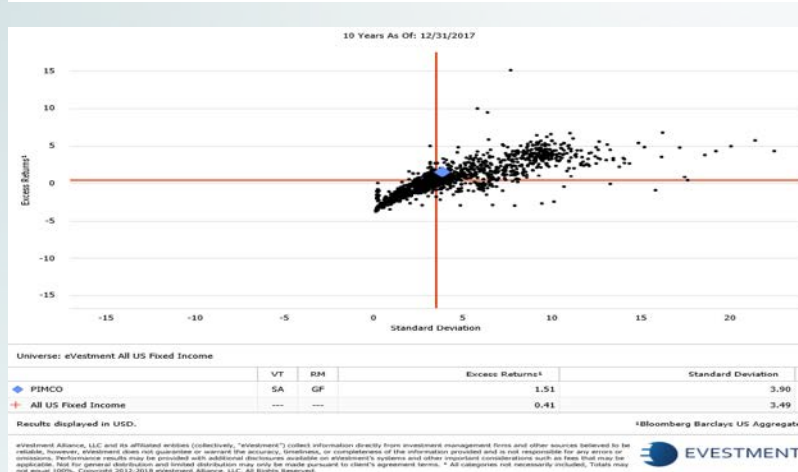
- Asset allocation software
- Optimization & efficient frontier analysis
- Portfolio simulation

Total Fund - eVestment

eVestment



- Investment manager & strategy research
- Public markets search tool
- Peer universe comparisons
- Portfolio return & characteristics



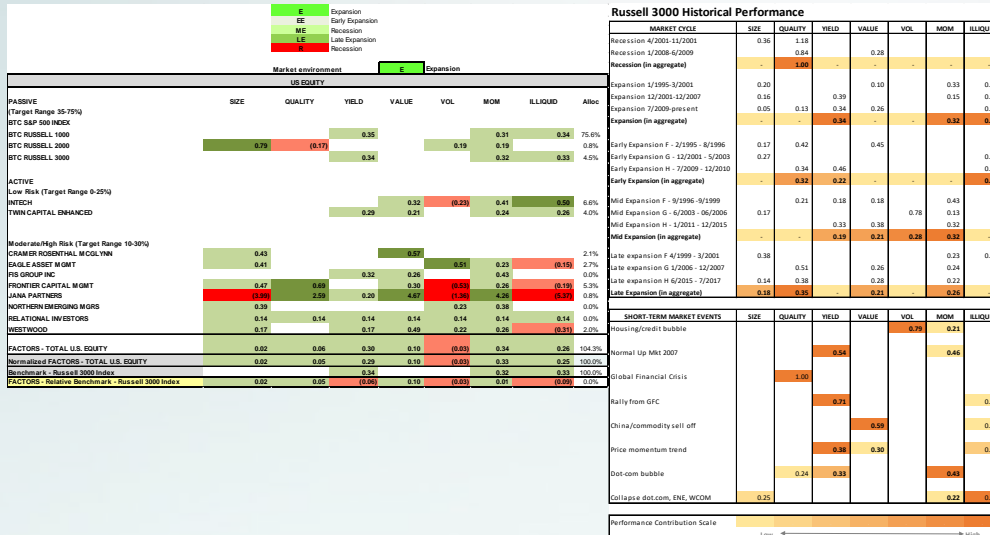
Equity-Oriented Analytical Tools

FactSet



- Portfolio attribution (sector, geography)
- Portfolio vs. benchmark exposures
- Portfolio characteristics
- Economic/market/benchmark data

Proprietary Factor Model



- Performance attribution – market factors
- Portfolio vs. benchmark Exposures – market factors
- Manager style analysis



Fixed Income/Commodities-Oriented Analytical Tools

Bloomberg PORT



- Portfolio attribution (sector, duration)
- Portfolio characteristics
- Economic/market/benchmark data

Proprietary Fixed Income Flash Report

MONTHLY FLASH REPORT
FIXED INCOME BENCHMARKS
JAN-2018

Fixed Income Benchmarks

	Lehman Aggregate Index	Lehman High Yield Index	Lehman Govt/Credit Index	Lehman Emerging Markets Index	Lehman U.S. Securitized MBS Index	Lehman U.S. Credit Intermediate Index	Lehman Term Govt/Credit Index	BofA HFL ABS 1-3yr	BC US Cr	Delia Custom	GW Custom Index	LA Capital Custom Index	Western Ops. Custom Index	Domestic Fixed Income Custom
Market Value	20,017,267	1,137,373	13,906,343	1,997,233	5,430,432	4,256,025	1,588,917	N/A	N/A	4,284,662	12,465,309	8,798,195	N/A	13,564,464,707
Risk Characteristics:														
Current Yield	3.02	5.91	2.83	5.14	3.47	3.29	1.81	2.32	3.01	3.60	4.18	3.23	3.60	3.22
Yield to Maturity	2.97	5.41	2.88	4.69	3.20	2.96	1.78	2.32	2.54	3.30	3.95	3.14	2.61	3.14
Avg. Coupon	6.07	6.07	6.88	5.29	3.53	3.32	1.81	1.90	3.03	3.44	4.27	3.29	2.35	3.28
Avg. Duration	4.07	4.08	6.56	5.92	4.99	4.26	0.54	0.00	1.90	4.42	5.28	6.06	0.76	5.93
Avg. Quality	AAA	BB-	AA	BBB	AAA	AAA	A	AA+	A1	2-2	2-	2-	2-	BB+
BBB+ (%)	13.48	0.00	19.75	39.51	0.00	38.73	75.64	27.50	30.60	18.67	8.29	19.68	38.38	35.83
BBY (%)	0.00	32.44	0.00	21.47	0.00	0.00	0.00	2.40	0.00	5.24	20.98	2.15	1.44	3.67
BPS (%)	0.00	27.56	0.00	16.17	0.00	0.00	0.00	0.00	0.00	4.76	19.02	1.62	0.00	3.33
Long than 8 Yr (%)	0.00	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.00	0.00
Horizontally	0.00	0.00	0.00	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.00	0.00
Convexity	0.29	(0.34)	0.91	0.70	(1.26)	0.24	0.01	0.00	0.05	(0.95)	0.04	0.33	0.02	0.24
Sector Distribution %:														
Cash & Equivalents	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Governments	43.87	0.00	85.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.37	39.48	0.00	46.80
Corporate (All Grades)	25.40	0.00	36.85	0.00	100.00	0.00	100.00	100.00	100.00	15.34	23.04	40.00	0.00	23.81
Mortgage-Backed	28.08	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	25.00	16.83	25.27	0.00	28.11
CMB	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	1.68	0.00	0.00	1.74
Asset-Backed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.47	0.00	0.00	0.00
Domestic Hi-Yield	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	40.00	0.00	0.00	0.00	7.00
Investment Grade Non-Dollar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emerg	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Non-Dollar High Yield	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	100	100	100	100	100	100	100	100	100	100	100	100	100	100

- Exposure monitoring
- Characteristics vs. benchmark
- Aggregates sub-composite attributes

Hedge Fund-Oriented Analytical Tools

Grosvenor Capital Management

Exposure Category	Notional				Capital				Leverage
	Long	Short	Gross	Net	Long	Short	Gross	Net	
Credit	32.7	17.9	50.6	14.9	23.5	5.0	28.5	18.5	1.8
Corporate Credit	18.9	16.7	35.6	2.3	12.0	4.2	16.2	7.7	2.2
Bank Debt	1.8	2.6	6.5	1.2	1.3	0.4	1.6	0.9	3.9
Investment Grade	1.0	6.0	7.0	-5.0	0.7	1.5	2.2	-0.7	3.2
Crossover	-	-	-	-	-	-	-	-	-
High Yield	9.9	7.5	17.4	2.3	6.6	2.2	8.8	4.4	2.0
Direct Lending	0.4	-	0.4	0.4	0.4	-	0.4	0.4	1.0
Distressed	3.9	0.5	4.3	3.4	3.0	0.2	3.1	2.8	1.4
Structured Credit	13.8	3.2	15.0	12.6	11.5	0.8	12.3	10.7	1.2
Mortgage Credit	7.4	0.3	7.7	7.1	6.2	0.1	6.4	6.1	1.7
Other Structured Credit	6.4	0.9	7.3	5.5	5.3	0.7	5.9	4.6	1.2
Relative Value	35.2	16.0	51.2	19.3	5.2	0.0	5.2	5.2	9.9
Convertible Arbitrage	2.8	2.8	5.6	0.0	0.3	-	0.3	0.3	21.8
Credit Arbitrage	4.3	4.3	8.6	0.0	0.7	-	0.7	0.7	12.7
Correlation	0.0	0.0	0.1	0.0	0.0	-	0.0	0.0	4.0
Intra-Credit	4.2	4.2	8.5	0.0	0.6	-	0.6	0.6	13.0
Fixed Income Arbitrage	3.9	3.9	7.7	0.0	0.2	-	0.2	0.2	39.8
Option Volatility Arbitrage	22.7	3.4	26.1	19.3	3.8	-	3.8	3.8	6.9
Statistical Arbitrage	1.6	1.6	3.3	0.0	0.2	-	0.2	0.2	13.2
MBS Arbitrage	0.0	0.0	0.1	0.0	0.0	-	0.0	0.0	2.0

- Look-through exposures
- Market betas
- Factor sensitivities
- Scenario analysis
- Severe case loss estimates

Goldman Sachs

From Total HF Composite Returns	Aggregate Factor Exposures							CTA TrendR Steepener
	Return Date		Since Fund Inception [Oct 11]					
	First	Last	Equities	Currency	Commods	Credit		
	Oct 11	Nov 17	0.16	-	-	-	-	-

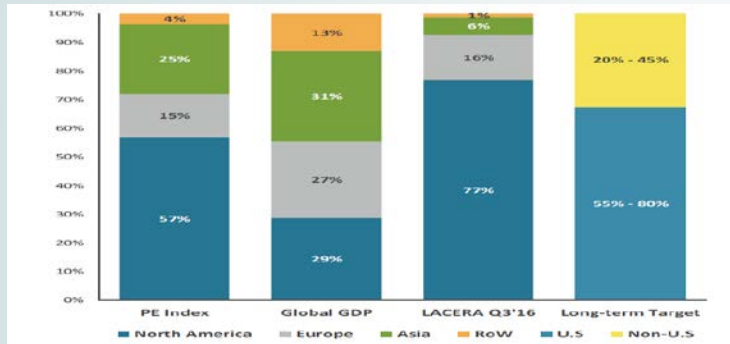
Scenario Analysis								
Scenario	Period	Equities	Currency	Commods	Credit	CTA Trend	IR Steepener	Estimated Scenario Return
US Interest Rate Hike	Feb 94 - Dec 94	-7.4%	-	-2.6%	1.7%	-	-1.4%	-0.7%
Latin American Crisis	Dec 94 - Mar 96	-0.6%	-	-3.0%	1.1%	-	-0.1%	0.1%
Asian Crisis	Sep 97 - Jan 98	6.9%	3.0%	-12.9%	-0.1%	-	-0.2%	0.6%
Russian Debt Crisis	Aug 98	-13.9%	-2.1%	-5.9%	-8.2%	-	0.1%	-1.8%
Technology Meltdown	Mar 00 - Mar 01	-15.6%	2.8%	17.9%	-13.6%	24.1%	0.9%	-1.6%
9/11 Terrorist Attacks	Sep 01	-9.0%	-2.9%	-11.0%	-8.9%	4.0%	0.5%	-1.3%
Corporate Fraud Crisis	Jun 02 - Sep 02	-25.4%	-1.2%	15.3%	-17.4%	33.5%	0.1%	-2.1%
The Financial Crisis	Jun 07 - Mar 09	-48.6%	-25.0%	-38.6%	-37.9%	20.3%	1.9%	-4.3%

- Analysis from Fund of Fund Managers
- LACERA may consider discrete tools



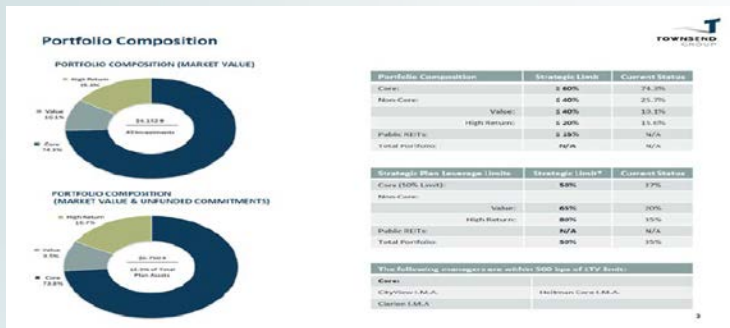
Private Equity and Real Estate-Oriented Analytical Tools

StepStone Group/LACERA Private Equity Team



- Performance vs. benchmark
- Peer universe & vintage year comparisons
- Exposure by geography

Townsend Group



- Performance vs. benchmark
- Exposure by geography & style
- Monitor characteristics (leverage, diversification)

- Analysis from Consultants
- LACERA may consider discrete tools

Prospective ESG – Oriented Analytical Tools*

Sample Company Analysis



- Build capacity to assess & monitor ESG factors/ exposures
- Performance vs. peers & benchmarks
- Possible attribution analysis as ESG data availability & standardization improve

Sample Attribution Analysis

IVA Rating	Portfolio Weight Avg	Portfolio Return Base (%)	Benchmark Weight Avg (%)	Benchmark Return Base (%)	Active Weight Avg (%)	Attribution Allocation (%)	Attribution Selection (%)	Attribution Total (%)
TOTAL	100.00	-3.02	100.00	-2.76	0.00	0.02	-0.28	-0.26
A	17.94	-1.12	18.25	-0.91	-0.31	-0.01	-0.04	-0.04
AA	9.85	-6.26	10.20	-6.31	-0.35	0.01	0.00	0.02
AAA	5.03	-4.37	5.12	-4.46	-0.08	0.00	0.00	0.01
B	12.14	-4.98	11.25	-4.44	0.89	-0.02	-0.06	-0.08
BB	19.40	-1.03	19.30	-0.54	0.10	0.00	-0.09	-0.00
BBB	25.03	-2.78	25.06	-2.55	-0.03	0.00	-0.06	-0.05
CCC	9.80	-4.73	9.94	-4.93	0.16	0.00	0.02	0.02
Others	0.82	-8.93	1.19	-4.61	-0.37	0.02	-0.05	-0.03

Results show the portfolio underperformed the benchmark by 26 bps

* Sample Reports are for illustrative purposes only



Final Thoughts – Measure, Monitor & Manage

- LACERA's systems
 - Are currently used to measure and monitor risk and performance
 - Can evolve to enhance risk management at the asset category and Total Fund levels
 - Transition from observation to action
- Comprehensive review of risk and performance systems will be considered in the following months
 - New PIO of Portfolio Analytics
 - Potentially identify redundant and/or prospective systems
 - Evaluate growing the assets custodied at State Street
- Increase understanding of exposures and performance drivers

