LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Board of Administration Agenda

REGULAR MEETING

TUESDAY, JULY 24, 2018

TIME: 10:00 A.M.

MEETING LOCATION:

LACERS Ken Spiker Boardroom
202 West First Street, Suite 500
Los Angeles, California 90012-4401

Sign Language Interpreters, Communication Access Real-Time Transcription, Assistive Listening Devices, or other auxiliary aids and/or services may be provided upon request. To ensure availability, you are advised to make your request at least 72 hours prior to the meeting you wish to attend. Due to difficulties in securing Sign Language Interpreters, five or more business days' notice is strongly recommended. For additional information, please contact: Board of Administration Office at (213) 473-7169.

I. PUBLIC COMMENTS ON MATTERS WITHIN THE BOARD'S JURISDICTION

II. APPROVAL OF MINUTES FOR BOARD MEETING OF JULY 10, 2018 AND POSSIBLE BOARD ACTION

III. BOARD PRESIDENT VERBAL REPORT

IV. GENERAL MANAGER VERBAL REPORT

A. REPORT ON DEPARTMENT OPERATIONS

B. RECEIPT OF CITY'S CONTRIBUTIONS FOR FISCAL YEAR 2018-19

C. UPCOMING AGENDA ITEMS

V. BOARD GOVERNANCE

A. ELECTION OF BOARD OFFICERS FOR FISCAL YEAR 2018-19 AND POSSIBLE BOARD ACTION

VI. CONSENT AGENDA

A. RECEIVE AND FILE – LACERS CUSTOMER SERVICE SURVEY SEMI-ANNUAL REPORT, JANUARY – JUNE 2018

B. TRAVEL AUTHORITY – COMMISSIONER ELIZABETH L. GREENWOOD; VALUE EDGE ADVISORS' 2018 PUBLIC FUNDS FORUM, LAGUNA BEACH, CALIFORNIA; SEPTEMBER 4-6, 2018 AND POSSIBLE BOARD ACTION

VII. COMMITTEE REPORT(S)

A. INVESTMENT COMMITTEE VERBAL REPORT ON THE MEETING OF JULY 10, 2018

B. BENEFITS ADMINISTRATION COMMITTEE VERBAL REPORT ON THE MEETING OF JULY 19, 2018

VIII. BOARD/DEPARTMENT ADMINISTRATION

A. CONSIDERATION OF ADJUSTMENT TO LACERS OFFICE HOURS AND POSSIBLE BOARD ACTION

B. TRIENNIAL BOARD POLICY REVIEW: THE BOARD'S GOVERNING STATUTES AND POSSIBLE BOARD ACTION

C. TRIENNIAL BOARD POLICY REVIEW: THE BOARD'S STATEMENT OF DUTIES AND RESPONSIBILITIES AND POSSIBLE BOARD ACTION

IX. ACTUARIAL PROGRAM

A. ACTUARIAL 101 EDUCATION PRESENTATION BY SEGAL COMPANY

B. AD HOC ADJUSTMENT TO THE ASSET SMOOTHING METHOD AND POSSIBLE BOARD ACTION

C. GASB 68 AND GASB 75 ACTUARIAL VALUATIONS AS OF JUNE 30, 2017 AND POSSIBLE BOARD ACTION

D. CONTINUED CONSIDERATION OF PROPOSED ASSUMPTION CHANGES BASED ON ACTUARIAL EXPERIENCE STUDY AND POSSIBLE BOARD ACTION

X. INVESTMENTS

A. CHIEF INVESTMENT OFFICER VERBAL REPORT

B. PRESENTATION BY NEPC, LLC OF THE PORTFOLIO PERFORMANCE REVIEW REPORT FOR THE QUARTER ENDING MARCH 31, 2018

C. PRESENTATION BY NEPC, LLC REGARDING RISK BUDGETING, ASSET CLASS REVIEWS, AND ASSET ALLOCATION IMPLEMENTATION PLAN AND POSSIBLE BOARD ACTION

D. PRESENTATION BY THE TOWNSEND GROUP OF THE REAL ESTATE PORTFOLIO PERFORMANCE REVIEW FOR THE PERIOD ENDING DECEMBER 31, 2017

E. REAL ESTATE FISCAL YEAR 2018-19 STRATEGIC PLAN AND POSSIBLE BOARD ACTION

F. INVESTMENT MANAGER CONTRACT WITH EAM INVESTORS, LLC REGARDING THE MANAGEMENT OF AN ACTIVE U.S. SMALL CAP GROWTH EQUITIES PORTFOLIO AND POSSIBLE BOARD ACTION

XI. BENEFITS ADMINISTRATION

A. ANTHEM BLUE CROSS 2017 YEAR-END ACCOUNTING AND POSSIBLE BOARD ACTION

B. INVESTIGATIVE SERVICES REQUEST FOR PROPOSAL - PROPOSER RECOMMENDATIONS AND POSSIBLE BOARD ACTION

C. CONTRACT WITH JELLYVISION FOR BENEFIT DECISION-SUPPORT SOFTWARE AND POSSIBLE BOARD ACTION

XII. DISABILITY RETIREMENT APPLICATION(S)

A. CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54957(b) CONSIDERATION OF DISABILITY RETIREMENT BENEFIT FOR THOMAS ALLEN AND POSSIBLE BOARD ACTION

B. CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54957(b) CONSIDERATION OF DISABILITY RETIREMENT BENEFIT FOR DEJI WANG AND POSSIBLE BOARD ACTION

XIII. OTHER BUSINESS

XIV. NEXT MEETING: The next Regular meeting of the Board is scheduled for Tuesday, August 14, 2018 at 10:00 a.m. in the LACERS Ken Spiker Boardroom, 202 West First Street, Suite 500, Los Angeles, CA 90012-4401.

XV. ADJOURNMENT

MINUTES OF THE REGULAR MEETING
BOARD OF ADMINISTRATION
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

LACERS Ken Spiker Boardroom
202 West First Street, Fifth Floor
Los Angeles, California

Agenda of: July 24, 2018

Item No: II

July 10, 2018

10:05 a.m.

PRESENT:	President:	Cynthia M. Ruiz
	Vice President	Michael R. Wilkinson
	Commissioners:	Elizabeth L. Greenwood Sandra Lee Nilza R. Serrano Sung Won Sohn
	Commissioner – Elect:	Elizabeth Lee
	Manager-Secretary:	Neil M. Guglielmo
	Executive Assistant:	Erin Knight (Acting)
	Legal Counsel:	Anya Freedman Joshua Geller

The Items in the Minutes are numbered to correspond with the Agenda.

I

CEREMONIAL SWEARING-IN OF COMMISSIONER ELIZABETH LEE FOR THE TERM ENDING JUNE 30, 2023 – Commissioner Elizabeth Lee was sworn-in by a member of the City Clerk's Office.

II

PUBLIC COMMENTS ON MATTERS WITHIN THE BOARD'S JURISDICTION – Public comment cards were received from the following: Mark Blunk, LACERS retiree, discussed Actuarial Assumptions, Tom Moutes, LACERS retiree, discussed Actuarial Assumptions, Ramon Rubalcava, member of SEIU Local 721, discussed Actuarial Assumptions, Jack Humphreville, member of NCBA, discussed Actuarial Assumptions. President Ruiz requested that a written statement from Mike Perez, LACERS retiree, regarding Actuarial Assumptions be entered into the record.

III

APPROVAL OF MINUTES FOR BOARD MEETING OF JUNE 26, 2018 AND POSSIBLE BOARD ACTION – A motion to approve the minutes of June 26, 2018 was moved by Commissioner Serrano, seconded by Commissioner Greenwood, and adopted by the following vote: Ayes, Commissioners

Greenwood, Elizabeth Lee, Sandra Lee, Serrano, Sohn, Vice President Wilkinson, and President Ruiz -7; Nays, None.

IV

BOARD PRESIDENT VERBAL REPORT – President Ruiz welcomed and introduced the new LACERS Commissioners. President Ruiz also requested staff in the future if a report is not included in the hard copy packets to email the report and indicate in bold that this attachment needs to be printed and included with the packet.

V

GENERAL MANAGER VERBAL REPORT

A. REPORT ON DEPARTMENT OPERATIONS – Neil Guglielmo, General Manager, discussed the following items:

- Locations for the Strategic Planning Offsite Meeting
- All Commissioners are invited to attend the Guiding Principles Awards Luncheon on July 26, 2018, at 11:30 a.m., at the California Endowment
- LACERS will be receiving the Employers Annual Contributions for FY 2018-19
- The Annual IT and Financial Audits by Brown Armstrong will be beginning soon
- 7,000 members have registered with the My LACERS portal
- Alex software, benefit decision-support software, will be presented to the Benefits Administration Committee
- Wifi will be available to the public in the public area
- Tablets will be made available to the public in the public area
- LACERS Website design changes including mobile access are being developed

B. UPCOMING AGENDA ITEMS – No items were discussed.

VI

DISABILITY RETIREMENT APPLICATION(S)

A. CONSIDER THE DEFERRAL REQUEST FOR THE DISABILITY RETIREMENT APPLICATION OF MICHAEL KARATSONYI AND POSSIBLE BOARD ACTION – Anna Ingram, Management Analyst, discussed this item. Vice President Wilkinson requested of staff moving forward to keep the Physician numbers consistent for each case brought to the Board. A motion to approve was moved by Commissioner Serrano, seconded by Commissioner Greenwood, and adopted by the following vote: Ayes, Commissioners Greenwood, Elizabeth Lee, Sandra Lee, Serrano, Sohn, Vice President Wilkinson, and President Ruiz -7; Nays, None.

President Ruiz adjourned the Regular Meeting at 10:42 a.m. to convene in Closed Session

B. CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54957(b) TO ADOPTION OF FINDINGS OF FACT FOR APRIL MOYA HUBBARD AND POSSIBLE BOARD ACTION

C. CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54957(b) TO CONSIDER THE DISABILITY RETIREMENT APPLICATION OF KIYOKO CLEMONS AND POSSIBLE BOARD ACTION

D. CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54957(b) TO CONSIDER THE DISABILITY RETIREMENT APPLICATION OF LENFORD GEORGE AND POSSIBLE BOARD ACTION

E. CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54957(b) TO CONSIDER THE DISABILITY RETIREMENT APPLICATION OF PEDRO RIVERA AND POSSIBLE BOARD ACTION

F. CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54957(b) TO CONSIDER THE DISABILITY RETIREMENT APPLICATION OF SAMMY WONG AND POSSIBLE BOARD ACTION

G. CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54957(b) TO CONSIDER THE DISABILITY RETIREMENT APPLICATION OF ROMELIA WORKNEH AND POSSIBLE BOARD ACTION

President Ruiz reconvened the Regular Meeting at 10:54 a.m. and announced that during Closed Session the Board unanimously approved the Adoption of Findings of Fact for April Moya Hubbard and approved the Disability Retirement Applications of Kiyoko Clemons, Lenford George, Pedro Rivera, Sammy Wong, and Romelia Workneh.

VII

BOARD GOVERNANCE

A. ELECTION OF BOARD OFFICERS FOR FISCAL YEAR 2018-19 AND POSSIBLE BOARD ACTION – Commissioner Greenwood stated that pursuant to the City Charter the Election of Board Officers should be held the second meeting in July. This item was deferred to the July 24, 2018 Board Meeting.

VIII

CONSENT AGENDA

A. BENEFITS PAYMENTS APPROVED BY GENERAL MANAGER – This report was received by the Board and filed.

B. MARKETING CESSATION NOTIFICATION – This report was received by the Board and filed.

IX

COMMITTEE REPORT(S)

A. GOVERNANCE COMMITTEE VERBAL REPORT ON THE MEETING OF JULY 10, 2018 – Commissioner Serrano stated the Committee reviewed and made no major changes to the Governance Policy related to Board Governance and had a discussion with Almanac Realty.

X

ACTUARIAL PROGRAM

A. ACTUARIAL 101 EDUCATION PRESENTATION BY THE SEGAL COMPANY – Todd Bouey, Assistant General Manager, introduced Paul Angelo, Actuary with Segal Company and Andy Yeung, Actuary with Segal Company. Mr. Angelo and Mr. Yeung presented this item to the Board.

Jack Humphreville, member of NCBA, made a public comment pertaining to Agenda Item No. X-B and made a general comment.

President Ruiz adjourned the Regular Meeting at 11:41 a.m. for a break. President Ruiz reconvened the Regular Meeting at 11:49 a.m.

B. CONSIDERATION OF PROPOSED ASSUMPTION CHANGES BASED ON ACTUARIAL EXPERIENCE DURING THE PERIOD FROM JULY 1, 2014 THROUGH JUNE 30, 2017 AND POSSIBLE BOARD ACTION – Todd Bouey, Assistant General Manager, discussed this item. Paul Angelo, Actuary with Segal Company and Andy Yeung, Actuary with Segal Company discussed this item.

President Ruiz adjourned the Regular Meeting at 1:11 p.m. for a break. President Ruiz reconvened the Regular Meeting at 1:20 p.m.

Mr. Angelo and Mr. Yeung continued to discuss Item X-B with the Board. The Board decided to discuss this item further at the July 24, 2018 Board Meeting.

XI

BOARD/DEPARTMENT ADMINISTRATION

A. LEGISLATIVE UPDATE OF JULY 2018 – Commissioner Greenwood requested the citation numbers be added to the chart in future reports. Neil Guglielmo, General Manager, discussed the HR4822 Bill, Public Employee Pension Transparancy Act.

XII

INVESTMENTS

A. CHIEF INVESTMENT OFFICER VERBAL REPORT – Rod June, Chief Investment Officer, reported on the portfolio value, $17.1 Billion as of July 9, 2018. He also reported the unaudited fiscal year returns of 9.20% gross of fees and 9.01% net of fees. Future Agenda items include several real estate items and Board education. Mr. June introduced the new intern Brinda Patel, recruited from Girls Who Invest. Ms. Patel spoke about the Girls Who Invest non-profit organization, her education and goals.

B. PRIVATE EQUITY CONSULTANT FINALIST INTERVIEW AND POSSIBLE BOARD ACTION – Rod June, Chief Investment Officer and Bryan Fujita, Investment Officer III, discussed this item. Commissioner Sohn moved approval of the following Resolution:

CONTRACT FOR
TORREYCOVE CAPITAL PARTNERS LLC
PRIVATE EQUITY CONSULTING SERVICES

RESOLUTION 180710-F

WHEREAS, on October 10, 2017, the Board authorized a Request for Proposal for Private Equity Consulting Services; and,

WHEREAS, on February 13, 2018, the Investment Committee considered staff's recommendation to approve Cambridge Associates LLC; Cliffwater LLC; and TorreyCove Capital Partners LLC as semi-finalist candidates; and,

WHEREAS, staff conducted due diligence on the three semi-finalist candidates; and,

WHEREAS, on May 8, 2018, the Investment Committee interviewed the semi-finalist candidates to understand the capabilities of each firm and recommended TorreyCove Capital Partners LLC to the Board for consideration for hire; and,

WHEREAS, on July 10, 2018, the Board approved the Investment Committee's recommendation for a five-year contract with TorreyCove Capital Partners LLC;

NOW, THEREFORE, BE IT RESOLVED, that the General Manager is hereby authorized to approve and execute a contract subject to satisfactory business and legal terms and consistent with the following services and terms:

Company Name:	TORREYCOVE CAPITAL PARTNERS LLC
Service Provided:	Private Equity Consulting Services
Estimated Effective Dates:	July 25, 2018 through July 24, 2023
Duration:	Five years
Fee:	Year 1 - $725,000 Year 2 - $737,500 Year 3 - $750,000 Year 4 - $762,500 Year 5 - $775,000

Which motion was seconded by Commissioner Serrano, and adopted by the following vote: Ayes, Commissioners Greenwood, Elizabeth Lee, Sandra Lee, Serrano, Sohn, and President Ruiz -6; Nays, Vice President Wilkinson -1.

C. PRESENTATION BY NEPC, LLC REGARDING RISK BUDGETING, ASSET CLASS REVIEWS, AND ASSET ALLOCATION IMPLEMENTATION PLAN AND POSSIBLE BOARD ACTION – This item was deferred.

Joshua Geller, Deputy City Attorney, was present for the remaining Board agenda items.

D. PRESENTATION BY NEPC, LLC OF THE PORTFOLIO PERFORMANCE REVIEW REPORT FOR THE QUARTER ENDING MARCH 31, 2018 – This item was deferred.

E. PRESENTATION BY PORTFOLIO ADVISORS, LLC OF THE PRIVATE EQUITY PORTFOLIO PERFORMANCE REVIEW FOR THE PERIOD ENDING DECEMBER 31, 2017 – Todd Hughtes and Greg Garret, Managing Directors with Portfolio Advisors, discussed this item.

F. RECEIVE AND FILE – NOTIFICATION OF COMMITMENT OF UP TO $30 MILLION IN THOMA BRAVO FUND XIII, L.P. – This report was received by the Board and filed.

G. RECEIVE AND FILE – NOTIFICATION OF COMMITMENT OF UP TO $25 MILLION IN ASCRIBE OPPORTUNITIES FUND IV, L.P. – This report was received by the Board and filed.

H. RECEIVE AND FILE – NOTIFICATION OF COMMITMENT OF UP TO $25 MILLION IN PLATINUM EQUITY SMALL CAP FUND, L.P. – This report was received by the Board and filed.

I. RECEIVE AND FILE – NOTIFICATION OF COMMITMENT OF UP TO $10 MILLION IN ASTRA PARTNERS I, L.P. – This report was received by the Board and filed.

XIII

LEGAL/LITIGATION

A. REQUEST FOR PROPOSAL FOR OUTSIDE TAX COUNSEL – Josh Geller, Deputy City Attorney, discussed this item.

XIV

OTHER BUSINESS – President Ruiz will be considering Commissioner Committee assignments and asked Commissioners to email her the Committees they are interested in.

XV

NEXT MEETING: The next Regular meeting of the Board is scheduled for Tuesday, July 24, 2018 at 10:00 a.m. in the LACERS Ken Spiker Boardroom, 202 West First Street, Suite 500, Los Angeles, CA 90012-4401.

XVI

ADJOURNMENT – There being no further discussion before the Board, President Ruiz adjourned the meeting at 2:41 p.m.

Cynthia M. Ruiz
President

Neil M. Guglielmo
Manager-Secretary

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM
Securing Your Tomorrows

Agenda of: JULY 24, 2018

ITEM: **IV-B**

Date: July 17, 2018

To: Neil Guglielmo, General Manager

From: Mikyong Jang, Chief Accounting Employee MJ

SUBJECT: RECEIPT OF CITY'S CONTRIBUTIONS FOR FISCAL YEAR 2018-19

The purpose of this memorandum is to advise you of the receipt of the employer's contributions to LACERS of $600,161,457 and the disposition of those funds by the Fiscal Management Section.

The net payment reflects the City's contributions toward LACERS' Members retirement and postemployment healthcare benefits for the Fiscal Year 2018-19, a credit adjustment for a true-up of the advanced payment of contributions made for the last fiscal year, and adjustments shifing the cost of Airport Peace Officers' enhanced benefits to the Los Angeles World Airports (LAWA).

The City has paid in full the required contributions for Fiscal Year 2018-19 calculated based on the City's final covered payroll of $2,071,678,085 for Tier 1 and $139,756,543 for Tier 3, and applying the contribution rates for payment on July 15, 2018, of 28.31% for Tier 1 and 25.88% for Tier 3 as adopted by the Board. The payment also includes the employer share of other costs consisting of the Family Death Benefit Plan, the Limited Term Retirement Plan and the Excess Benefit Plan.

Five payments from several City entities contributed to the full required contributions[1], and the disposition of those funds are as follows:

- On Thursday, July 12, 2018, the Office of the City Administrative Officer (CAO) disbursed $488,400,403 to LACERS from the proceeds of Tax Revenue Anticipation Note (TRAN) issuance. Of this amount, $487,475,611 was wired to Northern Trust on Friday, July 13, 2018. The balance of $924,792 remains with the City Treasury for the administration of the Limited Term Retirement Plan and Excess Benefit Plan.

- On Thursday, July 12, 2018, the Los Angeles Fire and Police Pensions (LAFPP) paid $3,079,432 to LACERS, and $3,073,400 was wired out to Northern Trust on Friday, July 13, 2018. The balance of $6,032 remains with City Treasury for the administration of the Limited Term Retirement Plan and Excess Benefit Plan.

- On Monday, July 9, 2018, the LAWA paid $83,424,377 to LACERS, and $81,769,380 was wired to Northern Trust on Friday, July 13, 2018. Of the balance of $1,654,997, $154,997 was allocated to Limited Term Retirement Plan account and Excess Benefit Plan account, and $1,500,000 was kept in LACERS account with the City Treasury (Fund 800) to meet immediate operating needs.

- On Tuesday, July 3, 2018, the Harbor Department paid $22,108,553 to LACERS, and $22,065,405 was wired to Northern Trust on Friday, July 13, 2018. The balance of $43,148 remains with the City Treasury for the administration of the Limited Term Retirement Plan and Excess Benefit Plan.

- LACERS share of the required contribution totals $3,148,692. The book of accounts will record $3,827,826 as expenditure incurred and revenue earned in Fiscal Year 2018-19; while $7,031 will be recorded as expense in Fiscal Year 2018-19, and funds will be transferred to the Limited Term Retirement Plan account and the Excess Benefit Plan account respectively. The contribution true-up credit of $686,165 will be reflected as a reduction to the expenditure and revenue of Fiscal Year 2017-18.

Please refer to the summary attached.

MJ:JP

Attachment: Summary of City Contributions and Disposition for Fiscal Year 2018-19

[1] LACERS coordinated with respective departments to streamline the City Contribution process in accordance with the recent changes in banking and process requirements by departments involved in this transaction including Office of Finance and Office of the Controller. For Fiscal Year 2018-19, as July 15 falls on Sunday, it was agreed that the payment deadline should be set on July 12, 2018 in order to wire out all contributions to LACERS custodian bank on July 13, 2018 and have the funds available for LACERS' investment on July 16, 2018.

LACERS
SUMMARY OF CITY CONTRIBUTIONS AND DISPOSITION
For Fiscal Year 2018-19

ITEM: IV-B **ATTACHMENT**

Description	General Fund (CAO)	Airport (LAWA)	Harbor	LAFPP	LACERS	Total
FY 18/19 Actuarial Contribution	$ 507,033,775	$ 84,777,937	$ 23,698,124	$ 3,308,319	$ 3,842,907	**$ 622,661,062**
Adjustment: Enhanced Benefit	(2,106,325)	2,234,969	(99,117)	(13,764)	(15,763)	**-**
FDBP Contributions	89,548	15,008	4,178	584	682	**110,000**
Total	$ 505,016,998	$ 87,027,914	$ 23,603,185	$ 3,295,139	$ 3,827,826	**$ 622,771,062**
LTRP & EBP Contributions	924,792	154,997	43,148	6,032	7,031	**1,136,000**
FY 17-18 True-Up	(17,541,387)	(3,758,534)	(1,537,780)	(221,739)	(686,165)	**(23,745,605)**
Due to LACERS by July 12, 2018	**$ 488,400,403**	**$ 83,424,377**	**$ 22,108,553**	**$ 3,079,432**	**$ 3,148,692**	**$ 600,161,457**
Contribution Received	$ 488,400,403	$ 83,424,377	$ 22,108,553	$ 3,079,432	N/A *	**$ 597,012,765**
Date Received	07/12/18	07/09/18	07/03/18	07/12/18		
Amount Wired out to NT	487,475,611	81,769,380	22,065,405	3,073,400	N/A *	**594,383,796**
Date Wired	07/13/18	07/13/18	07/13/18	07/13/18		
Transfer to Limited Term Fund 900	16,282	2,729	760	106	123	**20,000**
Transfer to Excess Benefit Fund 901	908,510	152,268	42,388	5,926	6,908	**1,116,000**
Kept for Operational need	-	1,500,000	-	-	-	**1,500,000**
Fund Disposed	$ 488,400,403	$ 83,424,377	$ 22,108,553	$ 3,079,432	$ 7,031	**$ 597,019,796**

* LACERS share of the required contribution totals $3,148,692 (net of $686,165 true-up credit). The book of accounts will record $3,827,826 as expenditure incurred and revenue earned in Fiscal Year 2018-19 while $7,031 will be recorded as expense in Fiscal Year 2018-19, and funds will be transferred to the Limited Term Retirement Plan account and the Excess Benefit Plan account respectively.

LACERS

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Report to Board of Administration

Agenda of: **JULY 24, 2018**

From: Neil M. Guglielmo, General Manager

ITEM: **VI-A**

SUBJECT: **LACERS CUSTOMER SERVICE SURVEY SEMI-ANNUAL REPORT, JANUARY – JUNE 2018**

Recommendation

That the Board receive and file this report.

Background

In 2014, LACERS implemented a departmental customer service initiative to continuously build and improve service delivery externally to LACERS Members, as well as internally among LACERS staff. This initiative emphasizes defining, identifying, and improving customer service and communication skills, while supporting the promotion of LACERS' Guiding Principles.

As part of this effort, LACERS disseminated and compiled results from the following three surveys during a six-month period, from January 2018 to June 2018:

- Customer Service Satisfaction Survey – for counseling appointments, group counseling, and walk-ins;
- Retired Member Workshop Satisfaction Survey – for LACERS-sponsored events that include Medicare workshops, wellness workshops, and technology workshops; and
- Active Member Seminar Satisfaction Survey – for events held for current City of Los Angeles employees, such as the Planning for Retirement seminars.

Each of the surveys allows respondents to score the criteria on a rating scale from "7" to "1," with "7" being "Very Satisfied" and "1" being "Very Unsatisfied." The rating scale appears below.

Very Satisfied 7	Satisfied 6	Somewhat Satisfied 5	Uncertain 4	Somewhat Unsatisfied 3	Unsatisfied 2	Very Unsatisfied 1

Below are summaries of the satisfaction ratings for each survey. Satisfaction percentages are based on the number of responses provided for each criterion and not the overall number of surveys completed. In compiling results, respondent ratings were only counted as having met LACERS' customer satisfaction goal ("Met Goal") if the scores were at or above the "Satisfied" rating of 6.

CUSTOMER SERVICE SATISFACTION SURVEY*

CRITERIA	% that Met Goal	7	6	5	4	3	2	1
The service you received from the LACERS representative that met with you	97.6%	76.6%	21.0%	2.4%	-	-	-	-
		157	43	5	-	-	-	-
How LACERS benefits and processes were explained	98.0%	71.1%	27.0%	2.0%	-	-	-	-
		145	55	4	-	-	-	-
Overall LACERS experience	95.5%	68.7%	26.9%	3.5%	-	1.0%	-	-
		138	54	7	-	2	-	-

*Percentages may not add up to an even hundred percent due to rounding.

RETIRED MEMBER WORKSHOP SATISFACTION SURVEY*

CRITERIA	% that Met Goal	7	6	5	4	3	2	1
Location of workshop	89.9%	66.1%	23.8%	6.3%	1.2%	2.1%	0.6%	-
		222	80	21	4	7	2	-
Workshop materials	95.7%	65.6%	30.1%	2.8%	0.9%	0.3%	0.3%	-
		214	98	9	3	1	1	-
Knowledge of medical plan representatives	95.8%	68.1%	27.7%	2.3%	1.6%	0.3%	-	-
		211	86	7	5	1	-	-
Knowledge of LACERS staff	98.7%	77.8%	20.9%	0.6%	0.6%	-	-	-
		246	66	2	2	-	-	-
Quality of presentations	97.6%	72.5%	25.1%	1.8%	0.3%	-	0.3%	-
		240	83	6	1	-	1	-
Overall quality of workshop	98.8%	74.2%	24.5%	0.9%	-	0.3%	-	-
		245	81	3	-	1	-	-

*Percentages may not add up to an even hundred percent due to rounding.

ACTIVE MEMBER SEMINAR SATISFACTION SURVEY*								
CRITERIA	**% that Met Goal**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Seminar Materials	**98.8%**	**80.2%**	**18.7%**	**1.0%**	**0.2%**	-	-	-
		412	**96**	**5**	**1**	-	-	-
Knowledge of presenter	**98.8%**	**85.0%**	**13.8%**	**1.2%**	-	-	-	-
		436	**71**	**6**	-	-	-	-
Quality of presentation	**99.0%**	**83.5%**	**15.6%**	**1.0%**	-	-	-	-
		429	**80**	**5**	-	-	-	-
Overall quality of the seminar	**96.7%**	**79.9%**	**16.8%**	**2.3%**	**1.0%**	-	-	-
		410	**86**	**12**	**5**	-	-	-

*Percentages may not add up to an even hundred percent due to rounding.

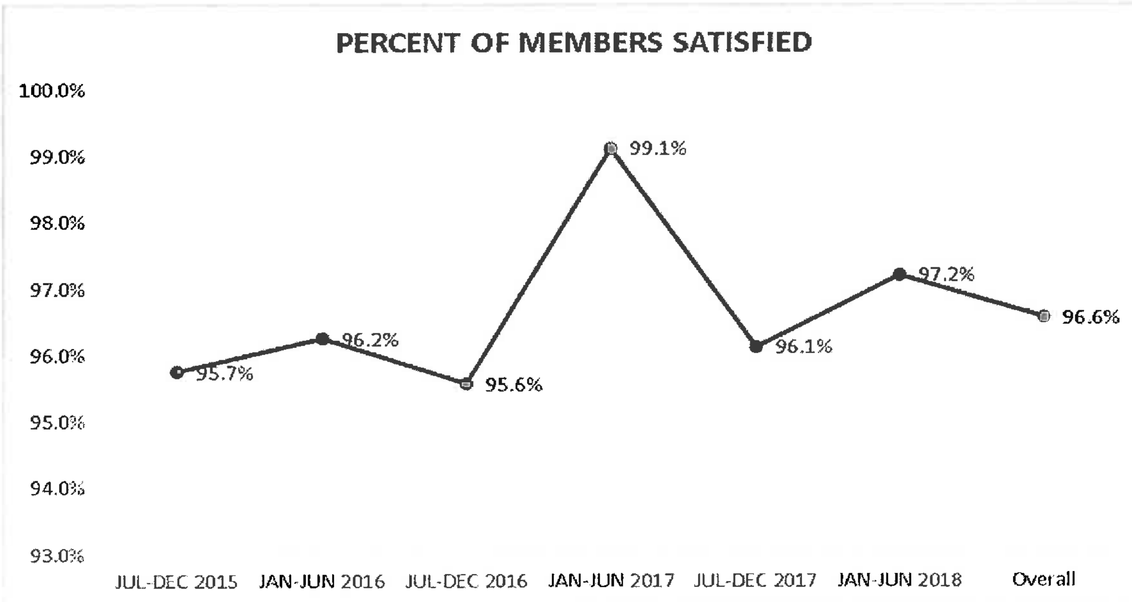
These results reflect very good Member satisfaction with LACERS' services, materials, and quality, content, and location of presentations. The percentage of participating Members who met LACERS' customer satisfaction goal of self-identifying as "Satisfied" or "Very Satisfied" ranged from a low of 89.9% for "Location of workshop" to a high of 99.0% for "Quality of presentation."

By compiling survey results, staff can report the overall number and percentage of satisfied responses. The following table reflects individual ratings marked 6 and above and 5 and above (includes those marked as "Somewhat Satisfied") across all surveys and all rating criteria for the current reporting period.

JANUARY – JUNE 2018
OVERALL SATISFACTION RATES

	SATISFIED RESPONSES	TOTAL RESPONSES	OVERALL % OF MEMBERS SATISFIED
6 OR ABOVE	4,484	4,613	97.2%
5 OR ABOVE	4,576	4,613	99.2%

LACERS continues to provide a high level of customer service based on these ratings from Members. The graph below depicts the compiled individual ratings results since July of 2015. These results show that 96.6% of the individual ratings across surveys and criteria (26,705 individual ratings out of 27,656) were marked "Satisfied" with ratings of 6 or above.



Many positive comments were written on the surveys, such as "All reps have been very helpful and kind," "Knowledgeable staff, thank you," and "Expectations were exceeded." Comments were reviewed to identify areas of attention and while there were no identified trends found in the comments, staff did notice a small uptick in unsatisfied survey responses in the "location of workshop" field for Retired Member Workshops. Staff continuously looks for new locations to host events throughout the region and will continue to identify new locations to provide Members with more options to attend workshops closer to their homes.

In order to advance LACERS' commitment to provide a high level of customer service, LACERS will continue to:

- Invite Member feedback on operations and customer interactions;
- Forward any survey comments to relevant employees;
- Identify and act on Member concerns; and
- Discuss identified issues at quarterly Customer Service Committee meetings.

Strategic Plan Impact Statement

The customer service satisfaction survey is an important tool that assesses whether LACERS is reaching its Strategic Plan goal of Outstanding Customer Service.

This report was prepared by Heather Ramirez, Senior Management Analyst I, of the Health Benefits Administration and Communications Division.

NG:AR:HR

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Report to Board of Administration

		Agenda of:	**JULY 24, 2018**
From:	Neil M. Guglielmo, General Manager	ITEM:	**VI-B**

SUBJECT: **TRAVEL AUTHORITY – COMMISSIONER ELIZABETH L. GREENWOOD; VALUE EDGE ADVISORS 2018 PUBLIC FUNDS FORUM, LAGUNA BEACH, CALIFORNIA; SEPTEMBER 4-6, 2018 AND POSSIBLE BOARD ACTION**

Recommendation:

That the Board authorize Commissioner Elizabeth L. Greenwood to attend the Value Edge Advisors 2018 Public Funds Forum on September 4-6, 2018 (travel dates September 4-6, 2018) in Laguna Beach, California; and authorize the reimbursement of up to $1203.00 for Commissioner Greenwood for reasonable expenses in connection with participation.

Discussion:

Commissioner Greenwood has expressed interest in attending the above-mentioned educational conference, and this Board report is prepared on her behalf. Commissioner Greenwood has also been provided a copy of LACERS Board Education and Travel Policy.

Pursuant to the Board Education and Travel Policy (Policy), Board approval is necessary for this travel request because the Approved List of Educational Seminars for Fiscal Year 2018-19 has not been adopted. Additionally, this conference has not been included in previous Approved Lists of Educational Seminars.

Strategic Plan Impact Statement:

As stipulated in the Policy, the sound management of the assets and liabilities of a trust fund imposes a continuing need for all Board Members to attend professional and educational conferences, seminars, and other educational events that will better prepare them to perform their fiduciary duties.

For Fiscal Year 2018-19, Commissioner Greenwood has an education travel balance of $10,000.00

This report was prepared by Ani Ghoukassian, Commission Executive Assistant.

Attachments: 1) Estimate of Reimbursable Expenses
2) Tentative Schedule/Agenda
3) Proposed Resolution

TRAVEL AUTHORITY
VALUE EDGE 2018 PUBLIC FUNDS FORUM
SEPTEMBER 4-6, 2018
LAGUNA BEACH, CALIFORNIA

PROPOSED RESOLUTION

WHEREAS, Board approval is required for all international travel requests and travel not included in the Approved List of Educational Seminars;

WHEREAS, the Approved List of Educational Seminars for Fiscal Year 2018-19 has not yet been adopted and this conference has not been included in previous Approved Lists of Educational Seminars, and therefore requires individual approval;

WHEREAS, the sound management of the assets and liabilities of a trust fund imposes a continuing need for all Board Members to attend professional and educational conferences, seminars, and other educational events that will better prepare them to perform their fiduciary duties;

THEREFORE, BE IT RESOLVED, that Commissioner Greenwood is hereby authorized to attend the Value Edge 2018 Public Funds Forum on September 4-6, 2018, in Laguna Beach, California;

BE IT FURTHER RESOLVED, that the reimbursement of up to $1203.00 for Commissioner Greenwood is hereby authorized for reasonable expenses in connection with participation.

CITY OF LOS ANGELES
Intra-Departmental Correspondence

DATE: July 16, 2018

TO: Accounting Section
City Employees' Retirement System

FROM: Ani Ghoukassian, Commission Executive Assistant I
Board of Administration

SUBJECT: ESTIMATE OF REIMBURSABLE EXPENSES

Name of Attendee Title	ELIZABETH L. GREENWOOD, COMMISSIONER LACERS Board of Administration	
Event	2018 Public Funds Forum	
Organization	Value Edge Advisors	
Date(s) of Event	September 4-6, 2018 (Travel dates September 4-6, 2018)	
Location of Event	Laguna Beach, CA	
ESTIMATED EXPENSES:	Registration: (Fee waived for Trustees)	$0.00
	Hotel: $400.00 per night (2 nights) excluding tax	$800.00
	Meal/Incidental Allowances: $48 per day x 1 day $33 per day x 1 day $21 per day x 1 day	$102.00
	Roundtrip Mileage: (112 miles x $.0545)	$61.00
	Parking: ($50 per day) x 3 days	$150.00
	Miscellaneous: ($30 per day) x 3 days	$90.00
	TOTAL ESTIMATE:	**$1203.00**

Join us for three days of educational sessions and networking activities with experts who will cover topics ranging from methods for improving portfolio assessment, manager selection, risk management, fulfillment of fiduciary duties, global investment strategy, and approaches for maximizing portfolio returns.

James Comey

Director, FBI (2013-2017)

Richard A. Bennett

President & CEO, ValueEdge Advisors

Nell Minow

Vice Chair, ValueEdge Advisors

Jay Leno

American Comedian, Actor, Philanthropist and Television Host

CELEBRATING 10 YEARS 2009-2018

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HOME CONFERENCE ITINERARY SESSIONS AGENDA NETWORKING ACTIVITIES LAGUNA BEACH REGISTRATION

ValueEdge Advisors'
2018
Public Funds Forum
September 4–6 | Montage Laguna Beach | Laguna Beach, California

SESSIONS AGENDA

TUESDAY, SEPTEMBER 4, 2018

Check-In and Registration
1:00 pm - 4:30 pm

Opening Remarks
4:00 pm - 4:15 pm

Session 1: The Ethical Leader
6:15 pm - 7:15 pm

After a decades-long career in public service, James Comey will share what good, ethical leadership looks like, how it drives sound decisions, and offer a road map for ethical leadership even in the most challenging and uncertain of circumstances. Comey will also shed light upon the thinking behind his own decisions, and share his thoughts on why leaders should be laser-focused on a core set of principles, chief among them truth, transparency, and decency.

SPEAKER: James Comey, introduced by Paul J. Geller

James Comey

James Comey
Director
Federal Bureau of Investigation (2013-2017)

James Comey led the Federal Bureau of Investigation from 2013 to 2017, appointed to the post by President Barack Obama. His tenure was tested by new forces within and outside America's borders. He oversaw the federal response to mass shootings in San Bernardino in December 2015 and at Pulse nightclub in Orlando the following June, at the time the deadliest in the country's history. He also worked to address key leadership, agility, and diversity issues within the Bureau.

Click to read Complete bio.

Paul J. Geller

Paul J. Geller
Partner
Robbins Geller Rudman & Dowd LLP

Paul Geller, Managing Partner of Robbins Geller Rudman & Dowd LLP's Boca Raton, Florida office, is a Founding Partner of the firm, a member of its Executive and Management Committees and head of the firm's Consumer Practice Group. Mr. Geller's 25 years of litigation experience is broad, and he has handled cases in each of the firm's practice areas. Notably, before devoting his practice to the representation of consumers and investors, he defended companies in high-stakes class action litigation, providing him an invaluable perspective. Mr. Geller has tried bench and jury trials on both the plaintiffs' and defendants' sides, and has argued before numerous state, federal and appellate courts throughout the country.

Click to read Complete bio.

Luau Networking Dinner
7:15 pm - 10:00 pm

WEDNESDAY, SEPTEMBER 5, 2018

Breakfast
7:00 am - 8:00 am

Session 2: Risk and Return, Leadership and Governance, in a Volatile World
8:00 am - 8:45 am

Visionary investor, business leader and advocate for the advancement of governance, Mac Van Wielingen will explore the critical role of leadership and governance in a time of accelerating and confronting change. Mr. Van Wielingen calls for a deep re-assessment of the role of the board and a re-conceptualization of corporate governance, with profound implications to all who have a stake in the integrity and effectiveness of capital allocation and the management of risk in financial markets.

SPEAKER: Mac Van Wielingen

Mac Van Wielingen

Mac Van Wielingen
Founder and Director
ARC Financial Corp.

Mac Van Wielingen has a unique and extensive base of experience as an entrepreneur, builder of companies, corporate director, and as a self-described "student of business leadership." He is the founder and current director of ARC Financial, the largest private equity manager in Canada focused on the energy sector which has invested in over 180 businesses. Mr. Van Wielingen is the former Chair of the Board of Alberta Investment Management Corporation (AIMCo), where he joined as an original director in 2007, and which today manages over $100 billion. He is the founder and former Chair of ARC Resources, a leading, publicly listed oil and gas company in Canada's energy sector. While serving as Chairman, ARC Resources was ranked #1 in Brendan Wood International's Shareholder Confidence Index in the Energy and Power Group. Most recently, he co-founded and chairs Viewpoint Investment Partners, an investment management company offering a foundational, global investment alternative for high net-worth families and institutional investors.

Click to read Complete bio.

Session 3: Global Markets Roundup
8:45 am - 10:00 am

International experts and experienced asset managers cover the issues facing investors protecting their rights around the world, including international monitoring, foreign recoveries, claims funding for securities traded on non-U.S. exchanges, and third party funding issues.

SPEAKERS: David Chun, Magnus Furugard, Deborah Gilshan, FCIS and Sacha Sadan, moderated by Patrick W. Daniels

David Chun

David Chun
Chief Executive Officer and Founder
Equilar, Inc.

David Chun has led Equilar since its inception and has become one of the most respected and trusted names in the corporate governance industry. Mr. Chun has been recognized as one of the "100 Most Influential Players in Corporate Governance" by the National Association of Corporate Directors (NACD).

Click to read Complete bio.

Magnus Furugard

Magnus Furugard
Founder and Chairman of the Board
GES International

Magnus Furugard is the Founder and Chairman of the Board of GES International. Before joining GES' Board, he stood at the helm of the company as President and Managing Director for 23 years. He now focuses on business and product development as well as strategic consulting to clients.

Click to read Complete bio.

Deborah Gilshan, FCIS
ESG Investment Director, Aberdeen Standard Investments
Founder of The 100% Club & Co-Chair, 30% Club UK Investor Group

Deborah Gilshan, FCIS

Deborah Gilshan has 17.5 years of experience in investment stewardship. Her areas of specialism include corporate governance, executive pay, diversity (with a deep expertise on gender diversity), corporate culture, sustainability and market policy work to protect and improve the rights of shareholders. Ms. Gilshan is a regular commentator and speaker on investment stewardship and her work has featured in the *Financial Times*, the *New York Times*, and other mainstream financial media.

Click to read Complete bio.

Sacha Sadan

Sacha Sadan
Director of Corporate Governance
Legal & General Investment Management

Sacha Sadan is the Director of Corporate Governance and on the Board at Legal & General Investment Management (LGIM), one of the largest asset managers in Europe. In September 2016, he was recognized in the *Financial Times* as one of "The 30 most influential people in the City of London," crediting him as one of the leading architects of 2012's "shareholder spring." At LGIM, Mr. Sadan has overall responsibility for corporate governance areas including Environment Social Governance (ESG). He regularly collaborates with other investors as well as governments and regulators.

Click to read Complete bio.

Patrick W. Daniels

Patrick W. Daniels
Partner
Robbins Geller Rudman & Dowd LLP

Patrick W. Daniels is a founding and managing partner in Robbins Geller Rudman & Dowd LLP's San Diego office. Mr. Daniels is widely recognized as a leading corporate governance and investor advocate. The *Daily Journal*, the leading legal publisher in California, named him one of the 20 most influential lawyers in California under 40 years of age. Additionally, the Yale School of Management's Millstein Center for Corporate Governance and Performance awarded Mr. Daniels its "Rising Star of Corporate Governance" honor for his outstanding leadership in shareholder advocacy and activism.

Click to read Complete bio.

Networking Break
10:00 am - 10:15 am

Session 4: Responsible Investment Bootcamp
10:15 am - 11:00 am

Pension funds are facing new responsibilities and opportunities in sustainability and responsible investing. How are leading funds responding to the challenge?

SPEAKERS: Kevin Thomas and Ted White, moderated by Nell Minow

Kevin Thomas

Kevin Thomas
Director of Shareholder Engagement
Shareholder Association for Research & Education (SHARE)

Kevin Thomas is the Director of Shareholder Engagement at the Shareholder Association for Research & Education (SHARE). SHARE is a Canadian leader in responsible investment services, providing shareholder engagement, proxy voting, research and education, and policy advocacy to a growing network of Canadian institutional investors with more than $22 billion in assets under management.

Click to read Complete bio.

Ted White

Ted White
Managing Director
Legion Partners Asset Management

Ted White is co-founder and a Managing Director of Legion Partners Asset Management. Prior to founding Legion Partners, Mr. White most recently served in various functions with Knight Vinke Asset Management, a European-based activist fund manager.

Click to read Complete bio.

Nell Minow

Nell Minow
Vice Chair
ValueEdge Advisors

Nell Minow is Vice Chair of ValueEdge Advisors. She was Co-Founder and Director of GMI Ratings from 2010 to 2014, and was Editor and Co-Founder of its predecessor firm, The Corporate Library, from 2000 to 2010. Prior to co-founding The Corporate Library, Ms. Minow was a Principal of LENS, a $100 million investment firm that took positions in underperforming companies and used shareholder activism to increase their value.

Click to read Complete bio.

Session 5: Lessons in Leadership
11:00 am - 12:00 pm

A seasoned Chief Executive Officer and corporate director discusses best practices for effective leadership, corporate governance, an empowering workplace, and shareowner engagement.

SPEAKER: Garry Ridge, introduced by Richard A. Bennett

Garry Ridge

Garry Ridge
President, Chief Executive Officer and Director
WD-40 Company

As Chief Executive Officer and a member of the board of directors of WD-40 Company, Garry Ridge is responsible for developing and implementing high-level strategies, all operations, and the oversight of all relationships and partnerships for the company.

Click to read Complete bio.

Richard A. Bennett

Richard A. Bennett
President & Chief Executive Officer
ValueEdge Advisors

Richard A. Bennett is President and Chief Executive Officer of ValueEdge Advisors, a firm founded in the summer of 2014 to help institutional investors engage with their portfolio companies. From 2006, Mr. Bennett served as Chief Executive Officer and then Chairman of GMI Ratings and its predecessor, The Corporate Library, a globally recognized investment research firm specializing in corporate governance and ESG with offices in London, New York, San Diego and Portland, Maine.

Click to read Complete bio.

Lunch
12:00 pm - 1:00 pm

Session 6: When Governance Fails
1:00 pm - 2:00 pm

SPEAKER: Andrew S. Fastow, moderated by Peter Crudo

Andrew S. Fastow

Andrew S. Fastow
Former Chief Financial Officer
Enron Corp.

Enron's former Chief Financial Officer, Andrew S. Fastow, will make observations about how the ambiguity and complexity of laws and regulations breeds opportunity for problematic decisions. Additionally, he will discuss what questions corporate directors, management, attorneys, fraud examiners and auditors should ask in order to ensure that their institutions not only follow the rules, but uphold the principles behind them.

Click to read Complete bio.

Peter Crudo
Chief Executive Officer
Gilardi & Co. LLC

Peter Crudo

Peter Crudo is the CEO of Gilardi & Co. LLC. In this role, he oversees all aspects of Gilardi's strategic and corporate development. Mr. Crudo also brings a unique perspective to his duties, as he has worked both as an attorney in private practice and as a senior level management member in both private and public technology companies. During his tenure as CEO, Gilardi has served as the claims administrator on some of the largest and most complicated settlements in history, including *Enron*, *AOL Time Warner*, *Household* and *Xerox*.

Click to read Complete bio.

Session 7: Recoveries and Remedies: Protecting Your Portfolio Through Securities Litigation
2:00 pm - 3:00 pm

Leading securities lawyers and financial experts discuss how the use of securities litigation by pension funds can improve returns, reduce risk, deter fraud, and reform troubled companies.

SPEAKERS: Frank Partnoy and Darren J. Robbins

Frank Partnoy

Frank Partnoy
Professor
U.C. Berkeley School of Law

Professor Frank Partnoy is a law professor at U.C. Berkeley School of Law. After graduating from Yale Law School, he worked as a derivatives structurer at Morgan Stanley and CS First Boston and wrote *F.I.A.S.C.O.: Blood in the Water on Wall Street*, a best-selling book about his experiences there. He also was a lawyer at Covington & Burling and a law professor for 21 years at the University of San Diego. He has published more than two dozen scholarly articles, and has written numerous pieces for *The Atlantic*, *The New York Times* and the *Financial Times*.

Click to read Complete bio.

Darren J. Robbins

Darren J. Robbins
Partner
Robbins Geller Rudman & Dowd LLP

Darren J. Robbins is a founding partner of Robbins Geller Rudman & Dowd LLP. Over the last two decades, Mr. Robbins has served as lead counsel in more than 100 securities actions and has recovered billions of dollars for injured shareholders. One of the hallmarks of Mr. Robbins' practice has been his focus on corporate governance reform.

Click to read Complete bio.

Session 8: General Counsel's Roundtable
3:00 pm - 4:00 pm

From accounting practices and disclosures, to cybersecurity and data privacy, to human resources and employment practices, the role of the fund general counsel/CCO has growing strategic and operational implications to successful fund management. Seasoned fund officers in law and compliance share perspectives on the evolving demands on their jobs in public policy debates, investment mandates, stakeholder relations, securities litigation, and fund governance.

SPEAKERS: Michael P. Calabrese, Johnny Tran and Jennifer Zahry, moderated by David B. Wescoe

Michael P. Calabrese

Michael P. Calabrese
Chief Counsel
San Bernardino County Employees' Retirement Association (SBCERA)

Michael P. Calabrese joined the San Bernardino County Employees' Retirement Association (SBCERA) as Chief Counsel in December 2013. He is responsible for providing responsible and complex legal support to the Board of Retirement and in-house counsel to SBCERA regarding legal, policy and legislative issues.

Click to read Complete bio.

Johnny Tran

Johnny Tran
General Counsel and Chief Compliance Officer
San Diego City Employees' Retirement System (SDCERS)

Johnny Tran is the General Counsel and Chief Compliance Officer for the San Diego City Employees' Retirement System. In those roles, he oversees all legal matters affecting the $8 billion system and its 20,000 members. He is a regular speaker at conferences related to public pension systems. Previously, Mr. Tran was a civil litigator in private practice.

Click to read Complete bio.

Jennifer Zahry

Jennifer Zahry
General Counsel
Kern County Employees' Retirement Association (KCERA)

Jennifer Zahry has been the General Counsel for the Kern County Employees' Retirement Association since 2013. She advises the KCERA staff and Board of Retirement on all issues affecting the plan. As KCERA's first in-house counsel, she has developed processes and provided training to assist in identifying and resolving legal issues.

Click to read Complete bio.

David B. Wescoe

David B. Wescoe
Chief Executive Officer
San Diego County Employees Retirement Association (SDCERA)

David Wescoe is an experienced and successful legal, financial, operational and investment professional who has served as General Counsel, Chief Financial Officer and Chief Executive Officer for public and private companies, including Chief Executive Officer of two multi-billion dollar pension plans and one of the country's largest independent broker-dealers.

Click to read Complete bio.

Cocktail Reception
6:30 pm - 7:30 pm

Studio 54 Networking Dinner
7:30 pm - 12:00 am

THURSDAY, SEPTEMBER 6, 2018

Breakfast
7:00 am - 8:00 am

Session 9: Best Practices in Fund Governance
8:00 am - 9:00 am

Pension fund leaders share innovative insights and information on what works best in fund management and stakeholder accountability.

SPEAKERS: Annalisa Barrett, Michael D. Herrera and Michael P. McCauley

Annalisa Barrett

Annalisa Barrett
Senior Advisor
ValueEdge Advisors

Annalisa Barrett is a Clinical Professor of Finance at the University of San Diego's School of Business Administration. She teaches graduate courses in Corporate Governance and undergraduate courses in Financial Management, Financial Statement Analysis, and Personal Finance. Her research interests focus on corporate governance practices, board composition, and director demographics.

Click to read Complete bio.

Michael D. Herrera

Michael D. Herrera
Senior Staff Counsel
Los Angeles County Employees Retirement Association (LACERA)

Michael D. Herrera joined the Los Angeles County Employees Retirement Association (LACERA) in 1999. As a Senior Staff Counsel, Mr. Herrera serves as a legal advisor to the fund, its Boards, and staff. He also represents the fund in complex litigation and administrative proceedings, and assists in overseeing the fund's global securities litigation program, including evaluation and prosecution of domestic and international securities cases. With over 165 thousand members and $56 billion in assets under management, LACERA is the largest county retirement system in the United States.

Click to read Complete bio.

Michael P. McCauley

Michael P. McCauley
Senior Officer, Investment Programs & Governance
State Board of Administration (SBA) of Florida

Michael McCauley's primary responsibilities include active strategies within corporate governance as well as investment program management for the Florida PRIME™ investment pool and other non-pension investment mandates totaling over $11 billion. He also is a member of the SBA's Senior Leadership Working Group, responsible for investment and operational oversight across all SBA portfolios.

Click to read Complete bio.

Session 10: The War on Opioids
9:00 am - 10:00 am

From scandals in drug pricing to the opioid epidemic to tax inversions, Big Pharma is in the crosshairs of public policy, securities litigation, and shareowner engagement. What is the role of the pension fund?

SPEAKERS: Meredith Miller, Aelish Marie Baig, Mark J. Dearman and Dr. Anna Lembke, moderated by Paul J. Geller

Meredith Miller

Meredith Miller
Chief Corporate Governance Officer
UAW Retiree Medical Benefits Trust

Meredith Miller is the Chief Corporate Governance Officer of the UAW Retiree Medical Benefits Trust ("Trust"). The Trust was established in 2010 as a Voluntary Employee Beneficiary Association (VEBA) to pay the medical benefits for 700,000 UAW retirees. The Trust is the largest non-governmental provider of retiree health in the U.S. and has assets of $59 billion.

Click to read Complete bio.

Aelish Marie Baig

Aelish Marie Baig
Partner
Robbins Geller Rudman & Dowd LLP

Aelish Marie Baig is a partner in Robbins Geller Rudman & Dowd LLP's San Francisco office. She specializes in federal securities and consumer class actions. She focuses primarily on securities fraud litigation on behalf of individual and institutional investors, including state and municipal pension funds, Taft-Hartley funds, and private retirement and investment funds. Baig has litigated a number of cases through jury trial, resulting in multi-million dollar awards and settlements for her clients and has prosecuted securities fraud, consumer and derivative actions obtaining millions of dollars in recoveries against corporations such as Wells Fargo, Verizon, Celera, Pall and Prudential. Ms. Baig is currently litigating the opioid case on behalf of cities and states around the country.

Click to read Complete bio.

Mark J. Dearman

Mark J. Dearman
Partner
Robbins Geller Rudman & Dowd LLP

Mark Dearman is a partner in Robbins Geller Rudman & Dowd LLP's Boca Raton office, where his practice focuses on consumer fraud, securities fraud, mass torts, antitrust, whistleblower and corporate takeover litigation. Mr. Dearman is currently litigating the opioid case on behalf of cities and states around the country. His extensive defense background and trial experience is a unique asset utilized in protecting the rights of those who have been harmed by corporate misconduct.

Click to read Complete bio.

Dr. Anna Lembke
Associate Professor and Chief of Addiction Medicine
Stanford University School of Medicine

Dr. Anna Lembke was one of the first in the medical community to sound the alarm regarding opioid overprescribing and the opioid epidemic. In 2016, she published her best-selling book on the prescription drug epidemic, *Drug Dealer, MD: How Doctors Were Duped, Patients Got Hooked, and Why It's So Hard to Stop*, that combines case studies with public policy, cultural anthropology, and neuroscience to explore the complex relationship between doctors and patients around

Dr. Anna Lembke

prescribing controlled drugs, the science of addiction, and the barriers to successfully addressing prescription drug misuse and addiction.

Click to read Complete bio.

Paul J. Geller

Paul J. Geller
Partner
Robbins Geller Rudman & Dowd LLP

Paul Geller, Managing Partner of Robbins Geller Rudman & Dowd LLP's Boca Raton, Florida office, is a Founding Partner of the firm, a member of its Executive and Management Committees and head of the firm's Consumer Practice Group. Mr. Geller's 25 years of litigation experience is broad, and he has handled cases in each of the firm's practice areas. Notably, before devoting his practice to the representation of consumers and investors, he defended companies in high-stakes class action litigation, providing him an invaluable perspective. Mr. Geller has tried bench and jury trials on both the plaintiffs' and defendants' sides, and has argued before numerous state, federal and appellate courts throughout the country.

Click to read Complete bio.

Session 11: Emerging Issues in Investing and Governance
10:15 am - 11:00 am

Perceptive thinkers and veteran practitioners discuss the changing landscape of pension fund management, investment stewardship, and boardroom practices.

SPEAKERS: Amy Borrus, Guy Jubb and Andrew Winden, moderated by Richard A. Bennett

Amy Borrus

Amy Borrus
Deputy Director
Council of Institutional Investors (CII)

Amy Borrus is Deputy Director of the Council of Institutional Investors (CII), a nonprofit, nonpartisan U.S. association of employee benefit funds, state and local entities charged with investing public assets, foundations and endowments, with combined assets in excess of $3.5 trillion, that promotes good corporate governance and strong shareholder rights.

Click to read Complete bio.

Guy Jubb

Guy Jubb
Honorary Professor
University of Edinburgh Business School

Guy Jubb is an Honorary Professor at the University of Edinburgh Business School. Previously, Mr. Jubb was the Global Head of Governance & Stewardship at Standard Life Investments (SLI), where he was responsible for the worldwide application of SLI's governance and stewardship principles and policy guidelines.

Click to read Complete bio.

Andrew Winden

Andrew Winden
Fellow, Rock Center for Corporate Governance
Lecturer in Law, Stanford Law School

Andrew Winden is a Fellow at the Rock Center for Corporate Governance and a Lecturer in Law at Stanford Law School. Mr. Winden writes about corporate governance and entrepreneurship, capital markets and securities regulation, climate change and sustainability and business transactions. He teaches the course Mergers, Acquisitions and other Complex Transactions.

Click to read Complete bio.

Richard A. Bennett
President & Chief Executive Officer
ValueEdge Advisors

Richard A. Bennett

Richard A. Bennett is President and Chief Executive Officer of ValueEdge Advisors, a firm founded in the summer of 2014 to help institutional investors engage with their portfolio companies. From 2006, Mr. Bennett served as Chief Executive Officer and then Chairman of GMI Ratings and its predecessor, The Corporate Library, a globally recognized investment research firm specializing in corporate governance and ESG with offices in London, New York, San Diego and Portland, Maine.

Click to read Complete bio.

Session 12: JayWalking in the Trump Era
11:00 am - 12:00 pm

An acclaimed late-night TV show host and admired stand-up comedian shares his view of government, politics, and the economy in America.

SPEAKER: Jay Leno, moderated by Paul J. Geller

Jay Leno

Jay Leno
American Comedian, Actor, Philanthropist and Television Host

Jay Leno's late night television ratings domination included more than two decades of *The Tonight Show with Jay Leno,* winning every consecutive quarter of his hosting over the past 19 years. After resuming hosting the 11:35 PM program following a one-time brief interruption of these duties, Mr. Leno once again took the show to the top, leading all of the ensuing quarters handily for another three years. Under his helm, the show was honored by the Television Academy with an Emmy for "Outstanding Comedy, Variety or Music Series." *The Tonight Show* has also taken home the trophy for "Favorite Late Night Show" in the annual TV Guide Awards determined by voting viewers, and Mr. Leno was recently installed in the Television Academy's Broadcast Hall of Fame.

Click to read Complete bio.

Paul J. Geller

Paul J. Geller
Partner
Robbins Geller Rudman & Dowd LLP

Paul Geller, Managing Partner of Robbins Geller Rudman & Dowd LLP's Boca Raton, Florida office, is a Founding Partner of the firm, a member of its Executive and Management Committees and head of the firm's Consumer Practice Group. Mr. Geller's 25 years of litigation experience is broad, and he has handled cases in each of the firm's practice areas. Notably, before devoting his practice to the representation of consumers and investors, he defended companies in high-stakes class action litigation, providing him an invaluable perspective. Mr. Geller has tried bench and jury trials on both the plaintiffs' and defendants' sides, and has argued before numerous state, federal and appellate courts throughout the country.

Click to read Complete bio.

Closing Remarks
12:00 pm - 12:10 pm

Lunch and Networking Activities: Cooking in the Canyon, Dolphin Safari, Golf at Monarch Beach and Guided Hiking
12:30 pm - 5:30 pm

CLE CREDIT HAS BEEN REQUESTED IN ALL MCLE JURISDICTIONS.
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LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Report to Board of Administration

Agenda of: **July 24, 2018**

From: Neil M. Guglielmo, General Manager

ITEM: **VIII–A**

SUBJECT: **CONSIDERATION OF ADJUSTMENT TO LACERS OFFICE HOURS**

Recommendation

That the Board approve the staff recommendation to adjust LACERS office hours for the front desk reception area and customer service phone lines to 7:00 a.m. – 4:00 p.m., Monday through Friday, except legal holidays, effective September 1, 2018.

Discussion

On May 2, 2018, supervisors of the Units within Health Benefits and Communications and Retirement Services Divisions met to discuss how to continue to provide excellent member service with the ability to offer greater flexibility for staff work schedules. The following change is proposed:

	Current	Proposed
Phone Lines	8:00 a.m. – 5:00 p.m.	7:00 a.m. – 4:00 p.m.
Front Counter	7:15 a.m. – 5:00 p.m.	7:00 a.m. – 4:00 p.m.

Staff is providing the following information and the attached presentation to demonstrate how the proposed change will continue to support LACERS' commitment to provide excellent customer service to LACERS members, benefit recipients, and other stakeholders.

Service Commitment

During office hours, Member Service Center (MSC) staff will be available to resolve all first contact Member issues. Staff will be available until 4:30 p.m., Monday through Friday, to ensure completion of last minute walk-ins by and phone calls from members. Additionally, an MSC staff member will be assigned to access member voice mails, emails and MyLACERS inquiries and ensure a response within one business day. Voice mail messages will be checked a minimum of twice daily and emails will have an auto response message notifying Members that they will receive a reply within one business day. Response time to phone messages and emails will be tracked and reported on to ensure that the one business day commitment is fulfilled. Individual units will be able to make arrangements for any necessary business that may take place after 4:00 p.m. or on weekends.

Outreach and Education

Staff will make every effort to ensure members are well informed of the change in hours via a statement on retirement allowance checks, posted notifications, and articles in the retiree paycheck flyer, Alive newspaper, and LACERS active and retired newsletters. There will be a "soft opening" of the new hours for two to four weeks. During this period, LACERS will maintain the current office hours while announcing the change, and beyond the effective date of the change, to ensure that no Members or visitors are inconvenienced. Additionally, staff will collect information from any post-4:00 p.m. visitors to learn why they are not aware of the change in office hours. This information will inform the length of the soft launch and will be used to determine what, if any, additional outreach efforts are required.

Data

Hourly morning, and 4:00 – 5:00 p.m., stats for July 2017 through May 2018:

Hourly Calls	Calls Presented	Active	Retired	Other	Average Calls Per Day	Total Number of Walk-Ins	Average Number of Walk-Ins Per Day
July - Dec 2017							
7:15-8:00	0	0	0	0	0.0	28	0.2
8:00-9:00	1955	393	619	943	15.9	147	1.2
9:00-10:00	2623	455	809	1359	21.3	302	2.5
10:00-11:00	2792	443	855	1494	22.7	402	3.3
11:00-12:00	2589	443	819	1327	21.0	352	2.9
4:00-5:00	1318	199	360	759	10.7	51.0	0.4
YTD January - May 2018							
7:15-8:00	0	0	0	0	0.0	32	0.3
8:00-9:00	2027	347	648	1032	19.5	89	0.9
9:00-10:00	2573	356	817	1400	24.7	226	2.2
10:00-11:00	2771	346	857	1568	26.6	314	3.0
11:00-12:00	2560	347	946	1267	24.6	335	3.2
4:00-5:00	1465	149	352	964	14.1	58.0	0.6

Data shows that LACERS receives, on average, about a dozen calls per day, and less than one walk in per day, between 4:00 and 5:00 p.m.

Innovations

LACERS is exploring innovative ideas to adapt to and meet the changing needs and expectations of our members. The fiscal year 2018-2019 budget includes projects which have been or will be implemented this year: a Member kiosk was placed in the front desk reception area in June 2018 to allow Members to access the LACERS website and the MyLACERS portal; SMS notifications so members can receive important updates from LACERS via their smart phone; WiFi in common, public areas such as the front desk reception area and board room; webinar services to allow members to attend seminars remotely; and the purchase of equipment for video conferencing to allow for online appointments. Anticipated innovations include an online appointment system on the LACERS website, more off-site outreach events, online chat systems that connect members to staff in real time, online help guides, and enhanced MyLACERS to allow members to submit forms online among other interactive capabilities.

Members are also utilizing the question submission feature within the new MyLACERS web member portal. Since its launch in mid-June, LACERS has received approximately 400 inquiries from members that have registered their account in the new member portal. This is significant since it demonstrates that our members are willing to adopt new outlets and tools that better connect them to LACERS.

Work Schedule Flexibility

This change will allow for more flexibility of staff schedules, resulting in increased moral, reduced stress, reduced turnover, and increased productivity.

Strategic Plan Impact Statement

Adjusting LACERS office hours supports Strategic Plan Goals I, VI, and VII: Customer Service, Organizational, and Workforce.

LACERS will continue to provide outstanding customer service through its commitment to service, and maximize organizational effectiveness and efficiency through use of technology and more flexible staff coverage. Flexible work schedules will allow LACERS to better recruit and empower its workforce.

This report was prepared by Estella Priebe, Management Analyst.

NG:LP:EP

Attachment: Improving Customer Experience

24-Hour Strategy
Improving Customer Experience

Delivering Flexibility to LACERS members

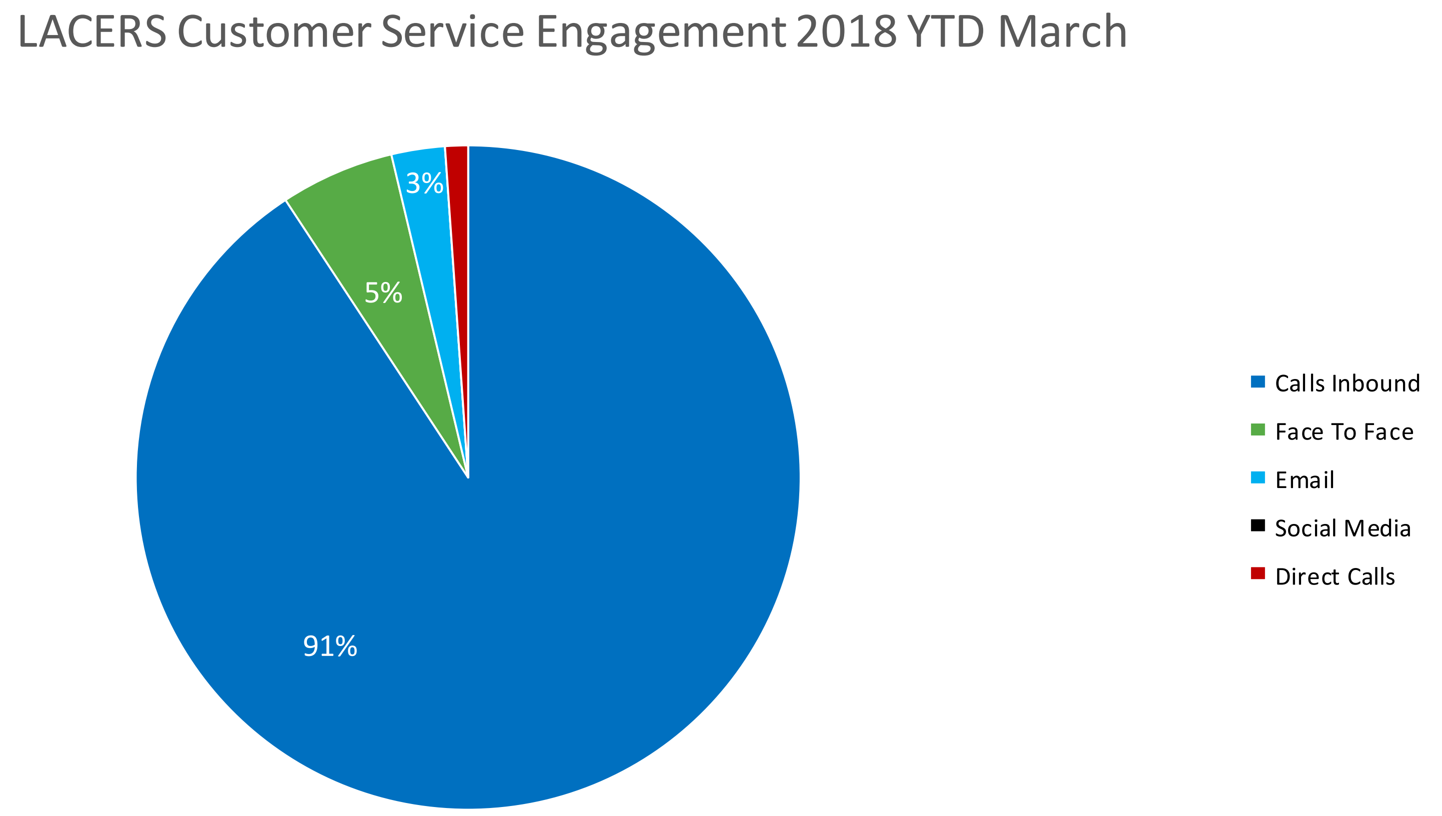
Requested Hours Change

- Phone Lines and Front Desk Reception Area will be open from 7:00 a.m. – 4:00 p.m. Mon-Fri (exc. Holidays).
- Access to LACERS will end at 4:00 p.m. in the Globe Lobby. MSC staff will close the glass doors at 4:05 p.m., and ensure that last Members are out by 4:30 p.m.
- (800) phone line can accept calls through 4:00 p.m.
- Coverage of phones will be up until 4:30 p.m. to ensure completion of last minute phone calls.
- Individual units are able to make arrangements for any necessary business that may take place after hours.

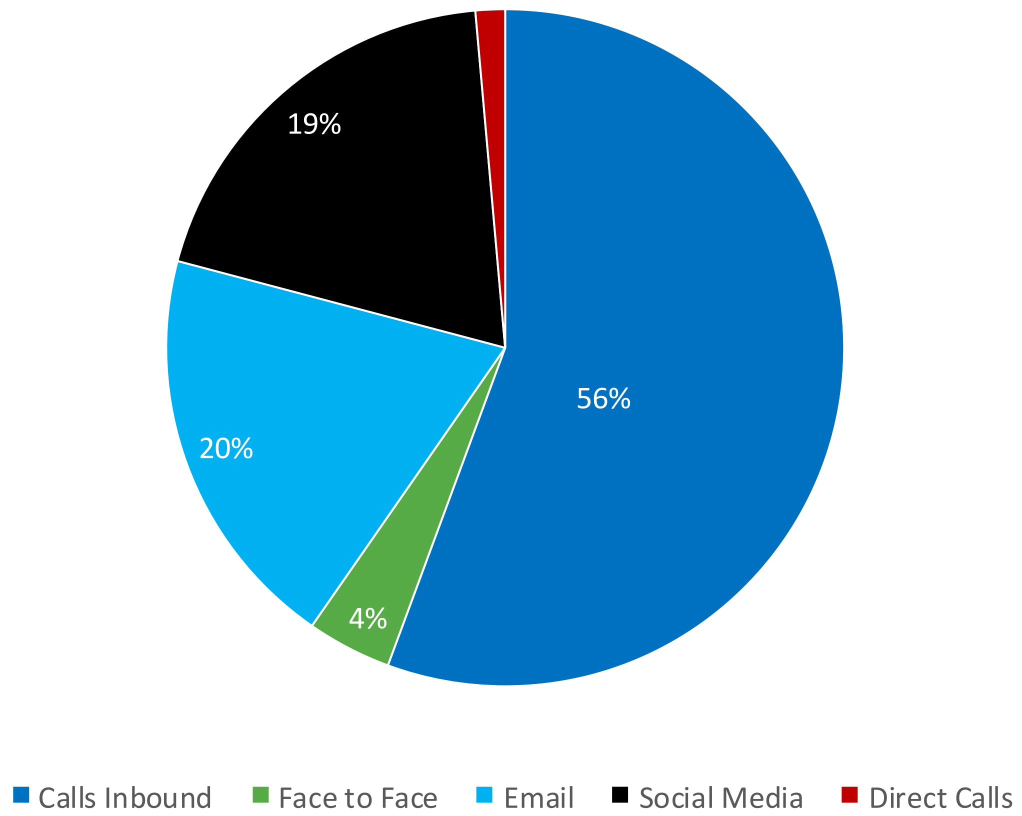
Delivering Service Improvements

- Auto Response E-Mail.
- Voicemail check twice daily (minimum) Mon-Fri excluding Holidays.
- Response to voice mails, emails, and MyLACERS inquiries within one business day.
- Dedicated MSC employee to resolve all first contact Member issues.

Current Customer Engagement



2019 Ideal Customer Engagement



Implementation of 24-Hour Strategy

- Enable auto response for email.
- Actively promote web self-service (via seminar announcements, marketing materials, MSC representatives, Social Media and emails).
- Train all staff members for 24-hour strategy.
- Establish S.M.A.R.T. (Social Media Active Response Team).

Successful Measurement

- PG3 data input for all contact email, voicemail, social media, and chat messages.
- Data to include input time, who managed the contact and completion time.
- Monthly management report against previous month.
- Goals to increase 24-hour strategy.

Communications Rollout

- Soft opening of new hours for 2-4 weeks beginning September 1st at the LACERS reception area.
- For those that pick up hard checks, insert blurb in July and August 31st checks regarding updated hours for September and ongoing check pickup.
- Insert a sign under the LACERS sign just outside the glass doors with the new Business Hours listed.
- Post a small tabletop sign in reception area with Business Hours listed.
- Create and distribute flyers for City Departmental Bulletin Boards.

Communications Rollout cont.

- Scripts for front desk and phones regarding hours change.
- Insert new hours handout in Planning for Retirement Seminar Packets.
- Post new hours on LACERS.org (news, hot topics, contact us, MyLACERS portal).
- Insert blurb in Retiree Paycheck Flyer, Alive! newspaper, and LACERS Active and Retiree newsletters, and 2019 Health Benefits guide insert.
- Insert message on (800) phone line.

Data

Questions?

LACERS
LOS ANGELES CITY EMPLOYEES'
RETIREMENT SYSTEM

Report to Board of Administration

From: Governance Committee
Nilza R. Serrano, Chairperson
Elizabeth L. Greenwood
Vacant

Agenda of: **JULY 24, 2018**

ITEM: **VIII-B**

SUBJECT: **TRIENNIAL BOARD POLICY REVIEW: THE BOARD'S GOVERNING STATUTES AND POSSIBLE BOARD ACTION**

Recommendation

That the Board approve the proposed revisions to the LACERS Board Policy, Section 2.0: Governing Statutes of the Board.

Discussion

On July 10, 2018, the Committee considered revisions to the Board's *Governing Statutes* proposed as part of the triennial Board Policy Review. The Committee concurred with the staff report and recommends Board approval of the minor policy revisions proposed therein.

Strategic Plan Impact Statement

The review of the Board Governance Statement of the LACERS Board Manual conforms to the Strategic Plan Board Governance Goal to uphold good governance practices which affirm transparency, accountability, and fiduciary duty.

This report was prepared by Edeliza Fang, Senior Management Analyst, Administrative Services Division.

NMG:TB:DWN:EF

Attachment: Governance Committee Recommendation Report dated July 10, 2018

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Report to Governance Committee

Agenda of: **JULY 10, 2018**

From: Lita Payne for Neil M. Guglielmo, General Manager

ITEM: **III**

SUBJECT: **TRIENNIAL BOARD POLICY REVIEW: THE BOARD'S GOVERNING STATUTES AND POSSIBLE COMMITTEE ACTION**

Recommendation

That the Committee consider the proposed revisions to the LACERS Board Policy, Section 2.0: Governing Statutes of the Board.

Discussion

As a best practice, LACERS performs a comprehensive review of its Board Governance Policies every three years. In March 2018, the Board adopted the Governance Committee's recommended schedule of review for the Board Governance and Administrative Policies of the LACERS Board Manual. Staff conducts the review of each section of the Board Manual and brings forth sections under the purview of respective committees, and subsequently to the Board, that need to be updated or revised based on changes in applicable laws or standards of practice. To date, the Governance Committee Charter has been reviewed and its updates adopted by the Board.

Staff completed their review of the Governing Statutes section of the Board Manual. There were no significant issues that arose since its last revision that would necessitate major revisions to the section. As such, only minor updates and revisions were made to the document. The proposed changes include the addition of the affirmation of Subsection 2.1 – Los Angeles City Charter, Section 1106 and Subsection 2.2 – California Constitution Article XVI, Section 17 since no content revisions are required. Additional changes include technical corrections and content updates to Subsection 2.3 – General Laws, specifically the update of the Executive Directives information; Subsection 2.4 – Standards of Practice to include new Governmental Accounting Standards (GASB) requirements; and, Subsection 2.5 – Key Documents by Reference to add the date of the next management audit.

Upon the Committee's finalization of the proposed revised Governing Statutes section of the Board Governance Statement, it will be presented to the Board for further consideration and approval.

Strategic Plan Impact Statement

The review of the Board Governance Statement of the LACERS Board Manual conforms with the LACERS Strategic Plan Board Governance Goal to uphold good governance practices which affirm transparency, accountability, and fiduciary duty.

This report was prepared by Edeliza Fang, Senior Management Analyst, Administrative Services Division.

NMG:TB:DWN:EF

ATTACHMENTS: A) Governing Statutes Section – Redline Version
B) Governing Statutes Section – Clean Version

Section 2.0 GOVERNING STATUTES

2.1 Los Angeles City Charter, Section 1106

Added to Board Governance Statement on May 14, 2013; Affirmed: July 10, 2018

Pursuant to the City Charter and consistent with Article XVI, Section 17 of the California Constitution, and other governing laws, the Board has responsibility for the following:

a) **Administration of the Pension or Retirement System.** Have sole and exclusive responsibility to administer its system for the following purposes:

   (1) to provide benefits to system participants and their beneficiaries and to assure prompt delivery of those benefits and related services;
   (2) to minimize City contributions; and
   (3) to defray the reasonable expenses of administering the system.

   The duty to system participants and their beneficiaries shall take precedence over any other duty.

b) **Assets.** Have sole and exclusive fiduciary responsibility over the assets of its system which are held in trust for the exclusive purposes of:

   (1) providing benefits to system participants and their beneficiaries; and
   (2) defraying the reasonable expenses of administering the system.

c) **Prudent Person Standard**. Discharge its duties with respect to its system with the care, skill, prudence, and diligence under circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.

d) **Investments**. Diversify the investments of the system so as to minimize the risk of loss and to maximize the rate of return, unless under the circumstances it is clearly not prudent to do so.

   (1) ***Investment Statement.*** The board of each pension and retirement system shall adopt a statement of investment objectives and policies for the system. The statement shall include at least the desired rate of return and acceptable levels of risk for each asset class, asset allocation goals, guidelines for the delegation of authority, and information of the types of reports to be used to evaluate investment performance. At least annually, the board shall review the statement and change or reaffirm it. After each annual review, the board shall forward the statement to the Mayor and Council for informational purposes.

   (2) ***Performance Evaluation***. At least annually, the board of each pension and retirement system shall retain an outside performance evaluation firm to calculate the returns on all of the system investments.

e) **Actuarial Services**. Have the sole and exclusive power to provide for actuarial services in order to assure the competency of the assets of its systems in accordance with recognized actuarial methods.

f) **Rules and Regulations**. Have the power to adopt any rules, regulations, or forms it deems necessary to carry out its administration of a pension or retirement system or assets under its control.

Section 2.0 GOVERNING STATUTES

2.2 California Constitution Article XVI, Section 17

Added to Board Governance Statement on May 14, 2013; Affirmed: July 10, 2018

Key sections:

Notwithstanding any other provisions of law or this Constitution to the contrary, the retirement board of a public pension or retirement system shall have plenary authority and fiduciary responsibility for investment of moneys and administration of the system, subject to all of the following:

a. The retirement board of a public pension or retirement system shall have the sole and exclusive fiduciary responsibility over the assets of the public pension or retirement system. The retirement board shall also have sole and exclusive responsibility to administer the system in a manner that will assure prompt delivery of benefits and related services to the participants and their beneficiaries. The assets of a public pension or retirement system are trust funds and shall be held for the exclusive purposes of providing benefits to participants in the pension or retirement system and their beneficiaries and defraying reasonable expenses of administering the system.
b. The members of the retirement board of a public pension or retirement system shall discharge their duties with respect to the system solely in the interest of, and for the exclusive purposes of providing benefits to, participants and their beneficiaries, minimizing employer contributions thereto, and defraying reasonable expenses of administering the system. A retirement board's duty to its participants and their beneficiaries shall take precedence over any other duty.
c. The members of the retirement board of a public pension or retirement system shall discharge their duties with respect to the system with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.
d. The members of the retirement board of a public pension or retirement system shall diversify the investments of the system so as to minimize the risk of loss and to maximize the rate of return, unless under the circumstances it is clearly not prudent to do so.
e. The retirement board of a public pension or retirement system, consistent with the exclusive fiduciary responsibilities vested in it, shall have the sole and exclusive power to provide for actuarial services in order to assure the competency of the assets of the public pension or retirement system.
f. The Legislature may by statute continue to prohibit certain investments by a retirement board where it is in the public interest to do so, and provided that the prohibition satisfies the standards of fiduciary care and loyalty required of a retirement board pursuant to this section.

2.3 General Laws

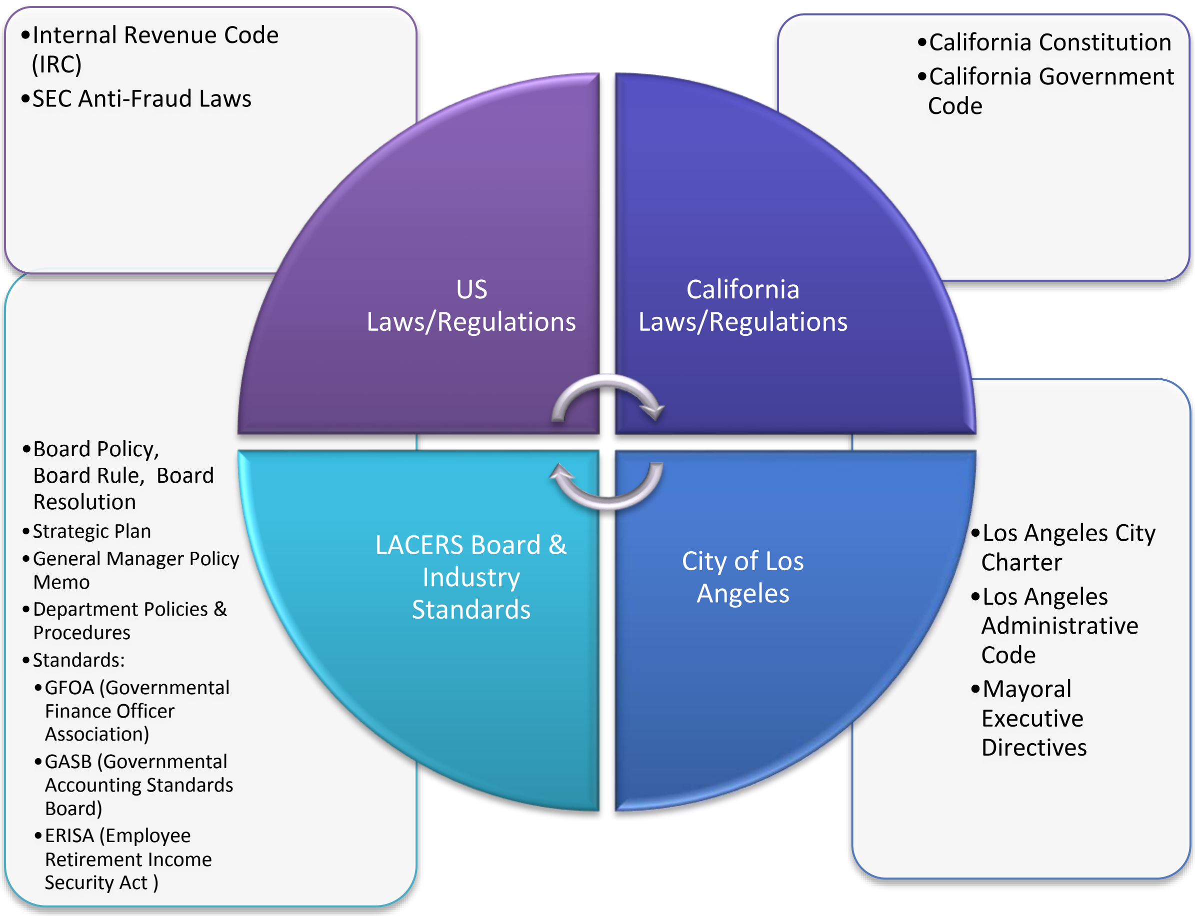
Added to Board Governance Statement on May 14, 2013; Revised: July 10, 2018

LACERS is one of a handful of California systems which are governed by its own City Charter and not State statutes.*~~.~~ The Los Angeles City Charter along with the California Constitution, as described in the preceding sections, establish the governing provisions for the retirement system. However there are other laws and regulations which apply to various aspects of LACERS administration. Information provided in this section is meant to be introductory and not exhaustive. ~~Consult the City Attorney f~~For citation of specific laws, it is advised that the City Attorney be consulted.

Section 2.0 GOVERNING STATUTES

Public retirement boards are responsible for the oversight of the system's administration, including ensuring compliance with the following:

- Federal laws and regulations (primarily those administered by the Internal Revenue Service and the US Treasury Department)
- State and local laws and regulations
- Industry standards, such as those set forth for accounting, financial reporting, and actuarial valuations, and
- The system's own strategic plan; policies, rules, and procedures.



*Note: Key California public pension laws include:

1. California Public Employees Retirement Law ("PERL") – Applicable to CalPERS, CalSTRS, but not the UC Regents
2. County Employee Retirement Law ("CERL") – Applicable to 20 county public employee retirement systems in California
3. California Public Employees' Pension Reform Act of 2013 (PEPRA). PEPRA applies to all California systems except those under their own city or county charter. Effective January 1, 2013, PEPRA implements significant public pension reform in efforts to reduce the cost of the public employee pension benefits.

While private sector pensions are subject solely to federal regulation under ERISA (Employee Retirement Income Security Act of 1974)*, government pension plans are governed through state and local statutes. As such, governmental plans must comply with applicable state and local constitutional and statutory requirements and case law; in addition to federal tax qualification laws; and governmental accounting and reporting standards. ~~[http://wikipension.com/wiki/Public_retirement_system_organizations_and_governing_bodies]~~

Section 2.0 GOVERNING STATUTES

Federal Laws and Regulations

Governmental plans are subject to federal regulations relating to Federal tax qualification, enforced by the U.S. Treasury Department and the Internal Revenue Service; and anti-fraud laws promulgated by the U.S. Securities and Exchange Commission (SEC).

Internal Revenue Code

LACERS, like most governmental retirement systems, have been established and maintained as qualified governmental retirement plan under the Internal Revenue Code ("IRC" or "Code") § 401(a). Ensuring compliance with 401(a) qualification requirements protects the favorable tax treatment for members' benefits under this status.

The laws/regulations that most commonly affect defined benefit (DB) pension plans include:

- IRC 401(a)(17): qualified DB plans must use pay that is the smaller of actual pensionable pay versus a dollar limit (called the 401(a)(17) limit) that changes yearly
- IRC 415: qualified DB plans must limit the dollar amount of the benefit paid from the plan under certain circumstances
- Non discrimination rules: IRC 410(b), IRC 401(a)(4), IRC 401(a)(26) Broadly speaking, forbids qualified DB plans from giving large amount of benefit to highly compensated employees
- Rules on distributions: lump sum must be no smaller than the lump sum calculated using mandated mortality and interest rate (IRC 417(e)), spouse consent necessary for any non joint and survivor form of benefit (joint and survivor percent must be 50% or larger)
- Rules against assignment, garnishment
- Top heavy rules (IRC 416): benefits for all non highly compensated employees must be increased if the benefits for highly compensated employees are too large

~~[http://en.wikipedia.org/wiki/Defined_benefit_pension_plan]~~https://www.irs.gov/pub/irs-pdf/p7002.pdf

Federal Securities Laws

Federal Securities Laws require adequate compliance policies and procedures to prevent wrongdoing in their money management functions. While public pension funds are exempt from most of the federal securities laws governing other money managers, they are not exempt from important anti-fraud provisions that prohibit insider trading and other manipulative and dishonest behavior. When public pension funds come into possession of material non-public information, they must have safeguards specifically designed to prevent the misuse of inside information, and avoid any personal gain from such transactions.
[http://www.sec.gov/news/press/2008/2008-35.htm]

State Laws and Regulations

Article XVI of the California State Constitution (aka "Proposition 162" or "The California Pension Protection Act of 1992")

The California Pension Protection Act of 1992 amended Section 17 of Article XVI of the California State Constitution and made several changes to California's public retirement systems; the Act:

Section 2.0 GOVERNING STATUTES

- Provided the authority for the board of each public pension system to administer the system's assets and actuarial function
- Established that each public pension board is to make providing benefits to members and beneficiaries its' highest priority
- Set forth the conditions under which the terms and conditions for board membership may change; no changes may be made unless a majority of voters in the jurisdiction of the retirement system in question approve.

California State Constitution, Article 1 §9

California case law recognizes that public pension rights are governed by statute and not contract principles. "A public employee's pension constitutes an element of compensation, and a vested contractual right to pension benefits accrues upon acceptance of employment. Such a pension right may not be destroyed, once vested, without impairing a contractual obligation of the employing public entity [Gutierrez v. Board of Retirement, 72 Cal Rptr 2d 837(1998); Betts v. Board of Admin., 582 P.2d 614 (Cal. 1978)].
http://www.nasra.org/content.asp?contentid=59

California Government Code Section 7500-7514.5

Various provisions are contained in this section including: enabling the State Controller to gather information to compare and evaluate the financial condition of pension systems and to make such comparisons and evaluations; requiring the availability of direct deposit to members; enacting the California Actuarial Advisory Panel; addressing divestiture of plan assets; restricting use of placement agents; prohibiting lobbying within two years of leaving a retirement system; permitting purchase of fiduciary liability insurance; requiring an annual financial audit.

City Laws and Regulations

Charter of the City of Los Angeles

Statutes establishing the authority assigned to LACERS are contained in the City Charter.

The City Charter has two volumes. The first volume establishes governance of the City, establishing departments, their assignments and authorities. The second volume establishes the employment provisions for the management of City employees, assignment of their civil service rights, and benefits including pension benefits.

Los Angeles Administrative Code (LAAC)

The benefits promised to LACERS members by the City are detailed in the LAAC. The LAAC is the guiding document for staff to determine such ~~things~~matters as the City's contribution, member's contribution, eligibility for membership in LACERS for Tier 1 and Tier ~~2~~3, calculation of the service retirement, rules on spousal/domestic partner benefits, the disability benefit, service purchase rules, reciprocal benefits with other retirement systems; and parameters of optional programs such as the Limited Term Retirement Plan, larger annuity program, family death benefit plan.

Section 2.0 GOVERNING STATUTES

Generally the LAAC provides detailed provisions to accompany the broader Charter provisions. City Charter provisions may only be changed by the voters while the LAAC is revised through ordinances adopted by the City Council and Mayor. The LAAC describes the powers and duties of the City Council and Mayor, and the various categories of Departments and their authorities. It contains general provisions applicable to the operation of all departments including the Governmental Ethics Ordinance, provisions on finance, purchasing, contracting, and records.

Executive Directives

Through Executive Directives, the Mayor directs City Department actions in a variety of topic areas including guidance on City employee actions; participation in efforts to promote Mayoral goals such as emergency planning/coordination; improving traffic, census counts, sustainability practices, gender equity; to supporting the bike plan, good food purchases, homeless strategy, and business inclusion.

LACERS Policies and Rules

Board Policies

The Board adopts policies to ensure consistent treatment of a particular matter in a direction stated by the Board.

Board Rules

The Board will adopt rules when the statutes or laws are unclear or silent, and consistency is required; or when designated by statute that the Board adopt rules and regulations for a specified program.

Board Resolutions

Board resolutions serve to document a specific decision of the Board in a standalone document.

In accordance with LAAC Sec. 21.16, "The powers conferred upon each board shall be exercised by order or resolution adopted by a majority of its members and recorded in the minutes with the ayes and noes at length. Such action shall be attested by the signatures of the President or Vice-President, or two members of the board, and by the signature of the Secretary of the board."

Strategic Plan

The Strategic Plan documents the Board's long-term goals for the System and sets the priority and direction for which the Board, staff, and key consultants should strive. In accordance with the Board's Strategic Planning Policy, progress on the accomplishment of the plan is analyzed and reported to the Board annually, and a comprehensive review of the plan is conducted triennially.

General Manager Policy Memos

The General Manager will issue policy memos to instruct staff on various matters.

Department Policies and Procedures

Section 2.0 GOVERNING STATUTES

Department policies and procedures are established and updated regularly to ensure that all staff will perform functions uniformly and for a consistent purpose.

2.4 Standards of Practice

Added to Board Governance Statement on May 14, 2013; Revised: July 10, 2018

LACERS acknowledges that the following entities establish sound professional standards and that LACERS is not necessarily required to follow these standards of practice but will endeavor to meet these standards when in the best interest of LACERS members.

Governmental Accounting Standards Board (GASB)

GASB is an independent, non-governmental organization whose purpose is to establish standards and guidelines for state and local government accounting principles. GASB issues Statements of Governmental Accounting Standards for the purpose of providing taxpayers, legislators, municipal bond analysts, and others with information that is useful to their decision-making process regarding governmental entities. LACERS complies with GASB ~~issues accounting~~ standards governing how public pension assets and liabilities are measured and reported.

~~Under the new standards issued in 2012, LACERS' will have new disclosure and note requirements as well as needing to provide supplemental information in their accounting and financial reporting documents. The new standards will have greater impact on the City who will be required to report the amount of unfunded pension obligations in their balance sheets. The liability that must be recognized, the "net pension obligation," is the total pension liability less the amount of plan assets formally set aside for payment of benefits as of the reporting date.~~

Government Finance Officers Association (GFOA)

The goal of GFOA is to enhance and promote the professional management of governments for the public benefit by identifying and developing financial policies and best practices and promoting their use through education, training, facilitation of member networking, and leadership.

LACERS adheres to GFOA guidelines in preparation of its annual Comprehensive Financial Report. LACERS will also monitor GFOA issued policy statements which establish best practice standards in such areas as: asset allocation, member communications, retiree health benefits, pension fund risk, retirement plan design, system governance, and investment policies.

Employee Retirement Income Security Act of 1974

Private sector plans are governed by the Employee Retirement Income Security Act (ERISA) of 1974. While ERISA requirements are not applicable to plans of state and local government, LACERS recognizes ERISA standards as a high standard and will endeavor to meet ERISA standards when possible. ERISA, rooted in the principles of trust law, governs the fiduciary conduct and reporting requirements of private sector employee benefits plans through a system

of exclusively Federal rights and remedies. It also contains provisions governing employee benefit plans that preempt state laws.
[http://en.wikipedia.org/wiki/Defined_benefit_pension_plan]

2.5 Key Documents by Reference

Added to Board Governance Statement on May 14, 2013; Addendum - September 23, 2014; Revised: July 10, 2018

The following are considered key documents whose guidelines/rules apply to LACERS. These documents are incorporated into the manual only by reference. An introduction to the documents is provided below and a full copy is available to the Board on the Board website and by request.

Board Procedural Rules

"Brown Act"

The Ralph M. Brown Act is California's open meeting law. The law's intent is to promote transparency and public access to government by requiring that the deliberations and actions of public bodies be conducted openly.

This law prohibits such acts as Board members having discussions of a quorum of the Board without public notice and public access; as well as having serial discussions which are conducted outside of a public meeting.

Governmental Ethics

State - California Political Reform Act of 1974 – "Form 700" Filing

Because LACERS Trustees make decisions on investment of fund assets, you are placed in a special category by the California Government Code Section 87200-87210. As an "87200 filer" you must disclose certain financial interests that may pose a potential conflict between your personal interests and your public duties.

LACERS Trustees must file a "California Form 700" by April and October of each year.

- **California Fair Practices Act**
  ~~http://www.fppc.ca.gov/index.php?id=51~~http://www.fppc.ca.gov/the-law.html

- **California Fair Political Practices Commission (FPPC) Webpage**
  http://www.fppc.ca.gov/

City of Los Angeles - Governmental Ethics Ordinance

The Governmental Ethics Ordinance overlay California state law, but imposes various additional provisions and restrictions on City officials and employees. Among these are a ban on use of resources for private benefit; misuse of position and resources; the disclosure of economic interests by City officials; and restrictions on gifts, outside income, honorariums for making speeches, post employment lobbying, and political activities.

Section 2.0 GOVERNING STATUTES

LACERS Trustees must file a City addendum to their California Form 700, known as the City Ethics Commission Form 11. This form helps Trustees comply with the additional requirements under the City's Governmental Ethics Ordinance.

- **Governmental Ethics Ordinance (February 2014)**
  http://ethics.lacity.org/PDF/laws/law_geo_february2014.pdf

- **City Ethics Commission – Governmental Ethics Webpage**
  ~~http://ethics.lacity.org/govethics/~~https://ethics.lacity.org/ethics/commissioners/

City of Los Angeles Code of Ethics

All City Officials and employees must abide by this Code of Ethics.

- **City Code of Ethics** (August 23, 1979)
  http://ethics.lacity.org/PDF/MayorExecDir/CityCodeofEthics.pdf

- **Mayoral Executive Directive 1 – Ethics in Government** (October 20, 2005)
  http://ens.lacity.org/mayor/villaraigosa/mayorvillaraigosa331283115_07032013.pdf

- **Mayoral Executive Directive 7 – Governmental Ethics: Departmental Liaison, Training, and Compliance** (July 12, 2006)
  http://ens.lacity.org/mayor/villaraigosa/mayorvillaraigosa331283121_07122006.pdf

Financial and Funding Reports

Comprehensive Annual Financial ~~Annual~~ Report (~~CFAR~~CAFR)

As a means to demonstrate LACERS' commitment to transparency, LACERS annually produces a ~~CFAR~~CAFR which presents a broad view of our financial condition including the System's financial statements, investment performance results, and actuarial valuations for retirement and health benefits.

The report is prepared in conformance with accounting principles generally accepted in the United States, the reporting guidelines set forth by the Government Accounting Standards Board (GASB), and the Los Angeles City Charter.

Actuarial Valuations for Retirement and Health Benefits (Annual)

An actuarial valuation can be thought of as a financial check-up for a pension or retiree health benefit plan. It measures current costs and contribution requirements to determine how much employers and employees should contribute to maintain appropriate benefit funding progress. The primary purpose of a valuation is to determine how much employers and employees should contribute to the plan during the upcoming year. The second key purpose of a valuation is to determine the plan's funding progress by examining how the plan's assets compare with its liabilities.

Section 2.0 GOVERNING STATUTES

The LACERS Board selects the actuary to perform the actuarial studies; approves the actuarial methodologies and certain key assumptions; and monitors the funded status for both retirement benefits and health care benefits.

Actuarial Experience Study (Triennial)

The purpose of an experience study is to compare the actual experience of the system against the current assumptions and to recommend new actuarial assumptions if necessary. The study reviews retirement rates, termination rates, mortality rates and rates of salary increase.

LACERS Benefits

Summary Plan Description

A Summary Plan Description is a document written for plan members which contains a comprehensive summary of a retirement plan, including the terms and conditions of participation.

LACERS~~'~~ prepares and distributes to members separate ~~s~~Summary ~~P~~Plan ~~D~~Descriptions for Tier 1 members and Tier ~~2~~3 members.

Audit Reports

Annual Financial Audit

Each year an external auditor retained by the Board will conduct a financial audit of the System in accordance with standards promulgated by the American Institute of Certified Public Accountants (AICPA). An external audit report provides assurances to the Board that LACERS' accounting records are complete and in adherence ~~with~~to generally accepted accounting principles, industry standards and regulatory requirements.

Actuarial Audit

Every five to seven years, the Board may direct an audit of our actuarial findings. A second actuarial firm is retained to validate the results of the retirement and health benefits valuations conducted by the consulting actuary, and to ensure the reasonableness of the underlying actuarial assumptions and the actuarial cost method utilized in performing such actuarial valuations.

City's Management Audit

Pursuant to City Charter Section 1112, the Los Angeles City Controller, the Office of the Mayor, and the Los Angeles City Council jointly cause, once every five years, a management audit to be conducted of LACERS by an independent qualified management auditing firm. ~~The first such~~ ~~m~~Management audit reports ~~was~~were issued in 2007~~,~~ and ~~a second management audit report is scheduled~~ in 2013. The next management audit is expected to be conducted in 2019.

The management audit report provides insight into perceived strengths and weaknesses of the pension system in comparison to industry best practices from the management audit firm's perspective.

Section 2.0 GOVERNING STATUTES

2.1 Los Angeles City Charter, Section 1106

Added to Board Governance Statement on May 14, 2013; Affirmed: July 10, 2018

Pursuant to the City Charter and consistent with Article XVI, Section 17 of the California Constitution, and other governing laws, the Board has responsibility for the following:

a) **Administration of the Pension or Retirement System.** Have sole and exclusive responsibility to administer its system for the following purposes:

   (1) to provide benefits to system participants and their beneficiaries and to assure prompt delivery of those benefits and related services;
   (2) to minimize City contributions; and
   (3) to defray the reasonable expenses of administering the system.

   <u>The duty to system participants and their beneficiaries shall take precedence over any other duty.</u>

b) **Assets.** Have sole and exclusive fiduciary responsibility over the assets of its system which are held in trust for the exclusive purposes of:

   (1) providing benefits to system participants and their beneficiaries; and
   (2) defraying the reasonable expenses of administering the system.

c) **Prudent Person Standard**. Discharge its duties with respect to its system with the care, skill, prudence, and diligence under circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.

d) **Investments**. Diversify the investments of the system so as to minimize the risk of loss and to maximize the rate of return, unless under the circumstances it is clearly not prudent to do so.

   (1) ***Investment Statement.*** The board of each pension and retirement system shall adopt a statement of investment objectives and policies for the system. The statement shall include at least the desired rate of return and acceptable levels of risk for each asset class, asset allocation goals, guidelines for the delegation of authority, and information of the types of reports to be used to evaluate investment performance. At least annually, the board shall review the statement and change or reaffirm it. After each annual review, the board shall forward the statement to the Mayor and Council for informational purposes.

   (2) ***Performance Evaluation***. At least annually, the board of each pension and retirement system shall retain an outside performance evaluation firm to calculate the returns on all of the system investments.

e) **Actuarial Services**. Have the sole and exclusive power to provide for actuarial services in order to assure the competency of the assets of its systems in accordance with recognized actuarial methods.

f) **Rules and Regulations**. Have the power to adopt any rules, regulations, or forms it deems necessary to carry out its administration of a pension or retirement system or assets under its control.

Section 2.0 GOVERNING STATUTES

2.2 California Constitution Article XVI, Section 17

Added to Board Governance Statement on May 14, 2013; Affirmed: July 10, 2018

Key sections:

Notwithstanding any other provisions of law or this Constitution to the contrary, the retirement board of a public pension or retirement system shall have plenary authority and fiduciary responsibility for investment of moneys and administration of the system, subject to all of the following:

a. The retirement board of a public pension or retirement system shall have the <u>sole and exclusive</u> fiduciary responsibility over the assets of the public pension or retirement system. The retirement board shall also have sole and exclusive responsibility to administer the system in a manner that will assure prompt delivery of benefits and related services to the participants and their beneficiaries. The assets of a public pension or retirement system are trust funds and shall be held for the exclusive purposes of providing benefits to participants in the pension or retirement system and their beneficiaries and defraying reasonable expenses of administering the system.
b. The members of the retirement board of a public pension or retirement system shall discharge their duties with respect to the system solely in the interest of, and for the exclusive purposes of providing benefits to, participants and their beneficiaries, minimizing employer contributions thereto, and defraying reasonable expenses of administering the system. A retirement <u>board's duty to its participants and their beneficiaries shall take precedence over any other duty</u>.
c. The members of the retirement board of a public pension or retirement system shall discharge their duties with respect to the system with the care, skill, prudence, and diligence under the circumstances then prevailing that a <u>prudent person</u> acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.
d. The members of the retirement board of a public pension or retirement system shall diversify the investments of the system so as to minimize the risk of loss and to maximize the rate of return, unless under the circumstances it is clearly not prudent to do so.
e. The retirement board of a public pension or retirement system, consistent with the exclusive fiduciary responsibilities vested in it, shall have the sole and exclusive power to provide for actuarial services in order to assure the competency of the assets of the public pension or retirement system.
f. The Legislature may by statute continue to prohibit certain investments by a retirement board where it is in the public interest to do so, and provided that the prohibition satisfies the standards of fiduciary care and loyalty required of a retirement board pursuant to this section.

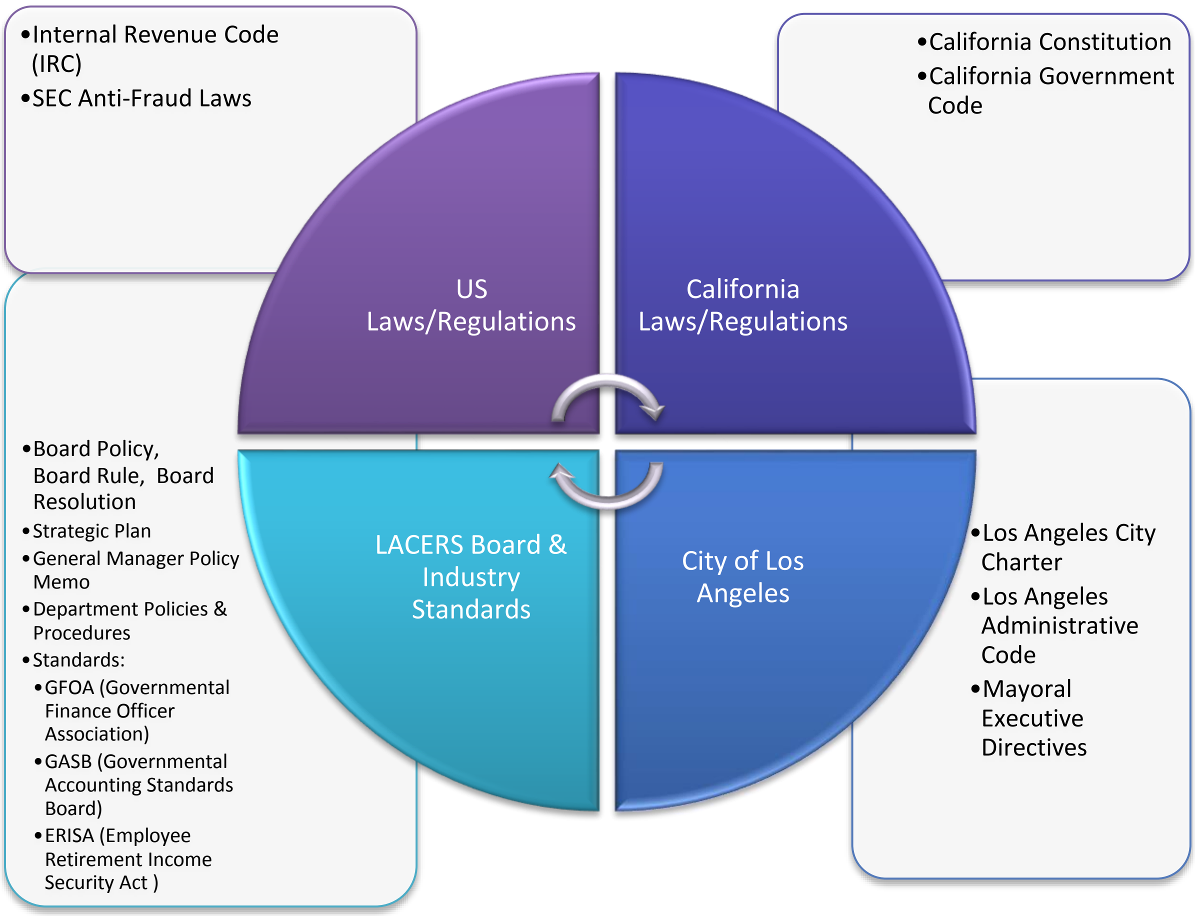
2.3 General Laws

Added to Board Governance Statement on May 14, 2013; Revised: July 10, 2018

LACERS is one of a handful of California systems which are governed by its own City Charter and not State statutes.* The Los Angeles City Charter along with the California Constitution, as described in the preceding sections, establish the governing provisions for the retirement system. However there are other laws and regulations which apply to various aspects of LACERS administration. Information provided in this section is meant to be introductory and not exhaustive. For citation of specific laws, it is advised that the City Attorney be consulted.
Public retirement boards are responsible for the oversight of the system's administration, including ensuring compliance with the following:

Section 2.0 GOVERNING STATUTES

- Federal laws and regulations (primarily those administered by the Internal Revenue Service and the US Treasury Department)
- State and local laws and regulations
- Industry standards, such as those set forth for accounting, financial reporting, and actuarial valuations, and
- The system's own strategic plan; policies, rules, and procedures.



*Note: Key California public pension laws include:

1. California Public Employees Retirement Law ("PERL") – Applicable to CalPERS, CalSTRS, but not the UC Regents
2. County Employee Retirement Law ("CERL") – Applicable to 20 county public employee retirement systems in California
3. California Public Employees' Pension Reform Act of 2013 (PEPRA). PEPRA applies to all California systems except those under their own city or county charter. Effective January 1, 2013, PEPRA implements significant public pension reform in efforts to reduce the cost of the public employee pension benefits.

While private sector pensions are subject solely to federal regulation under ERISA (Employee Retirement Income Security Act of 1974)*, government pension plans are governed through state and local statutes. As such, governmental plans must comply with applicable state and local constitutional and statutory requirements and case law; in addition to federal tax qualification laws; and governmental accounting and reporting standards.

Section 2.0 GOVERNING STATUTES

Federal Laws and Regulations

Governmental plans are subject to federal regulations relating to Federal tax qualification, enforced by the U.S. Treasury Department and the Internal Revenue Service; and anti-fraud laws promulgated by the U.S. Securities and Exchange Commission (SEC).

Internal Revenue Code

LACERS, like most governmental retirement systems, have been established and maintained as qualified governmental retirement plan under the Internal Revenue Code ("IRC" or "Code") § 401(a). Ensuring compliance with 401(a) qualification requirements protects the favorable tax treatment for members' benefits under this status.

The laws/regulations that most commonly affect defined benefit (DB) pension plans include:
- IRC 401(a)(17): qualified DB plans must use pay that is the smaller of actual pensionable pay versus a dollar limit (called the 401(a)(17) limit) that changes yearly
- IRC 415: qualified DB plans must limit the dollar amount of the benefit paid from the plan under certain circumstances
- Non discrimination rules: IRC 410(b), IRC 401(a)(4), IRC 401(a)(26) Broadly speaking, forbids qualified DB plans from giving large amount of benefit to highly compensated employees
- Rules on distributions: lump sum must be no smaller than the lump sum calculated using mandated mortality and interest rate (IRC 417(e)), spouse consent necessary for any non joint and survivor form of benefit (joint and survivor percent must be 50% or larger)
- Rules against assignment, garnishment
- Top heavy rules (IRC 416): benefits for all non highly compensated employees must be increased if the benefits for highly compensated employees are too large
  https://www.irs.gov/pub/irs-pdf/p7002.pdf

Federal Securities Laws

Federal Securities Laws require adequate compliance policies and procedures to prevent wrongdoing in their money management functions. While public pension funds are exempt from most of the federal securities laws governing other money managers, they are not exempt from important anti-fraud provisions that prohibit insider trading and other manipulative and dishonest behavior. When public pension funds come into possession of material non-public information, they must have safeguards specifically designed to prevent the misuse of inside information, and avoid any personal gain from such transactions.
[http://www.sec.gov/news/press/2008/2008-35.htm]

State Laws and Regulations

Article XVI of the California State Constitution (aka "Proposition 162" or "The California Pension Protection Act of 1992")

The California Pension Protection Act of 1992 amended Section 17 of Article XVI of the California State Constitution and made several changes to California's public retirement systems; the Act:
- Provided the authority for the board of each public pension system to administer the system's assets and actuarial function

Section 2.0 GOVERNING STATUTES

- Established that each public pension board is to make providing benefits to members and beneficiaries its' highest priority
- Set forth the conditions under which the terms and conditions for board membership may change; no changes may be made unless a majority of voters in the jurisdiction of the retirement system in question approve.

California State Constitution, Article 1 §9

California case law recognizes that public pension rights are governed by statute and not contract principles. "A public employee's pension constitutes an element of compensation, and a vested contractual right to pension benefits accrues upon acceptance of employment. Such a pension right may not be destroyed, once vested, without impairing a contractual obligation of the employing public entity [Gutierrez v. Board of Retirement, 72 Cal Rptr 2d 837(1998); Betts v. Board of Admin., 582 P.2d 614 (Cal. 1978)].
http://www.nasra.org/content.asp?contentid=59

California Government Code Section 7500-7514.5

Various provisions are contained in this section including: enabling the State Controller to gather information to compare and evaluate the financial condition of pension systems and to make such comparisons and evaluations; requiring the availability of direct deposit to members; enacting the California Actuarial Advisory Panel; addressing divestiture of plan assets; restricting use of placement agents; prohibiting lobbying within two years of leaving a retirement system; permitting purchase of fiduciary liability insurance; requiring an annual financial audit.

City Laws and Regulations

Charter of the City of Los Angeles

Statutes establishing the authority assigned to LACERS are contained in the City Charter.

The City Charter has two volumes. The first volume establishes governance of the City, establishing departments, their assignments and authorities. The second volume establishes the employment provisions for the management of City employees, assignment of their civil service rights, and benefits including pension benefits.

Los Angeles Administrative Code (LAAC)

The benefits promised to LACERS members by the City are detailed in the LAAC. The LAAC is the guiding document for staff to determine such matters as the City's contribution, member's contribution, eligibility for membership in LACERS for Tier 1 and Tier 3, calculation of the service retirement, rules on spousal/domestic partner benefits, the disability benefit, service purchase rules, reciprocal benefits with other retirement systems; and parameters of optional programs such as the Limited Term Retirement Plan, larger annuity program, family death benefit plan.

Generally the LAAC provides detailed provisions to accompany the broader Charter provisions. City Charter provisions may only be changed by the voters while the LAAC is revised through ordinances adopted by the City Council and Mayor. The LAAC describes the powers and duties of the City Council and Mayor, and the various categories of Departments and their authorities.

Section 2.0 GOVERNING STATUTES

It contains general provisions applicable to the operation of all departments including the Governmental Ethics Ordinance, provisions on finance, purchasing, contracting, and records.

Executive Directives

Through Executive Directives, the Mayor directs City Department actions in a variety of topic areas including guidance on City employee actions; participation in efforts to promote Mayoral goals such as emergency planning/coordination; improving traffic, census counts, sustainability practices, gender equity; to supporting the bike plan, good food purchases, homeless strategy, and business inclusion.

LACERS Policies and Rules

Board Policies

The Board adopts policies to ensure consistent treatment of a particular matter in a direction stated by the Board.

Board Rules

The Board will adopt rules when the statutes or laws are unclear or silent, and consistency is required; or when designated by statute that the Board adopt rules and regulations for a specified program.

Board Resolutions

Board resolutions serve to document a specific decision of the Board in a standalone document.

In accordance with LAAC Sec. 21.16, "The powers conferred upon each board shall be exercised by order or resolution adopted by a majority of its members and recorded in the minutes with the ayes and noes at length. Such action shall be attested by the signatures of the President or Vice-President, or two members of the board, and by the signature of the Secretary of the board."

Strategic Plan

The Strategic Plan documents the Board's long-term goals for the System and sets the priority and direction for which the Board, staff, and key consultants should strive. In accordance with the Board's Strategic Planning Policy, progress on the accomplishment of the plan is analyzed and reported to the Board annually, and a comprehensive review of the plan is conducted triennially.

General Manager Policy Memos

The General Manager will issue policy memos to instruct staff on various matters.

Department Policies and Procedures

Department policies and procedures are established and updated regularly to ensure that all staff will perform functions uniformly and for a consistent purpose.

Section 2.0 GOVERNING STATUTES

2.4 Standards of Practice

Added to Board Governance Statement on May 14, 2013; Revised: July 10, 2018

LACERS acknowledges that the following entities establish sound professional standards and that LACERS is not necessarily required to follow these standards of practice but will endeavor to meet these standards when in the best interest of LACERS members.

Governmental Accounting Standards Board (GASB)

GASB is an independent, non-governmental organization whose purpose is to establish standards and guidelines for state and local government accounting principles. GASB issues Statements of Governmental Accounting Standards for the purpose of providing taxpayers, legislators, municipal bond analysts, and others with information that is useful to their decision-making process regarding governmental entities. LACERS complies with GASB standards governing how public pension assets and liabilities are measured and reported.

Government Finance Officers Association (GFOA)

The goal of GFOA is to enhance and promote the professional management of governments for the public benefit by identifying and developing financial policies and best practices and promoting their use through education, training, facilitation of member networking, and leadership.

LACERS adheres to GFOA guidelines in preparation of its annual Comprehensive Financial Report. LACERS will also monitor GFOA issued policy statements which establish best practice standards in such areas as: asset allocation, member communications, retiree health benefits, pension fund risk, retirement plan design, system governance, and investment policies.

Employee Retirement Income Security Act of 1974

Private sector plans are governed by the Employee Retirement Income Security Act (ERISA) of 1974. While ERISA requirements are not applicable to plans of state and local government, LACERS recognizes ERISA standards as a high standard and will endeavor to meet ERISA standards when possible. ERISA, rooted in the principles of trust law, governs the fiduciary conduct and reporting requirements of private sector employee benefits plans through a system of exclusively Federal rights and remedies. It also contains provisions governing employee benefit plans that preempt state laws.
[http://en.wikipedia.org/wiki/Defined_benefit_pension_plan]

2.5 Key Documents by Reference

Added to Board Governance Statement on May 14, 2013; Addendum - September 23, 2014; Revised: July 10, 2018

The following are considered key documents whose guidelines/rules apply to LACERS. These documents are incorporated into the manual only by reference. An introduction to the documents is provided below and a full copy is available to the Board on the Board website and by request.

Section 2.0 GOVERNING STATUTES

Board Procedural Rules

"Brown Act"

The Ralph M. Brown Act is California's open meeting law. The law's intent is to promote transparency and public access to government by requiring that the deliberations and actions of public bodies be conducted openly.

This law prohibits such acts as Board members having discussions of a quorum of the Board without public notice and public access; as well as having serial discussions which are conducted outside of a public meeting.

Governmental Ethics

State - California Political Reform Act of 1974 – "Form 700" Filing

Because LACERS Trustees make decisions on investment of fund assets, you are placed in a special category by the California Government Code Section 87200-87210. As an "87200 filer" you must disclose certain financial interests that may pose a potential conflict between your personal interests and your public duties.

LACERS Trustees must file a "California Form 700" by April and October of each year.

- **California Fair Practices Act**
  http://www.fppc.ca.gov/the-law.html
- **California Fair Political Practices Commission (FPPC) Webpage**
  http://www.fppc.ca.gov/

City of Los Angeles - Governmental Ethics Ordinance

The Governmental Ethics Ordinance overlay California state law, but imposes various additional provisions and restrictions on City officials and employees. Among these are a ban on use of resources for private benefit; misuse of position and resources; the disclosure of economic interests by City officials; and restrictions on gifts, outside income, honorariums for making speeches, post employment lobbying, and political activities.

LACERS Trustees must file a City addendum to their California Form 700, known as the City Ethics Commission Form 11. This form helps Trustees comply with the additional requirements under the City's Governmental Ethics Ordinance.

- **Governmental Ethics Ordinance (February 2014)**
  http://ethics.lacity.org/PDF/laws/law_geo_february2014.pdf

- **City Ethics Commission – Governmental Ethics Webpage**
  https://ethics.lacity.org/ethics/commissioners/

City of Los Angeles Code of Ethics

All City Officials and employees must abide by this Code of Ethics.

Section 2.0 GOVERNING STATUTES

- **City Code of Ethics** (August 23, 1979)
  http://ethics.lacity.org/PDF/MayorExecDir/CityCodeofEthics.pdf

- **Mayoral Executive Directive 1 – Ethics in Government** (October 20, 2005)
  http://ens.lacity.org/mayor/villaraigosa/mayorvillaraigosa331283115_07032013.pdf

- **Mayoral Executive Directive 7 – Governmental Ethics: Departmental Liaison, Training, and Compliance** (July 12, 2006)
  http://ens.lacity.org/mayor/villaraigosa/mayorvillaraigosa331283121_07122006.pdf

Financial and Funding Reports

Comprehensive Annual Financial Report (CAFR)

As a means to demonstrate LACERS' commitment to transparency, LACERS annually produces a CAFR which presents a broad view of our financial condition including the System's financial statements, investment performance results, and actuarial valuations for retirement and health benefits.

The report is prepared in conformance with accounting principles generally accepted in the United States, the reporting guidelines set forth by the Government Accounting Standards Board (GASB), and the Los Angeles City Charter.

Actuarial Valuations for Retirement and Health Benefits (Annual)

An actuarial valuation can be thought of as a financial check-up for a pension or retiree health benefit plan. It measures current costs and contribution requirements to determine how much employers and employees should contribute to maintain appropriate benefit funding progress. The primary purpose of a valuation is to determine how much employers and employees should contribute to the plan during the upcoming year. The second key purpose of a valuation is to determine the plan's funding progress by examining how the plan's assets compare with its liabilities.

The LACERS Board selects the actuary to perform the actuarial studies; approves the actuarial methodologies and certain key assumptions; and monitors the funded status for both retirement benefits and health care benefits.

Actuarial Experience Study (Triennial)

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Section 2.0 GOVERNING STATUTES

LACERS Benefits

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Actuarial Audit

Every five to seven years, the Board may direct an audit of our actuarial findings. A second actuarial firm is retained to validate the results of the retirement and health benefits valuations conducted by the consulting actuary, and to ensure the reasonableness of the underlying actuarial assumptions and the actuarial cost method utilized in performing such actuarial valuations.

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The management audit report provides insight into perceived strengths and weaknesses of the pension system in comparison to industry best practices from the management audit firm's perspective.

LACERS
LOS ANGELES CITY EMPLOYEES'
RETIREMENT SYSTEM

Report to Board of Administration

From: Governance Committee
Nilza R. Serrano, Chairperson
Elizabeth L. Greenwood
Vacant

Agenda of: **JULY 24, 2018**

ITEM: **VIII-C**

SUBJECT: **TRIENNIAL BOARD POLICY REVIEW: THE BOARD'S STATEMENT OF DUTIES AND RESPONSIBILITIES AND POSSIBLE BOARD ACTION**

Recommendation

That the Board approve the proposed revisions to the LACERS Board Policy, Section 3.0: Duties and Responsibilities of the Board.

Discussion

On July 10, 2018, the Committee considered revisions to the Board's *Duties and Responsibilities* proposed as part of the triennial Board Policy Review. The Committee concurred with the staff report and recommends Board approval of the minor policy revisions proposed therein.

Strategic Plan Impact Statement

The review of the Board Governance Statement of the LACERS Board Manual conforms to the Strategic Plan Board Governance Goal to uphold good governance practices which affirm transparency, accountability, and fiduciary duty.

This report was prepared by Edeliza Fang, Senior Management Analyst, Administrative Services Division.

NMG:TB:DWN:EF

Attachment: Governance Committee Recommendation Report dated July 10, 2018

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Report to Governance Committee

Lita Payne
for

From: Neil M. Guglielmo, General Manager

Agenda of: **JULY 10, 2018**

ITEM: **IV**

SUBJECT: **TRIENNIAL BOARD POLICY REVIEW: THE BOARD'S STATEMENT OF DUTIES AND RESPONSIBILITIES AND POSSIBLE COMMITTEE ACTION**

Recommendation

That the Committee consider the proposed revisions to the LACERS Board Policy, Section 3.0: Duties and Responsibilities of the Board.

Discussion

Every three years, LACERS performs a comprehensive review of its Board Governance and Administrative Policies as a best practice. This review considers whether there has been any change in applicable laws or standards of practice relative to the Board policies, and whether any issues have arisen in the past three years, that would suggest a need for revision. In March 2018, the Board adopted the Governance Committee's recommended schedule of review for the Board Policies, with an expected completion of the end of the calendar year 2018.

Staff completed their review of the Board's Statement of Duties and Responsibilities section of the Board Manual. The proposed changes include technical corrections and content updates to Subsection 3.1 – Board's Role to revise the Waiver of Recourse information; Subsection 3.3 – Commitment of a LACERS Board Member to revise the Board meeting duration; and Subsection 3.5 – Committee Structure to add the Investment Committee and to update Committee member names. Other changes include the addition of the affirmation of Subsection 3.2 – General Manager, and Subsection 3.4 – Committee Protocol since no content revisions are required.

The remaining subsections of the Duties and Responsibilities section were not reviewed as they do not fall under the purview of the Governance Committee. The Audit Committee Charter (Subsection 3.6.1) and the Internal Audit Charter (Subsection 3.6.2) will be reviewed by the Audit Committee. The Benefits Administration Committee Charter (Subsection 3.7) will be reviewed by the Benefits Administration Committee.

Upon the Committee's finalization of the proposed revised Duties and Responsibilities section of the Board Governance Statement, it will be presented to the Board for further consideration and approval.

Strategic Plan Impact Statement

The review of the Board Governance Statement of the LACERS Board Manual conforms with the LACERS Strategic Plan Board Governance Goal to uphold good governance practices which affirm transparency, accountability, and fiduciary duty.

This report was prepared by Edeliza Fang, Senior Management Analyst, Administrative Services Division.

NMG:TB:DWN:EF

ATTACHMENTS: A) Duties and Responsibilities Section – Redline Version
B) Duties and Responsibilities Section – Clean Version

Section 3.0 DUTIES AND RESPONSIBILITIES

3.1 The Board's Role

Revised: May 14, 2013; February 25, 2014; Revised: July 10, 2018

All authority granted by statute in Article XVI, Section 17 of the California State Constitution, by Article XI of the City Charter and Administrative Code provisions of the City of Los Angeles, to the Board of Administration, is retained, except as delegated by specific resolution. Consistent with its fiduciary role as Trustee of the Fund, the Board's principal role is to proactively manage the delivery of benefits and investment of trust assets for the exclusive benefit of its members and beneficiaries. The Board will establish policies and procedures to ensure LACERS is appropriately governed and managed to meet its fiduciary obligations.

The Board's role is to:

A. Develop and Adopt Policies

1. Set the long-term strategic direction through the adoption of a strategic plan and set an annual business plan for LACERS through the adoption of the annual budget, focusing on the goals of LACERS against which its performance is measured and monitored.

2. Set policies for LACERS, which include:
   a) A statement of investment objectives and policies for the system, inclusive of the desired rate of return, acceptable levels of risk for each asset class, asset allocation goals, guidelines for delegation of authority, and evaluation of investment performance.
   b) An Actuarial Funding Policy, inclusive of the Actuarial Cost Method, Asset Smoothing Method, and Amortization Policy.
   c) Board Governance policies, inclusive of clearly defined roles, responsibilities and permissible conduct of the key players; a Committee structure with charters defining their roles and responsibilities; and an educational and travel policy for Board and staff.
   d) Board rules and regulations necessary to carry out the administration of the System or assets under its control

3. Select, regularly evaluate, and, if necessary, take disciplinary action against the General Manager.

4. Delegate execution of established Board policy and strategic objectives to the General Manager and through him/her re-delegation to the employees of LACERS.

B. Review and Evaluate Performance

1. Monitor organizational performance and regularly review results as compared to:
   a) LACERS mission/vision statement
   b) Strategic plan and other long-range goals
   c) Annual business plans
   d) Performance measures that include external as well as internal measures

2. Monitor investment performance and regularly review results as compared to benchmarks.

3. Monitor Actuarial Services, including:
   - Review, approve, and monitor actuarial data and assumptions.

Section 3.0 DUTIES AND RESPONSIBILITIES

- Periodically review the services of the actuary and conduct an actuarial audit when the retained actuary has provided consecutive service for more than six years, or as reasonably determined.

C. Risk Control

1. Ensure the integrity of the financial control and reporting system.

2. Oversee all audits, including approval of the outside financial auditor, the annual internal audit plan, and provide that financial controls and reporting systems are set forth.

3. Review and consider the purchase of fiduciary liability insurance, to provide an optional layer of liability protection for Board Members and others acting in a capacity of Fiduciary to the LACERS trust in the event of legal claim(s) that the Trustee(s) have not fulfilled their fiduciary duty in any action or decision. The purchase of the policy will result in a cost to the System to cover the premium and a personal cost to the Trustee ~~in form of a~~to cover the waiver of recourse annual premium~~of approximately $50 per year~~ which cannot be advanced by the Trust Fund in accordance with Government Code Section 7511.

D. Other Board Responsibilities

1. At all times meet high ethical standards.

2. Organize the Board of Administration; organize its Committees; and approve charters and delegations to Committees and the General Manager.

3. Periodically evaluate the Board, its performance, and take any steps necessary to improve Board operations.

4. Set the Board agenda by identifying, articulating, prioritizing, and scheduling matters the Board will regularly address.

   a) Identify benchmarks that trigger Board review.
   b) Identify information needs and determine how, when, and in what form information is to be delivered to Board Members so as to enable the Board to meets its responsibilities, having regard for time available.

5. Be primarily responsible and accountable to members and their beneficiaries, ensuring the System provides strong member relations and effective communications. Be responsive to inquiries of member representative organizations, and the public. Work collaboratively with stakeholders with oversight responsibilities for the Retirement System including the Plan sponsor, the Internal Revenue Service, and other governmental entities.

6. Provide for the election of employee and retired representatives on the Board.

7. Conduct member hearings and decide appeals.

8. The Board is responsible for creating and maintaining an atmosphere that encourages frank and collegial discussions both at the Board and Committee level and as between

the Board and management. The Board strives to achieve a governing style that emphasizes:

- Strategic leadership
- Outward vision
- Focus on the future
- Proactivity
- Encouragement of collegiality
- Respect for diversity in viewpoints
- Governance by consensus
- A partnership with LACERS management
- Ethical conduct of Board business to avoid even the appearance of impropriety.

- The Board establishes and communicates Board policies and priorities, and then monitors performance in light of its established policies and priorities. The Board recognizes that the achievement of its goals requires self-discipline by the Board as a whole and by individual Board Members to live by the policies articulated herein and to govern with excellence.

3.2 General Manager

Revised: May 14, 2013; Revised February 25, 2014; Affirmed: July 10, 2018

Board/General Manager Relationship

The Board has delegated to the General Manager the responsibility for the administration and management of the System. Policy and direction set by the Board is implemented through the General Manager so that a strong relationship between the Board and General Manager, and clear delineation of authority is critical to the accomplishments of the Board's objectives.

General Manager Authority

The Board has delegated to the General Manager responsibility for the administration and management of the System consistent with Board delegation of authority. This includes broad responsibility for the following:

- Employing, training, developing, supervising, monitoring, and evaluating senior managers and staff. This may include succession planning for senior managers.
- Preparing and monitoring the annual administrative expense budget.
- Governmental affairs/media relations – The General Manager is authorized to work directly with the City executive and legislative branches as well as respond to public records requests, keeping the Members of the Board informed during the General Manager's Report. The Board President retains authority as the Board's spokesperson.
- Actuarial valuations and studies – To the extent budgeted, the General Manager may direct actuarial services necessary for the administration of the System.

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Section 3.0 DUTIES AND RESPONSIBILITIES

- With advice and counsel from the Board, achieve the long-term policies and strategic objectives established for the System by the Board, including as necessary:
  - Determine the appropriate methods for attaining the Board-established policies and strategic objectives.
  - Direct LACERS employees in furtherance of those objectives.
  - Ensure that management activities and decisions are within Board-approved policies.
  - Represent LACERS, or designate other staff representatives, to outside parties and organizations.
  - Provide leadership to LACERS employees by promoting conduct which emulates the Department's Guiding Principles.
  - Act as the liaison for communications and information flow between the Board and LACERS employees.
  - Provide annual goals of the General Manager which augment those in the Strategic Plan, if any, to be presented to the Board on or preceding the General Manager's annual evaluation, upon request.

3.3 Commitment of a LACERS Board Member

Affirmed: July 10, 2018

Members of the Board of Administration have a fiduciary responsibility to act solely for the exclusive benefit of members and beneficiaries with a secondary duty to minimize contributions of the employers. All responsibilities must be fulfilled in a cost effective and efficient manner.

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- Education is a fiduciary responsibility and is strongly encouraged. In-house seminars and outside conferences are available for this purpose. The time commitment for education is usually five days per year.

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- Members are expected to attend all regularly scheduled Board and Committee meetings. If a Board Member's attendance becomes sporadic, the Member should strongly consider resigning from the Board for the benefit of the members they have vowed to serve.

3.4 Committee Protocol

Revised: September 10, 2013; Affirmed: July 10, 2018

There are two types of ordinary committees, standing and ad hoc, to which the Board may refer or commit matters under consideration. A standing committee is expected to have a continuing existence, whereas an ad hoc committee is expected to cease to exist upon completion of the submittal of a final report.

1. Standing and ad hoc Committees shall be established by a majority vote of the Board.
2. Committee Chairs and Members shall be appointed by the President or Acting President of the Board.
3. Committees shall each have three Members.
4. Committee Members shall serve from the time they are designated until their successors have been designated, and may be removed or replaced by the President or Acting President by his/her own act.
5. Committees shall operate under Robert's Rules of Order unless otherwise specified by statute or Board action.
6. Committees shall adhere to the same public notification and meeting requirements as the Board.
7. Committee meetings shall be called by the Committee Chair.
8. Committee agenda topics shall be set by the Committee Chair, but the Committee Chair shall take as an agenda item any matter submitted by two Committee Members.
9. Committee meetings shall be open to all Board Members; however, only Committee Members may vote.
10. Ad hoc committees shall not be established for a matter that falls within the purview of a standing committee.
11. Committees shall receive such assignments as fall within their Charter.
12. Committees shall communicate with the Board in the form of report(s) to the Board, offering recommendations and discussion upon referred matters for the Board's consideration.
13. Ad hoc committees shall cease to exist upon submittal of the final report to the Board.

3.5 Committee Structure

Updated: June 9, 2015; Revised: July 10, 2018

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM
BOARD OF ADMINISTRATION
COMMITTEE STRUCTURE FOR FISCAL YEAR ~~2014-15~~2018-19

STANDING COMMITTEES*	
Audit Vacant, Chair Cynthia M. Ruiz Vacant	**Benefits Administration** Michael R. Wilkinson, Chair Cynthia M. Ruiz Nilza R. Serrano
Governance Nilza R. Serrano, Chair Elizabeth L. Greenwood Vacant	**Investment** Sung Won Sohn, Chair Nilza R. Serrano Vacant

~~STANDING COMMITTEES*~~		
Audit ~~William J. Briggs II~~Vacant, Chair ~~Elma Duke~~Nilza R. Serrano ~~Rick Rogers~~Vacant	**Benefits Administration** Michael R. Wilkinson, Chair ~~Rick Rogers~~Cynthia Ruiz Nilza R. Serrano	**Governance** ~~Elizabeth L. Greenwood~~Nilza R. Serrano, Chair ~~Jaime L. Lee~~Elizabeth L. Greenwood ~~Nilza R. Serrano~~Vacant

*Standing Committees remain in existence for the life of the establishing Board.

AD HOC COMMITTEE ON CYBER SECURITY*
Michael R. Wilkinson, Chair Elizabeth L. Greenwood Cynthia M. Ruiz~~William J. Briggs, II~~ ~~Rick Rogers~~

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Section 5.0 OTHER

*Ad Hoc Committees cease to exist upon completion of the submittal of a final report.

Section 3.0 DUTIES AND RESPONSIBILITIES

3.1 The Board's Role

Revised: May 14, 2013; February 25, 2014; Revised: July 10, 2018

All authority granted by statute in Article XVI, Section 17 of the California State Constitution, by Article XI of the City Charter and Administrative Code provisions of the City of Los Angeles, to the Board of Administration, is retained, except as delegated by specific resolution. Consistent with its fiduciary role as Trustee of the Fund, the Board's principal role is to proactively manage the delivery of benefits and investment of trust assets for the exclusive benefit of its members and beneficiaries. The Board will establish policies and procedures to ensure LACERS is appropriately governed and managed to meet its fiduciary obligations.

The Board's role is to:

A. Develop and Adopt Policies

1. Set the long-term strategic direction through the adoption of a strategic plan and set an annual business plan for LACERS through the adoption of the annual budget, focusing on the goals of LACERS against which its performance is measured and monitored.

2. Set policies for LACERS, which include:
   a) A statement of investment objectives and policies for the system, inclusive of the desired rate of return, acceptable levels of risk for each asset class, asset allocation goals, guidelines for delegation of authority, and evaluation of investment performance.
   b) An Actuarial Funding Policy, inclusive of the Actuarial Cost Method, Asset Smoothing Method, and Amortization Policy.
   c) Board Governance policies, inclusive of clearly defined roles, responsibilities and permissible conduct of the key players; a Committee structure with charters defining their roles and responsibilities; and an educational and travel policy for Board and staff.
   d) Board rules and regulations necessary to carry out the administration of the System or assets under its control

3. Select, regularly evaluate, and, if necessary, take disciplinary action against the General Manager.

4. Delegate execution of established Board policy and strategic objectives to the General Manager and through him/her re-delegation to the employees of LACERS.

B. Review and Evaluate Performance

1. Monitor organizational performance and regularly review results as compared to:
   a) LACERS mission/vision statement
   b) Strategic plan and other long-range goals
   c) Annual business plans
   d) Performance measures that include external as well as internal measures

2. Monitor investment performance and regularly review results as compared to benchmarks.

3. Monitor Actuarial Services, including:
   - Review, approve, and monitor actuarial data and assumptions.

Section 3.0 DUTIES AND RESPONSIBILITIES

- Periodically review the services of the actuary and conduct an actuarial audit when the retained actuary has provided consecutive service for more than six years, or as reasonably determined.

C. Risk Control

1. Ensure the integrity of the financial control and reporting system.

2. Oversee all audits, including approval of the outside financial auditor, the annual internal audit plan, and provide that financial controls and reporting systems are set forth.

3. Review and consider the purchase of fiduciary liability insurance, to provide an optional layer of liability protection for Board Members and others acting in a capacity of Fiduciary to the LACERS trust in the event of legal claim(s) that the Trustee(s) have not fulfilled their fiduciary duty in any action or decision. The purchase of the policy will result in a cost to the System to cover the premium and a personal cost to the Trustee to cover the waiver of recourse annual premium which cannot be advanced by the Trust Fund in accordance with Government Code Section 7511.

D. Other Board Responsibilities

1. At all times meet high ethical standards.

2. Organize the Board of Administration; organize its Committees; and approve charters and delegations to Committees and the General Manager.

3. Periodically evaluate the Board, its performance, and take any steps necessary to improve Board operations.

4. Set the Board agenda by identifying, articulating, prioritizing, and scheduling matters the Board will regularly address.

   a) Identify benchmarks that trigger Board review.
   b) Identify information needs and determine how, when, and in what form information is to be delivered to Board Members so as to enable the Board to meets its responsibilities, having regard for time available.

5. Be primarily responsible and accountable to members and their beneficiaries, ensuring the System provides strong member relations and effective communications. Be responsive to inquiries of member representative organizations, and the public. Work collaboratively with stakeholders with oversight responsibilities for the Retirement System including the Plan sponsor, the Internal Revenue Service, and other governmental entities.

6. Provide for the election of employee and retired representatives on the Board.

7. Conduct member hearings and decide appeals.

8. The Board is responsible for creating and maintaining an atmosphere that encourages frank and collegial discussions both at the Board and Committee level and as between

the Board and management. The Board strives to achieve a governing style that emphasizes:

- Strategic leadership
- Outward vision
- Focus on the future
- Proactivity
- Encouragement of collegiality
- Respect for diversity in viewpoints
- Governance by consensus
- A partnership with LACERS management
- Ethical conduct of Board business to avoid even the appearance of impropriety.

- The Board establishes and communicates Board policies and priorities, and then monitors performance in light of its established policies and priorities. The Board recognizes that the achievement of its goals requires self-discipline by the Board as a whole and by individual Board Members to live by the policies articulated herein and to govern with excellence.

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Revised: May 14, 2013; Revised February 25, 2014; Affirmed: July 10, 2018

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Section 3.0 DUTIES AND RESPONSIBILITIES

3.5 Committee Structure

Updated: June 9, 2015; Revised: July 10, 2018

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM
BOARD OF ADMINISTRATION
COMMITTEE STRUCTURE FOR FISCAL YEAR 2018-19

STANDING COMMITTEES*	
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LACERS
LOS ANGELES CITY EMPLOYEES'
RETIREMENT SYSTEM

Report to Board of Administration

From: Neil Guglielmo, General Manager	Agenda of:	**JULY 24, 2018**
	ITEM:	**IX-B**

SUBJECT: **AD HOC ADJUSTMENT TO THE ASSET SMOOTHING METHOD AND POSSIBLE BOARD ACTION**

Recommendation

That the Board:

1) Adopt the recommendation of the consulting actuary to effect an ad-hoc adjustment to the asset smoothing method by combining the unrecognized gains and losses of prior years as of June 30, 2017 into one layer and recognizing it evenly over six years.

2) Direct staff to revise the Actuarial Smoothing Policy such that when the market value of assets and actuarial value of assets are close, but the recognition of that net deferred amount is markedly non-level, to automatically bring forth for Board consideration, an ad hoc adjustment to smooth the deferred gains and losses.

Discussion

LACERS Asset Smoothing Policy (attached) establishes that actuarial gains and loss are to be recognized in level amounts over a seven year period. This method helps disperse the volatility of recognizing gains and losses in any one year. Additional actuarially-accepted opportunities to smooth volatility occur under certain circumstances, which are now present, whereby the market value of assets and the actuarial value of assets are close, and the deferred gains and losses are markedly non-level.

In the actuarial valuation as of June 30, 2017 prepared by the Board's consulting actuary, Segal Consulting (Segal), the market value of assets were at $15,689,570,310 and the actuarial value of assets were at $15,686,973,131, the difference of $2,597,179 represents a net actuarial gain. If the current asset smoothing policy is to be followed, the $2.6 million deferred gain will be recognized in the next six years in a very uneven pattern as illustrated in column A below. However, the Board's approval of an ad-hoc adjustment to combine the $2.6 million deferred gain into a single layer would yield the recognition of $433,000 per year over the next six years as illustrated in column B below.

<u>Deferred Return Recognized in Each of the Next Six Years</u>

Year	Recognized on	(A) Deferred Gain/Loss Amount	(B) With Recommended Ad Hoc Adjustment
1	6/30/2018	$21,329,183	$432,863
2	6/30/2019	21,329,183	432,863
3	6/30/2020	34,924,420	432,863
4	6/30/2021	-143,116,377	432,863
5	6/30/2022	-42,007,728	432,863
6	6/30/2023	110,138,496	432,863
	Net Deferred Gain	$2,597,179	$2,597,179

Segal recommends this ad-hoc adjustment to lessen volatility in the City contribution rates over the next six years. LACERS adopted an ad-hoc adjustment in 2014, under similar conditions, wherein the adopted layer smoothed $81.6 million in deferred loss. Segal further recommends that LACERS consider revising our Actuarial Smoothing Policy to automatically consider adjustments for "tail end volatility" when future circumstances are similar. Staff will bring forth a revised Actuarial Funding Policy as part of the triennial review of Board Governance Policies, scheduled for review by the Governance Committee in September of this year.

Paul Angelo of Segal Consulting will present the recommended Ad Hoc adjustment to the Asset Smoothing policy.

This report was prepared by Dale Wong-Nguyen, Chief Benefits Analyst, Administrative Services Division.

NG:TB:DWN

Attachments: 1) Segal Letter dated June 26, 2018
2) Actuarial Funding Policy revised September 9, 2014

ATTACHMENT 1

Segal Consulting

100 Montgomery Street Suite 500 San Francisco, CA 94104-4308
T 415.263.8200 www.segalco.com

VIA E-MAIL AND USPS

June 26, 2018

Mr. Neil Guglielmo
General Manager
Los Angeles City Employees' Retirement System
202 West First Street, Suite 500
Los Angeles, CA 90012-4401

Re: Los Angeles City Employees' Retirement Association (LACERS) Adjustment to Asset Smoothing Method to Combine Deferred Investment Gains and Losses as of June 30, 2017 for the June 30, 2018 Actuarial Valuation

Dear Neil:

This letter provides information on a possible ad hoc adjustment to the asset-smoothing method that is part of LACERS' funding policy. Note this adjustment is similar to one adopted by LACERS in 2014.

Background Information

The following two bullets from the June 30, 2017 Actuarial Valuation Report for the Pension Plan highlight the results of the current asset smoothing method and provide background information:

- As indicated in Section 2, Subsection B of our report, the total unrecognized investment gain as of June 30, 2017 is $2,597,179[1] for the assets for Retirement, Health, Family Death, and Larger Annuity Benefits. This investment gain will be recognized in the determination of the actuarial value of assets for funding purposes in the next several years.

- Item 9 of Chart 7 shows that under the asset smoothing method, the $2.6 million net deferred gain will be recognized in the next six years, but in a very volatile pattern. In particular, there will be investment gains recognized in the next three years totaling about $77.6 million, followed by two years of losses totaling about $185.1 million, and finally one year of a gain of $110.1 million, so as to ultimately recognize all of the current total net deferred gain of $2.6 million. This means that, absent any new gains or losses in the future, there will be three more years of decreases in the employer contribution rate, followed by two years of increases, and finally one year of a decrease, before the $2.6 million in net deferred gain is fully recognized.

[1] For comparison purposes, the total unrecognized investment loss as of June 30, 2016 was $747,043,110.

For reference, Chart 7 from the June 30, 2017 Pension Plan actuarial valuation has been included as Exhibit 1 to this letter.

Possible Ad Hoc Adjustment to the Asset Smoothing Method

For the June 30, 2018 valuation, the asset smoothing component of the funding policy could be adjusted by combining the deferred gain and loss “layers” that comprise the net deferred investment gain of $2.6 million as determined in the 2017 valuation into a single six-year smoothing layer. This layer would then be recognized over the next six years in six level amounts of approximately $0.4 million for each year. Otherwise, as mentioned earlier, the asset smoothing method would recognize gains for the next three years totaling about $77.6 million, followed by losses for two years totaling about $185.1 million, and finally a gain for one year of $110.1 million.

This anomalous result – having a relatively small net gain appearing as large gains followed by even larger losses and then by another gain – is a routine result of the layered asset smoothing method. This “tail volatility” can be avoided by occasional active management of the asset smoothing layers in the manner being recommended here.

The recommended ad hoc adjustment would reduce the volatility associated with the current pattern of the net deferred gain recognition and result in both more stable funded ratios (on an actuarial value basis) and more level employer contribution rates. Note that this adjustment would have no impact on the June 30, 2017 valuation results as the total amount of the net deferred gain as of June 30, 2017 remains unchanged. Also note that we recommend using a six-year smoothing period (starting from July 1, 2017) for the combined deferred gain, as that will complete the recognition of the net gain over the same period as under the current separate smoothing layers policy. Both of these features of the ad hoc adjustment derive from the fact that the intent here is not to change either the amount of or the period of recognition for the deferred net gain. That is why we characterize this as an ad hoc adjustment to the current policy and not a change in the underlying asset smoothing method. This ad hoc adjustment is similar to a previous adjustment made by the Board in 2014 to level out the recognition of deferred investment loss after the June 30, 2013 valuation.

The graphs shown in Exhibit 2 to this letter display an illustration of the City’s actual contribution rates determined in the June 30, 2016 and 2017 valuations, as well as projected contribution rates[2] over the next six years (starting from the June 30, 2018 valuation date) under both the current policy and under the ad hoc adjustment of combining the net deferred gain as described above for the Pension and the Retiree Health Plans. In Exhibit 2a, we assume that contributions would be made in one lump sum on July 15, and in Exhibit 2b, we assume that contributions would be made on a periodic basis at the end of every biweekly period.

[2] The results before the ad hoc adjustment were previously shown in our January 25, 2018 letter to the City Administrative Office (LACERS received a copy of this letter). Included in Exhibit 2 (and as previously shown in our January 25, 2018 letter) are the projected contribution rates adjusted to reflect the enhanced Pension Plan benefits for APO members who remain at LACERS.

After the end of the remaining smoothing period for the current net deferred gain, the contribution rates under the current policy and those under the ad hoc adjustment converge to substantially the same level. The difference is the distinctly different paths the two lines take to get to substantially the same place.

We note that the results discussed in this letter do not take into account any actuarial gains/losses or assumption changes that may occur after the June 30, 2017 valuation date. However, our recommendation to level out the recognition of the current net deferred investment gain will achieve greater contribution rate stability regardless of whether there are future gains/losses or assumption changes.

Update Funding Policy to Anticipate Possible Future Ad Hoc Adjustments to the Asset Smoothing Method

If the aforementioned ad hoc adjustment is made, this will be the second time such adjustment to manage "tail volatility" is recommended by the actuary (Segal) and approved by the Board in the past few years.

As similar circumstances may reemerge in future valuations, we recommend that the Board consider adding some provisions in LACERS' funding policy to describe the procedure that LACERS would follow in managing such future "tail volatility". We offer the following sample text for your consideration:

> *This policy anticipates that future circumstances may warrant adjustments to change the pattern of the recognition of the net deferred investment gains or losses after a period of significant market change followed by a period of market correction. Such adjustments would be considered by the Board upon receiving an appropriate analysis from LACERS' actuary. Such adjustments would be appropriate for consideration when the net deferred investment gains or losses are relatively small (i.e., the actuarial and market values are very close together), but the recognition of that net deferred amount is markedly non-level. Any such adjustment would be made subject to the following conditions:*
>
> *A. The net deferred investment gains or losses are unchanged as of the date of the adjustment; and,*
>
> *B. The period over which the net deferred investment gains and losses are fully recognized is unchanged as of the date of the adjustment.*

Basis for Projections

Unless otherwise noted, the projections shown in Exhibits 2a and 2b were made using generally accepted actuarial practices and they are based on the June 30, 2017 actuarial valuation results, including the participant data and actuarial assumptions on which that valuation was based. Here is a summary of some of the important assumptions used in the projection.

- June 30, 2017 non-economic assumptions remain unchanged.
- UAAL amortization method remains unchanged (i.e., separate 15-year (declining) layers for actuarial gains or losses).
- June 30, 2017 economic assumptions remain unchanged.
- All other actuarial assumptions used in the June 30, 2017 actuarial valuation are realized.
- Actual market return will equal 7.25% for each of the six-year periods starting 2017/2018.
- Active payroll grows at 3.50% per annum.
- After June 30, 2017, all new employees are assumed to enter Tier 3.

Projections, by their nature, are not a guarantee of future results. The modeling projections are intended to serve as illustrations of future financial outcomes that are based on the information available to us at the time the modeling is undertaken and completed, and the agreed-upon assumptions and methodologies described herein. Emerging results may differ significantly if the actual experience proves to be different from these assumptions or if alternative methodologies are used. Actual experience may differ due to such variables as demographic experience, the economy, stock market performance, and the regulatory environment.

We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

Please let us know if you have any questions.

Sincerely,

Paul Angelo, FSA, MAAA, FCA, EA	Andy Yeung, ASA, MAAA, FCA, EA
Senior Vice President & Actuary	Vice President & Actuary

JRC/gxk
Enclosures

cc: Dale Wong-Nguyen
Todd Bouey

The chart shows the determination of the actuarial value of assets as of the valuation date.

CHART 7

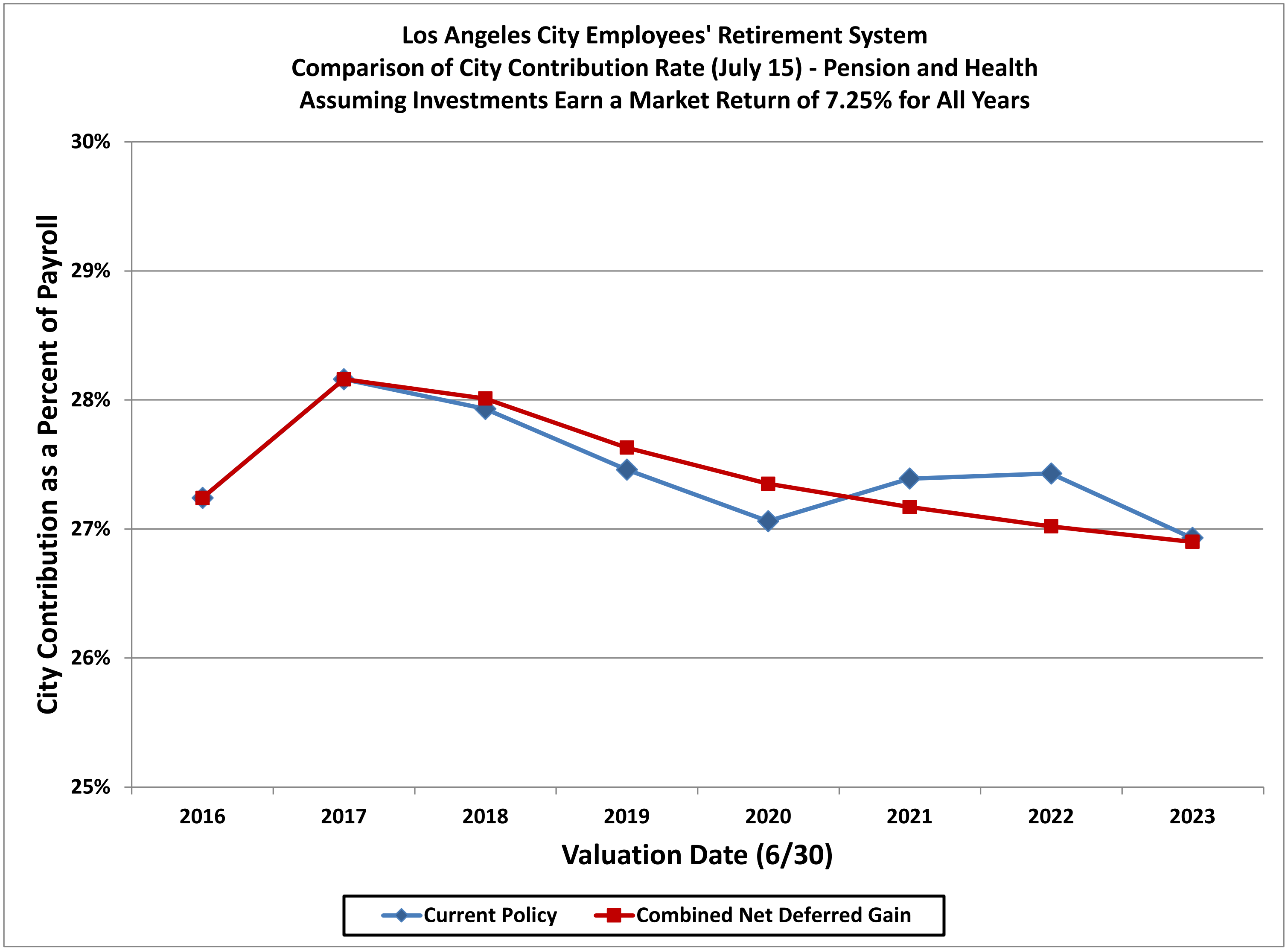
Determination of Actuarial Value of Assets as of June 30, 2017

		Original Amount	Portion Not Recognized	Amount Not Recognized	
1.	Market value of assets				$15,689,570,310
2.	Calculation of unrecognized return[1]				
	(a) Year ended June 30, 2017	$770,969,472	6/7	$660,830,976	
	(b) Year ended June 30, 2016	-1,065,023,569	5/7	-760,731,121	
	(c) Year ended June 30, 2015	-707,760,540	4/7	-404,434,594	
	(d) Year ended June 30, 2014	1,246,285,581	3/7	534,122,392	
	(e) Combined net deferred loss as of June 30, 2013[2]	-81,571,421	2/6	-27,190,474	
	(f) Total unrecognized return				$2,597,179
3.	Preliminary actuarial value: (1) - (2f)				$15,686,973,131
4.	Adjustment to be within 40% corridor				0
5.	Final actuarial value of assets: (3) + (4)				$15,686,973,131
6.	Actuarial value as a percentage of market value: (5) ÷ (1)				100.0%
7.	Market value of retirement assets				$13,180,515,725
8.	Valuation value of retirement assets (5) ÷ (1) x (7)				$13,178,333,884
9.	Deferred return recognized in each of the next 6 years:				
	(a) Amount recognized on 6/30/2018				$21,329,183
	(b) Amount recognized on 6/30/2019				21,329,183
	(c) Amount recognized on 6/30/2020				34,924,420
	(d) Amount recognized on 6/30/2021				-143,116,377
	(e) Amount recognized on 6/30/2022				-42,007,728
	(f) Amount recognized on 6/30/2023				110,138,496
	(g) Subtotal (may not total exactly due to rounding)				$2,597,179

[1] *Total return minus expected return on a market value basis.*

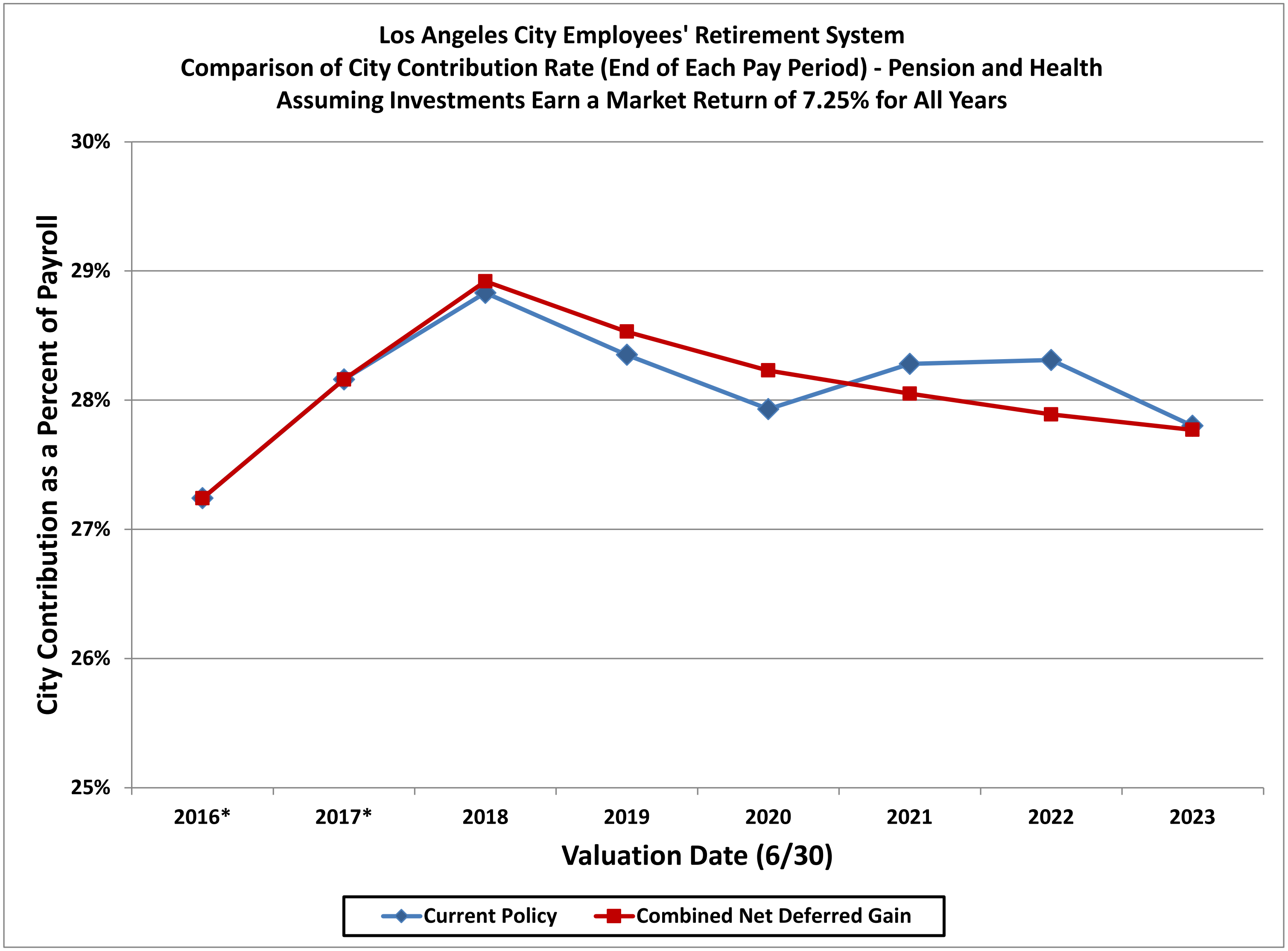
[2] *Based on action taken by the Board on September 9, 2014, the net unrecognized loss as of June 30, 2013 (i.e., $81,571,421) has been recognized in six level amounts, with two years of recognition remaining after the June 30, 2017 valuation.*

EXHIBIT 2a



Valuation Date (6/30)	2016	2017	2018	2019	2020	2021	2022	2023
Current Policy	27.2%	28.2%	27.9%	27.5%	27.1%	27.4%	27.4%	26.9%
Combined Net Deferred Gain	27.2%	28.2%	28.0%	27.6%	27.4%	27.2%	27.0%	26.9%

EXHIBIT 2b



Valuation Date (6/30)	2016*	2017*	2018	2019	2020	2021	2022	2023
Current Policy	27.2%	28.2%	28.8%	28.4%	27.9%	28.3%	28.3%	27.8%
Combined Net Deferred Gain	27.2%	28.2%	28.9%	28.5%	28.2%	28.1%	27.9%	27.8%

** Assumes pre-paid on July 15.*

3.1 ACTUARIAL FUNDING POLICY

Modified: October 23, 2012; September 9, 2014

Goals of Actuarial Funding Policy

1. To achieve long-term full funding of the cost of benefits provided by LACERS;
2. To seek reasonable and equitable allocation of the cost of benefits over time; and,
3. To minimize volatility of the plan sponsor's contribution to the extent reasonably possible, consistent with other policy goals.

Funding Requirement

LACERS annual funding requirement is comprised of a payment of the Normal Cost and a payment on the Unfunded Actuarial Accrued Liability (UAAL). The Normal Cost and the amount of payment on UAAL are determined by the following three components of this funding policy:

I. Actuarial Cost Method: the techniques to allocate the cost/liability of retirement or health benefit to a given period;

II. Asset Smoothing Method: the techniques that spread the recognition of investment gains or losses over a period of time for the purposes of determining the Actuarial Value of Assets used in the actuarial valuation process; and

III. Amortization Policy: the decisions on how, in terms of duration and pattern, to reduce the difference between the Actuarial Accrued Liability and the Actuarial Value of Assets in a systematic manner.

I. Actuarial Cost Method:

a. The Entry Age Normal method shall be applied for the existing and any future tiers of retirement or health benefit in determining the Normal Cost and the Actuarial Accrued Liability.

II. Asset Smoothing Method:

a. The gains or losses of each valuation period, as a result of comparing the Market Value of assets at the end of the period with what the Market Value would have been if the assumed rate of return on assets was realized during the period, shall be recognized in level amount over 7 years in calculating the Actuarial Value of Assets;

b. The Actuarial Value of Assets as determined above shall be limited to be within a corridor of 60% - 140% of the Market Value of assets.

III. Amortization Policy:

a. The Unfunded Actuarial Accrued Liability (UAAL), the difference between the Actuarial Accrued Liability and the Actuarial Value of Assets, shall be amortized over various periods of time, depending on how the unfunded liability arose;

b. For UAAL identified before the June 30, 2010 actuarial valuation:

   i. The UAAL as of June 30, 2005 shall be amortized over 30 years;

   ii. Actuarial gains or losses shall be amortized over 15 years;

   iii. Plan amendments, other than the City's Early Retirement Incentive Program of 2009-2010, shall be amortized over 30 years;

   iv. The City's Early Retirement Incentive Program of 2009-2010 shall be amortized over 15 years;

   v. Changes in actuarial assumptions and cost methods shall be amortized over 30 years;

c. For UAAL identified beginning from the June 30, 2010 actuarial valuation:

   i. Actuarial gains or losses shall be amortized over 15 years;

   ii. Plan amendments, other than Early Retirement Incentives, shall be amortized over 15 years;

   iii. Early Retirement Incentives shall be amortized over 5 years;

   iv. Changes in actuarial assumption and cost methods, other than those assumptions related with health benefit and reviewed annually by the Board, shall be amortized over 20 years;

   v. Changes in actuarial assumptions related with health benefit and reviewed annually by the Board shall be amortized over 15 years;

   vi. Actuarial funding surplus (an excess of Actuarial Value of Assets over Actuarial Accrued Liability) shall be amortized over 30 years;

   vii. All UAAL layers as of June 30, 2012 shall be combined and amortized over 30 years, except the layers created in 2004 and 2005 for GASB compliance and the layers created in 2009 as a result of the Early Retirement Incentive Program, which will maintain their original amortization schedules.

d. UAAL shall be amortized over "closed' amortization periods;

e. UAAL shall be amortized as a level percentage of payroll so that the amortization amount in each year during the amortization period shall be expected to be a level percentage of covered payroll, taking into consideration the current assumption for general payroll increase;

f. Layers generated by various sources of UAAL shall be combined and/or restarted when:

i. It is required to comply with the amortization standards set forth by the Governmental Accounting Standards Board (GASB); or

ii. The net result of amortization of each layer is an amortization credit which would offset the Normal Cost; or

iii. Other conditions arise so that the Board considers that it is appropriate to do so.

Segal Consulting

Los Angeles City Employees' Retirement System

Actuarial 101: Actuarial Funding Policy, including Asset Smoothing

July 24, 2018

Paul Angelo, FSA

Segal Consulting, San Francisco

5545880v1

What goes into an Actuarial Valuation?

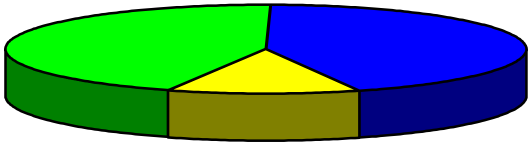
Member Data

Financial Data

Actuarial Valuation

Plan Provisions

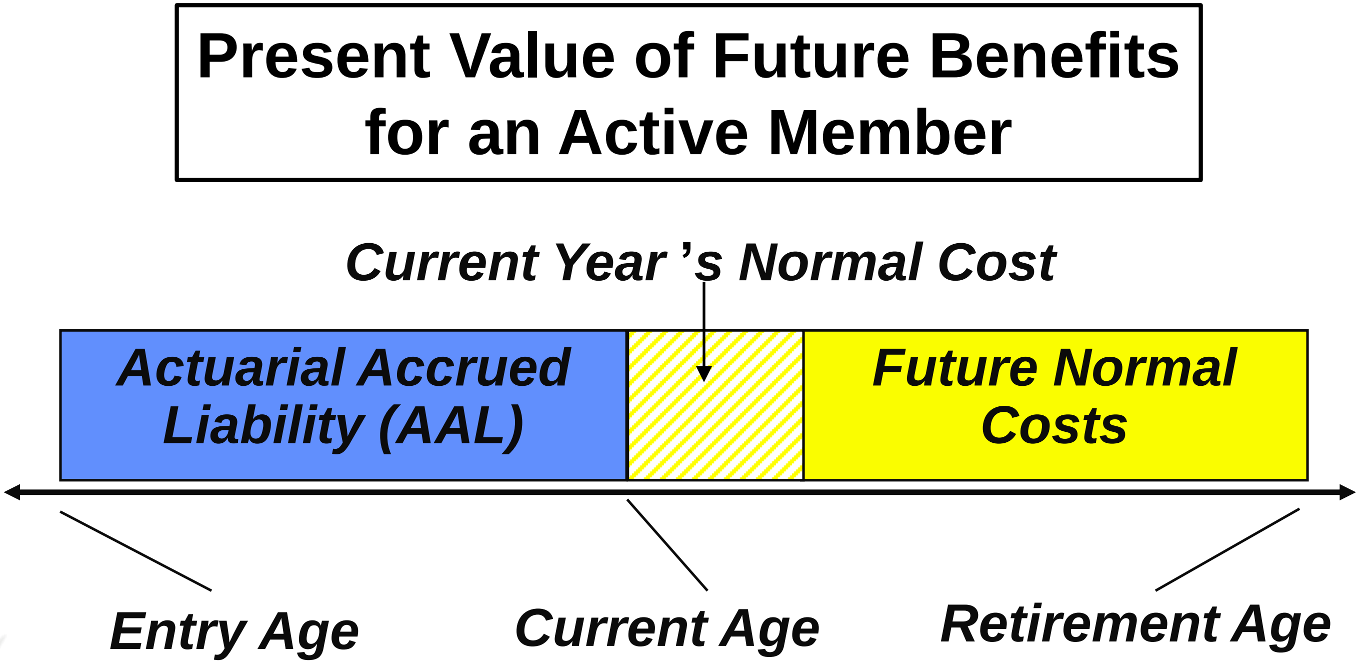
Funding Policies



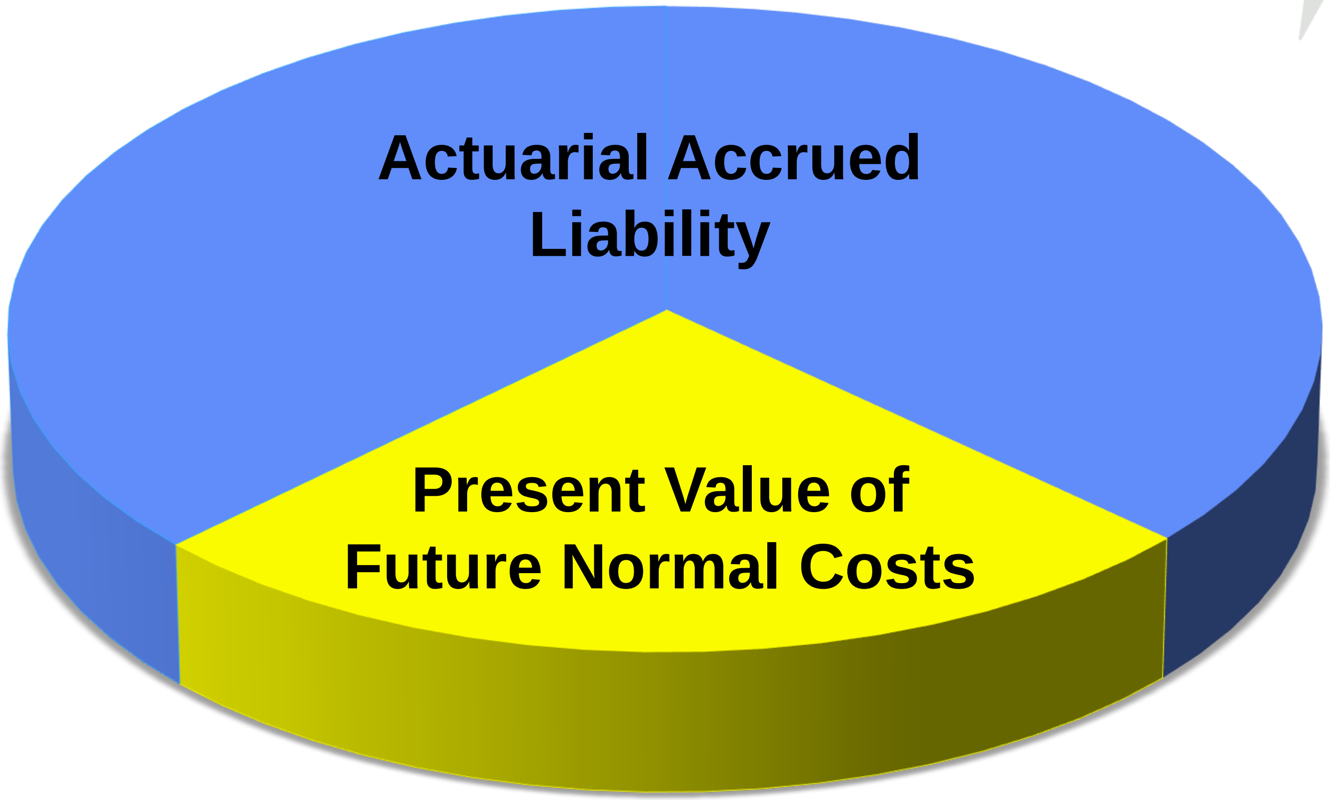
Actuarial Assumptions

Funding Retirement Benefits – Actuarial Terminology

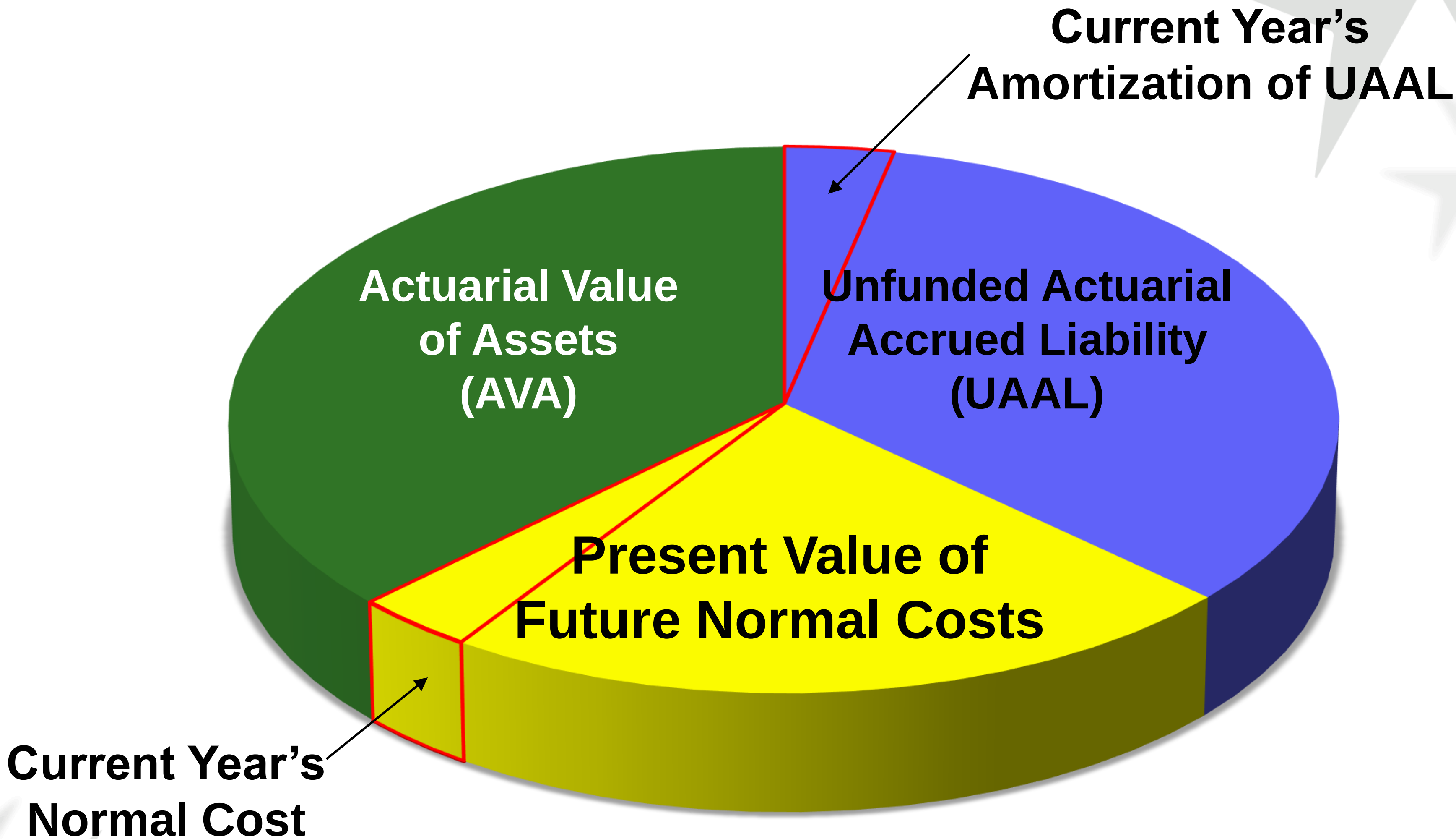
- **The Normal Cost is the portion of the long term cost allocated to a year of service**—only active members have a current Normal Cost
- **The Actuarial Accrued Liability (AAL) measures the Normal Costs from past years**—for retired members, the AAL is the entire value of their benefit



Present Value of Future Benefits – Entire Plan



Funding Retirement Benefits – Contribution Elements



Current Actuarial Funding Policy

- **Actuarial cost method**: Allocates costs to time periods, past vs. future
  - Entry Age method
    - Most stable contribution rate as a percent of payroll
  - LACERS used Projected Unit Credit method prior to 2012
- **Asset smoothing method**: Assigns a value to assets for determining contribution requirements
  - Market value gains and losses recognized over 7 years with a 40% “market value corridor”
    - Smoothed value must be within 40% of market value
  - Net deferred investment gains and losses as of June 30, 2013 were combined into a single smoothing “layer”
    - Recognized over 6 years in level amounts from that date
    - **Similar action recommended as of June 30, 2017 valuation**

Current Actuarial Funding Policy (continued)

- **UAAL amortization policy**: How, and how long to fund difference between liabilities and assets
  - All UAAL bases as of June 30, 2012 were combined and amortized over 30 years
    - 25 years remaining as of June 30, 2017
    - Except the 2009 ERIP and the two GASB 25/27 layers
    - Linked to change in actuarial cost method
  - Changes in UAAL after June 30, 2012:
    - Actuarial gains and losses amortized over 15 years
    - Changes in assumptions/methods amortized over 20 years
    - Plan amendments amortized over 15 years
    - Future ERIPs amortized over 5 years
    - Any actuarial surplus amortized over 30 years

Today's Focus: Asset Smoothing Method

- Objectives for "Actuarial Value of Assets" (AVA)
  - Reflect market value of assets (MVA)
  - Smooth out fluctuations in market values
  - Produce smoother pattern of contributions
- Asset smoothing only delays effect of gains and losses
  - Delay allows investment cycles to offset each other
- Large Loss Metaphor: choose between...
  - A full day, crippling migraine headache
  - A week-long dull throb in the back of your head
  - Total pain remains the same

Asset Smoothing Method
(using a 7% expected return for illustration)

Example: one good year

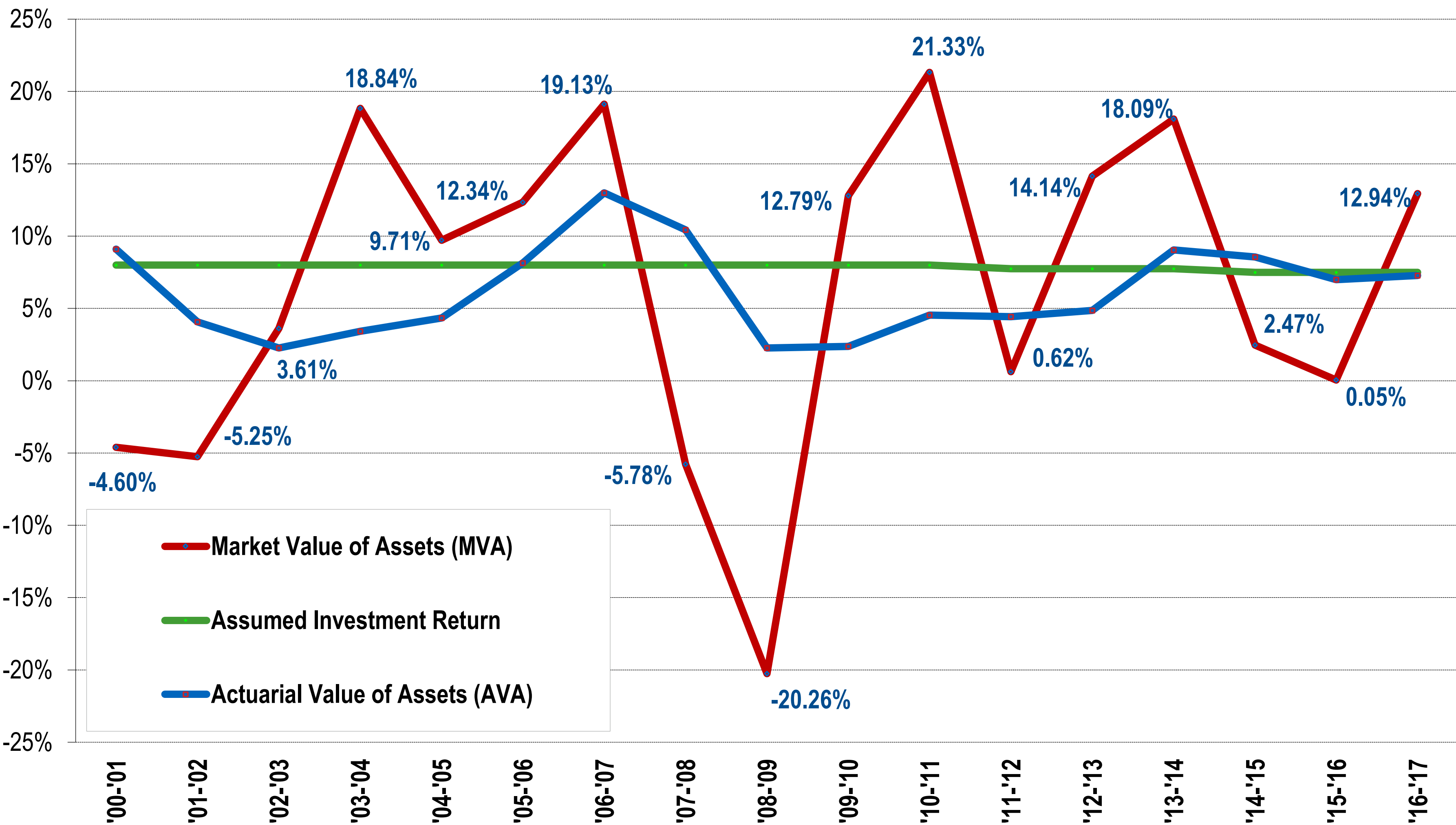
Year	1	2	3	4	5	6	7	8
Market return	14%	7%	7%	7%	7%	7%	7%	7%
Deferred	(7%)							
Recognized	1%	1%	1%	1%	1%	1%	1%	
Smoothed return	8%	8%	8%	8%	8%	8%	8%	7%

Asset Smoothing Method
(using a 7% expected return for illustration)

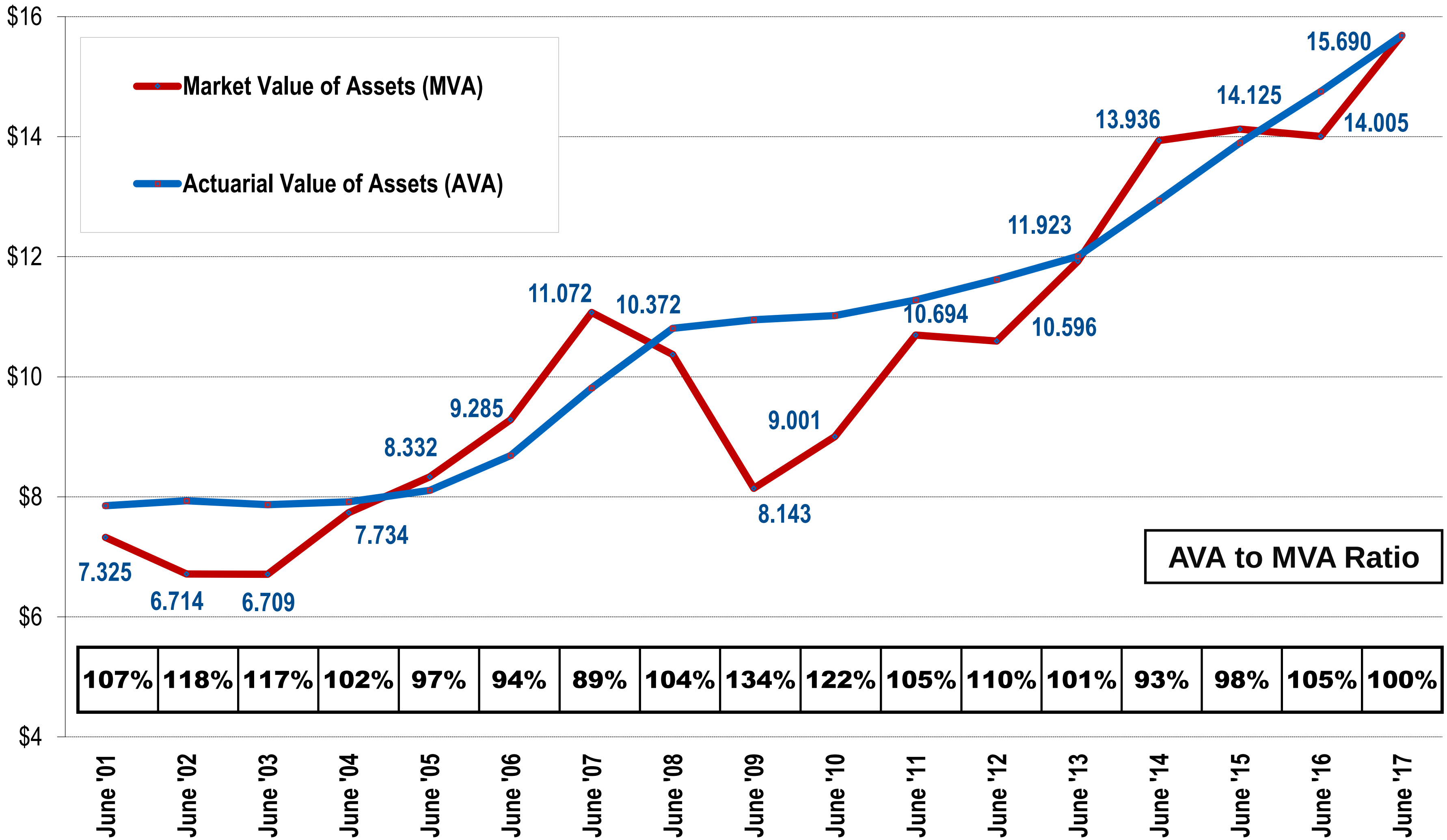
Example: one good, then one bad year

Year	1	2	3	4	5	6	7	8	9
Market return	14%	0%	7%	7%	7%	7%	7%	7%	7%
Deferred	(7%)	7%							
Recognized	1%	1%	1%	1%	1%	1%	1%		
		(1%)	(1%)	(1%)	(1%)	(1%)	(1%)	(1%)	
Smoothed return	8%	7%	7%	7%	7%	7%	7%	6%	7%

Asset Smoothing Method – Investment Rates of Return – MVA and AVA



Asset Smoothing Method –
Historical Asset Values – MVA and AVA ($ Billions)



Asset Smoothing Method –

From June 30, 2017 Actuarial Valuation Report

CHART 7

Determination of Actuarial Value of Assets as of June 30, 2017

1.	Market value of assets				$15,689,570,310
		Original	Portion Not	Amount Not	
2.	Calculation of unrecognized return[1]	Amount	Recognized	Recognized	
	(a) Year ended June 30, 2017	$770,969,472	6/7	$660,830,976	
	(b) Year ended June 30, 2016	-1,065,023,569	5/7	-760,731,121	
	(c) Year ended June 30, 2015	-707,760,540	4/7	-404,434,594	
	(d) Year ended June 30, 2014	1,246,285,581	3/7	534,122,392	
	(e) Combined net deferred loss as of June 30, 2013[2]	-81,571,421	2/6	-27,190,474	
	(f) Total unrecognized return				$2,597,179
3.	Preliminary actuarial value: (1) - (2f)				$15,686,973,131
4.	Adjustment to be within 40% corridor				0
5.	Final actuarial value of assets: (3) + (4)				$15,686,973,131
6.	Actuarial value as a percentage of market value: (5) ÷ (1)				100.0%
7.	Market value of retirement assets				$13,180,515,725
8.	Valuation value of retirement assets (5) ÷ (1) x (7)				$13,178,333,884
9.	Deferred return recognized in each of the next 6 years:				
	(a) Amount recognized on 6/30/2018				$21,329,183
	(b) Amount recognized on 6/30/2019				21,329,183
	(c) Amount recognized on 6/30/2020				34,924,420
	(d) Amount recognized on 6/30/2021				-143,116,377
	(e) Amount recognized on 6/30/2022				-42,007,728
	(f) Amount recognized on 6/30/2023				110,138,496
	(g) Subtotal (may not total exactly due to rounding)				$2,597,179

[1] *Total return minus expected return on a market value basis.*

[2] *Based on action taken by the Board on September 9, 2014, the net unrecognized loss as of June 30, 2013 (i.e., $81,571,421) has been recognized in six level amounts, with two years of recognition remaining after the June 30, 2017 valuation.*

Asset Smoothing Method –
from June 30, 2017 Actuarial Valuation Report

6/30/2017 Valuation, Combined Retirement and Health (000s)

Year-end	Return above (below) assumed	Portion not yet recognized	Amount not yet recognized
Jun-17	$770,969	6/7	$660,831
Jun-16	($1,065,024)	5/7	($760,731)
Jun-15	($707,761)	4/7	($404,435)
Jun-14	$1,246,286	3/7	$534,122
Jun-13	($81,571)	2/6	($27,190)
Net total GAINS not yet recognized			$2,597
Market Value of Assets (MVA)			$15,689,570
MINUS GAINS not yet recognized			($2,597)
Actuarial Value of Assets (AVA) before corridor			$15,686,973
AVA/MVA Ratio (before corridor)			100.0%
Actuarial Value of Assets AFTER corridor			$15,686,973

Asset Smoothing Method –
from June 30, 2017 Actuarial Valuation Report (cont'd)

6/30/2017 Valuation, Combined Retirement and Health (000s)

Market Value of Assets (MVA)	$15,689,570
MINUS GAINS not yet recognized	($2,597)
Actuarial Value of Assets (AVA)	$15,686,973

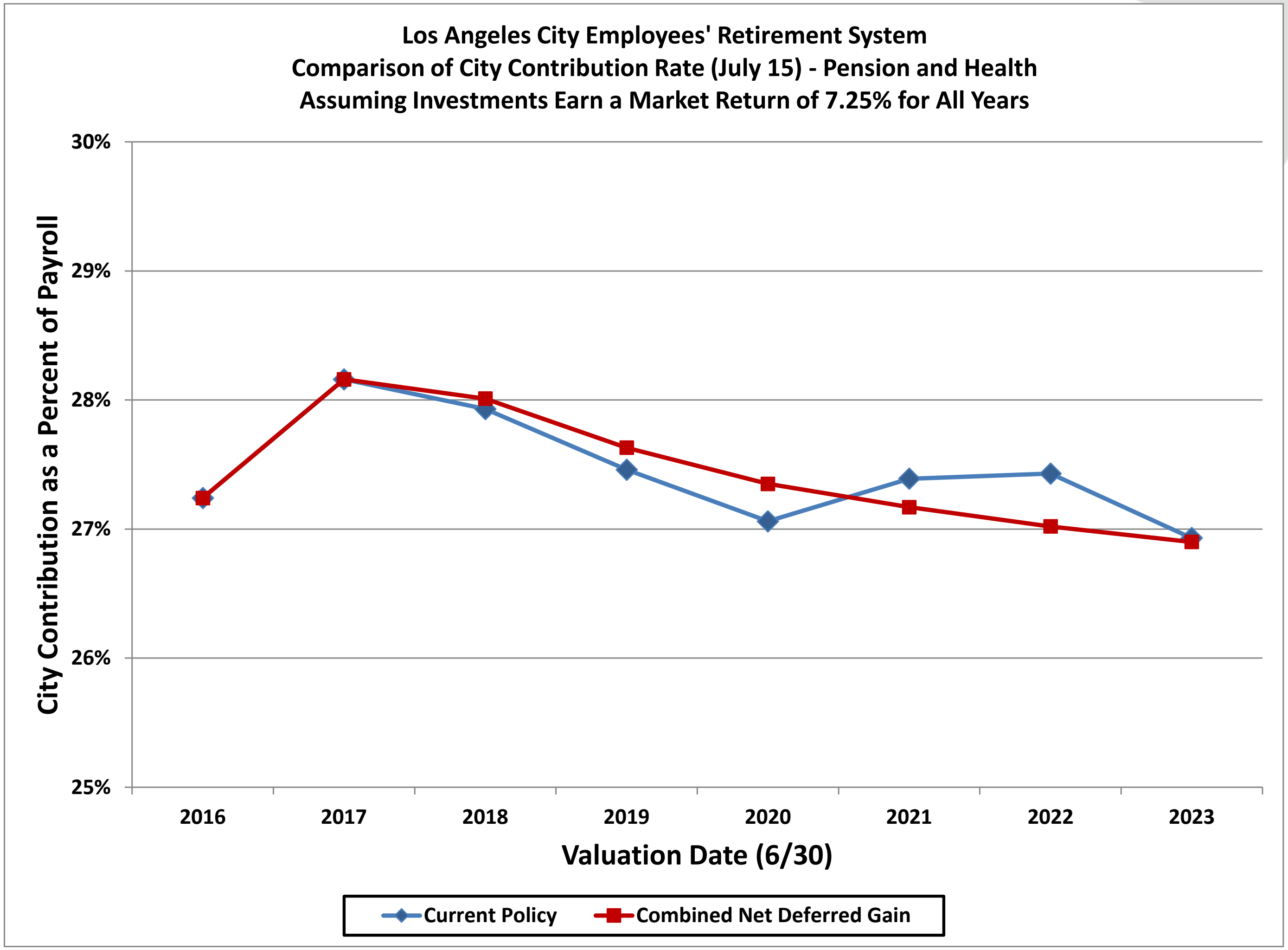
Deferred return recognized in each of the next 6 years:

Amount recognized on 6/30/2018	$21,329
Amount recognized on 6/30/2019	$21,329
Amount recognized on 6/30/2020	$34,924
Amount recognized on 6/30/2021	($143,116)
Amount recognized on 6/30/2022	($42,008)
Amount recognized on 6/30/2023	$110,139
Total	$2,597

Asset Smoothing Method – Combining Deferred Investment Gains/Losses

- Asset smoothing method may result in a relatively small <u>net</u> deferred gain/loss, but recognized unevenly
- For the June 30, 2017 valuation, net deferred gain is $2.6M
  - Less than 0.1 percent of market value of assets
  - However, that $2.6M is recognized as larger gains followed by losses
  - Results in contribution decreases followed by contribution increases
- Recommend combining uneven layers into a single layer
  - Single deferred gain layer of $2.6M
  - Recognized over six years at $0.4M per year
  - No change in smoothed value or remaining smoothing period
- Similar action taken by LACERS in 2014
  - Combining June 30, 2013 net deferred loss of $81.6M

Asset Smoothing Method – Combining Deferred Investment Gains/Losses (Cont'd)



Valuation Date (6/30)	2016	2017	2018	2019	2020	2021	2022	2023
Current Policy	27.2%	28.2%	27.9%	27.5%	27.1%	27.4%	27.4%	26.9%
Combined Net Deferred Gain	27.2%	28.2%	28.0%	27.6%	27.4%	27.2%	27.0%	26.9%

DISCUSSION

LACERS
LOS ANGELES CITY EMPLOYEES'
RETIREMENT SYSTEM

Report to Board of Administration

From: Neil M. Guglielmo, General Manager

Agenda of: **JULY 24, 2018**

ITEM: **IX-C**

SUBJECT: **GASB 68 AND GASB 75 ACTUARIAL VALUATIONS AS OF JUNE 30, 2017 AND POSSIBLE BOARD ACTION**

Recommendation

That the Board adopt the GASB 68 and GASB 75 Actuarial Valuation reports as of June 30, 2017.

Discussion

New accounting standards in financial reporting to increase transparency and provide comparable information on pension liabilities of governmental pension plans and their sponsors were issued in 2012 and 2015 by the Governmental Accounting Standards Board (GASB), an accounting standard setting body. GASB Statement No. 67 ("GASB 67") and GASB Statement No. 74 ("GASB 74") are financial reporting requirements of the plan (LACERS) for their pension benefits and other post-employment benefits (OPEB), while GASB Statement No. 68 ("GASB 68") and GASB Statement No. 75 ("GASB 75") are financial reporting requirements of the plan sponsor (the City) for the LACERS pension benefits and OPEB; all of which are required to be prepared by an actuary. LACERS consulting actuary, Segal Consulting (Segal), presented the GASB 67 and GASB 74 valuations to the Board on November 13, 2017 together with the annual retirement and health actuarial valuation as of June 30, 2017. The attached valuations for GASB 68 and GASB 75 were prepared by Segal to provide the proportional share of net pension liability and net OPEB liability along with other information required to report in the June 30, 2018 financial statements for the City, the Department of Airports and the Harbor Department. LACERS external auditor Brown Armstrong has conducted audit procedures and issued unmodified opinions on the: 1) Schedule of Employer Allocations-Retirement Plan; 2) Schedule of Pension Amounts by Employer; 3) Schedule of Employer Allocations-OPEB Plan; and 4) Schedule of OPEB Amounts by Employer for the GASB 68 and GASB 75 employer reporting.

Key findings from the Segal' valuation reports based on the June 30, 2017 measurement date include:

- The Net Pension Liability (NPL) is the difference between the Total Pension Liability (TPL) and the Plan Fiduciary Net Position. Similarly the Net OPEB Liability (NOL) is the difference between the Total OPEB Liability (TOL) and the Plan Fiduciary Net Position. The Plan Fiduciary Net Position is equal to the market value of plan assets and therefore, the NPL/NOL measure is very similar to the Unfunded Actuarial Accrued Liability (UAAL) calculated on a market value basis. The NPL/NOL reflects all investment gains and losses as of the measurement date. This is different from the UAAL calculated on an actuarial value of assets basis in the funding valuation that reflects investment gains and losses over a seven-year period.

- NPL [1] was $5.28 billion, decreased from $5.62 billion, and the NOL was $566.9 million, decreased from $658.8 million, mainly due to the higher return on the market value of System's assets above the assumed rate of return and additionally, for the NOL, the change in medical trend rates. The NPL/NOL represents a pension/OPEB-related liability measured at June 30, 2017, which will be reflected in the statement of net position/balance sheet of the plan sponsor. This amount has been included in LACERS June 30, 2017 financial statements as a note disclosure, pursuant to the GASB 67 and GASB 74.

Paul Angelo, of Segal Consulting will present the GASB 68 and GASB 75 valuation reports.

This report was prepared by Dale Wong-Nguyen, Chief Benefits Analyst and Mikyong Jang, Department Chief Accountant.

NG:TB:DWN

Attachments: A) GASB 68 Actuarial Valuation Report as of June 30, 2017 issued by Segal
B) GASB 75 Actuarial Valuation Report as of June 30, 2017 issued by Segal
C) Brown Armstrong Independent Auditor's Reports

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[1] Total amounts before allocating to the City, the Department of Airports, and the Harbor Department.

ATTACHMENT A

Segal Consulting

Los Angeles City Employees' Retirement System

Governmental Accounting Standards (GAS) 68
Actuarial Valuation Based on June 30, 2017
Measurement Date for Employer Reporting
as of June 30, 2018

This report has been prepared at the request of the Board of Administration to assist the sponsors of the Fund in preparing their financial report for their liabilities associated with the LACERS pension plan. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Administration and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

Segal Consulting
100 Montgomery Street Suite 500 San Francisco, CA 94104-4308
T 415.263.8200 www.segalco.com

June 26, 2018

Board of Administration
Los Angeles City Employees' Retirement System
202 W. 1st Street, Suite 500
Los Angeles, CA 90012-4401

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards (GAS) 68 Actuarial Valuation based on a June 30, 2017 measurement date for employer reporting as of June 30, 2018. It contains various information that will need to be disclosed in order for the three employer categories in LACERS (i.e., the City, Airports, and Harbor) to comply with GAS 68.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist the sponsors in preparing their financial report for their liabilities associated with the LACERS pension plan. The census and financial information on which our calculations were based was provided by LACERS. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law.

The actuarial calculations were completed under the supervision of Andy Yeung, ASA, MAAA, FCA, Enrolled Actuary. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and expectations for LACERS.

We look forward to reviewing this report with you and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

Paul Angelo, FSA, MAAA, FCA, EA	*Andy Yeung, ASA, MAAA, FCA, EA*
Senior Vice President and Actuary	*Vice President and Actuary*

JRC/bbf

SECTION 1

VALUATION SUMMARY

SECTION 2

GAS 68 INFORMATION

SECTION 2 (CONTINUED)

SECTION 3

ACTUARIAL ASSUMPTIONS AND METHODS AND APPENDICES

Purpose

This report has been prepared by Segal Consulting ("Segal") to present certain disclosure information required by Governmental Accounting Standards (GAS) 68 for employer reporting as of June 30, 2018. The results used in preparing this GAS 68 report are comparable to those used in preparing the Governmental Accounting Standards (GAS) 67 report for the Plan based on a reporting date and a measurement date as of June 30, 2017. This valuation is based on:

- The benefit provisions of the Pension Plan, as administered by the Board of Administration;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of June 30, 2017, provided by LACERS;
- The assets of the Plan as of June 30, 2017, provided by LACERS;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board for the June 30, 2017 valuation; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc. adopted by the Board for the June 30, 2017 valuation.

General Observations on GAS 68 Actuarial Valuation

The following points should be considered when reviewing this GAS 68 report:

- The Governmental Accounting Standards Board (GASB) rules only define pension liability and expense for financial reporting purposes, and do not apply to contribution amounts for pension funding purposes. Employers and plans still develop and adopt funding policies under current practices.
- When measuring pension liability, GASB uses the same actuarial cost method (Entry Age) and the same type of discount rate (expected return on assets) as LACERS uses for funding. This means that the Total Pension Liability (TPL) measure for financial reporting shown in this report is determined on the same basis as LACERS' Actuarial Accrued Liability (AAL) measure for funding. We note that the same is true for the Normal Cost component of the annual plan cost for funding and financial reporting.
- The Net Pension Liability (NPL) is equal to the difference between the TPL and the Plan's Fiduciary Net Position. The Plan's Fiduciary Net Position is equal to the market value of assets and therefore, the NPL measure is very similar to the Unfunded Actuarial Accrued Liability (UAAL) calculated on a market value basis. The NPL reflects all investment gains and losses as of the measurement date. This is different from the UAAL calculated on an actuarial value of assets basis in the funding valuation that reflects investment gains and losses over a seven-year period.
- For this report, the reporting dates for the employer are June 30, 2018 and 2017. The NPL was measured as of June 30, 2017 and 2016 and determined based upon the results of the actuarial valuations as of June 30, 2017 and 2016, respectively. The

Plan's Fiduciary Net Position (plan assets) and the TPL were valued as of the measurement dates. Consistent with the provisions of GAS 68, the assets and liabilities measured as of June 30, 2017 and 2016 were not adjusted or rolled forward to the June 30, 2018 and 2017 reporting dates, respectively.

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The NPL decreased from $5.62 billion as of June 30, 2016 to $5.28 billion as of June 30, 2017 mainly due to the return on the market value of retirement plan assets of 12.71%[1] during 2016/2017 that was more than the assumption of 7.50% used in the June 30, 2016 valuation (that gain was about $0.62 billion), offset somewhat by the changes in the economic actuarial assumptions (that change was about $0.34 billion). Changes in these values during the last two fiscal years ending June 30, 2016 and June 30, 2017 can be found in Exhibit 5.
- The discount rates used to measure the TPL and NPL as of June 30, 2017 and 2016 were 7.25% and 7.50%, respectively, following the same assumptions used by the System in the pension funding valuations as of the same dates. The detailed calculations used in the derivation of the discount rate of 7.25% used in the calculation of the TPL and NPL as of June 30, 2017 can be found in Appendix A of Section 3. Various other information that is required to be disclosed can be found throughout Exhibits 1 through 13 in Section 2.
- The NPLs for the three employer categories in LACERS (i.e., the City, Airports, and Harbor) as of June 30, 2016 and June 30, 2017 are allocated based on the actual employer contributions made during 2015/2016 and 2016/2017, respectively. The steps we used for the allocation are as follows:
  - First calculate the ratio of the employer category's contributions to the total contributions.
  - Then multiply this ratio by the NPL to determine the employer category's proportionate share of the NPL. The NPL allocation can be found in Exhibit 7 in Section 2.
- Results shown in this report exclude any employer contributions made after the measurement date of June 30, 2017. The employer should consult with their auditor to determine the deferred outflow that should be created for these contributions.
- As we noted in our GAS 67 valuation report dated November 7, 2017, Ordinance No. 184853 was adopted by the City Council on March 28, 2017, and that Ordinance allowed Airport Peace Officers (APO) at LACERS to elect to remain in LACERS and be eligible for enhanced benefits under Tier 1, or to transfer to Los Angeles Fire and Police Pension Plan (LAFPP) Tier 6 prior to January 7, 2018. We mentioned in the GAS 67 report that we did not include any additional liabilities associated with the enhanced benefits for the APO who would elect to remain in LACERS since the elections had not yet been completed at the time we prepared the GAS 67 report. Similarly, we did not include any decrease in liabilities associated with

[1] *Net of investment expenses only.*

APO members transferring to LAFPP in our GAS 67 report, for the same reason. Based on recent discussions with LACERS, we have been directed to continue excluding any increases or decreases in liabilities associated with any APO benefit enhancements at LACERS and any APO transfers to LAFPP for the June 30, 2017 (measurement date) GAS 68 valuation report.

Summary of Key Valuation Results

Reporting Date for Employer under GAS 68	6/30/2018[1]	6/30/2017[2]
Measurement Date for Employer under GAS 68	**6/30/2017**	**6/30/2016**
Disclosure elements for fiscal year ending June 30:		
1. Service cost[3]	$340,758,622	$322,574,274
2. Total Pension Liability	18,458,187,953	17,424,996,329
3. Plan's Fiduciary Net Position	13,180,515,725	11,809,329,415
4. Net Pension Liability	5,277,672,228	5,615,666,914
5. Pension expense	572,654,105	609,626,067
Schedule of contributions for fiscal year ending June 30:		
6. Actuarially determined contributions	$453,356,059	$440,546,011
7. Actual contributions	453,356,059	440,546,011
8. Contribution deficiency/(excess): (6) – (7)	0	0
Demographic data for plan year ending June 30:		
9. Number of retired members and beneficiaries	18,805	18,357
10. Number of vested terminated members[4]	7,428	6,895
11. Number of active members	25,457	24,446
Key assumptions as of June 30:		
12. Investment rate of return	7.25%	7.50%
13. Inflation rate	3.00%	3.25%
14. Projected salary increases[5]	Ranges from 10.00% to 3.90%, based on years of service	Ranges from 10.50% to 4.40%, based on years of service

[1] *The reporting date and measurement date for the Plan are June 30, 2017.*

[2] *The reporting date and measurement date for the Plan are June 30, 2016.*

[3] *The service cost is based on the previous year's valuation, meaning the June 30, 2017 and June 30, 2016 measurement date values are based on the valuations as of June 30, 2016 and June 30, 2015, respectively. Both of the service costs have been calculated using the assumptions in the June 30, 2016 measurement date column, as there had been no changes in the actuarial assumptions between the June 30, 2015 and June 30, 2016 valuations.*

[4] *Includes terminated members due a refund of employee contributions.*

[5] *Includes inflation at 3.00% (3.25% for the June 30, 2016 measurement date) plus real across the board salary increase of 0.50% (0.75% for the June 30, 2016 measurement date) plus merit and promotional increases that vary by service.*

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the Plan will be determined by the actual benefits and expenses paid and the actual investment experience of the Plan.

In order to prepare an actuarial valuation, Segal relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in this report (as well as the plan summary included in our funding valuation report) to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by the System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** This valuation is based on the market value of assets as of the valuation date, as provided by the System. The System uses an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining contribution requirements.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, termination, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The actuarial valuation is prepared at the request of the Board to assist the sponsors of the Fund in preparing items related to the pension plan in their financial reports. Segal is not responsible for the use or misuse of its report, particularly by any other party.

- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the Plan will be determined by the actual benefits and expenses paid and the actual investment experience of the Plan.
- If the System is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.

As Segal has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to LACERS.

EXHIBIT 1

General Information – "Financial Statements", Note Disclosures and Required Supplementary Information for a Single-Employer Pension Plan

Plan Description

Plan administration. The Los Angeles City Employees' Retirement System (LACERS) was established by City Charter in 1937. LACERS is a single-employer public employee retirement system whose main function is to provide retirement benefits to the civilian employees of the City of Los Angeles.

Under the provisions of the City Charter, the Board of Administration (the "Board") has the responsibility and authority to administer the Plan and to invest its assets. The Board members serve as trustees and must act in the exclusive interest of the Plan's members and beneficiaries. The Board has seven members: four members, one of whom shall be a retired member of the system, shall be appointed by the Mayor subject to the approval of the Council; two members shall be active employee members of the system elected by the active employee members; one shall be a retired member of the system elected by the retired members of the system.

Plan membership. At June 30, 2017, pension plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	18,805
Vested terminated members entitled to, but not yet receiving benefits[1]	7,428
Active members	25,457
Total	51,690

[1] *Includes terminated members due a refund of employee contributions*

Benefits provided. LACERS provides service retirement, disability, death and survivor benefits to eligible employees. Employees of the City become members of LACERS on the first day of employment in a position with the City in which the employee is not excluded from membership. Members employed prior to July 1, 2013 are designated as Tier 1, and pursuant to Ordinance No. 184134, all Tier 2 employees who became members of LACERS between July 1, 2013 and February 21, 2016 were transferred to Tier 1 effective February 21, 2016. Those employed on or after February 21, 2016 are designated as Tier 3 (unless a specific exemption applies to the employee, providing a right to Tier 1 status).

Tier 1 members are eligible to retire for service with a normal retirement benefit once they attain the age of 70, or the age of 60 with 10 or more years of continuous City service, or the age of 55 with 30 or more years of City service. Tier 3 members are eligible to retire for service with a normal retirement benefit at 1.50% of final average monthly compensation per year of service credit once they attain the age of 60 with 10 years of service (but with less than 30 years of service), including 5 years of continuous City service, or at 2.00% of final average monthly compensation per year of service credit once they attain the age of 60 with 30 years of service, including 5 years of continuous City service.

Tier 1 and 3 members are eligible to retire for disability once they have 5 or more years of continuous service.

Under the Tier 1 formula, the monthly service retirement allowance at normal retirement age is 2.16% of final average monthly compensation per year of service credit. Reduced retirement allowances are available for early retirement for Tier 1 members reaching age 55 with 10 or more years of continuous City service, or with 30 or more years of City service at any age. The Tier 1 early retirement reduction factors, for retirement below age 60, are as follows:

Age	Factor	Age	Factor
45	0.6250	53	0.8650
46	0.6550	54	0.8950
47	0.6850	55	0.9250
48	0.7150	56	0.9400
49	0.7450	57	0.9550
50	0.7750	58	0.9700
51	0.8050	59	0.9850
52	0.8350	60	1.0000

Under the Tier 3 formula, the monthly service retirement allowance at normal retirement age is 2.00% of final average monthly compensation per year of service credit. Reduced retirement allowances are available for early retirement for Tier 3 members prior to reaching age 60 with 30 years of service, including 5 years of continuous City service. The Tier 3 retirement reduction factors at early retirement ages are as follows:

Age	Factor	Age	Factor
45	0.6250	50	0.7750
46	0.6550	51	0.8050
47	0.6850	52	0.8350
48	0.7150	53	0.8650
49	0.7450	54	0.8950
		55-60	1.0000

Tier 3 members are eligible to retire with an enhanced retirement benefit at 2.00% of final average monthly compensation per year of service credit once they attain the age of 63 with 10 years of service (but with less than 30 years of service), including 5 years of continuous City service, or at 2.10% of final average monthly compensation per year of service credit once they attain the age of 63 with 30 years of service, including 5 years of continuous City service.

Under Tier 1, pension benefits are calculated based on the highest average salary earned during a 12-month period (including base salary plus regularly assigned bonuses or premium pay). Under Tier 3, pension benefits are calculated based on the highest average salary earned during a 36-month period (limited to base salary and any items of compensation that are designated as pension based). The IRC Section 401(a)(17) compensation limit applies to all employees who became members in LACERS after June 30, 1996.

For Tier 1 members, the maximum monthly retirement allowance is 100% of the final average monthly compensation. For Tier 3 members, the maximum monthly retirement allowance is 80% of the final average monthly compensation, except when the benefit is based solely on the annuity component funded by the member's contributions.

In lieu of the service retirement allowance under the Tier 1 and Tier 3 formula ("unmodified option"), the member may choose an optional retirement allowance. The unmodified option provides the highest monthly benefit and a 50% continuance to an eligible surviving spouse or domestic partner for Tier 1 and Tier 3 members. The optional retirement allowances require a reduction in the unmodified option amount in order to allow the member the ability to provide various benefits to a surviving spouse, domestic partner, or named beneficiary.

LACERS provides annual cost-of-living adjustments (COLAs) to all retirees. The cost-of-living adjustments are made each July 1 based on the percentage change in the average of the Consumer Price Index for the Los Angeles-Long Beach-Anaheim Area--All Items For All Urban Consumers. It is capped at 3.0% for Tier 1 and 2.0% for Tier 3.

In compliance with the City Charter Sections 1158 and 1160, the City of Los Angeles contributes to the retirement plan based upon actuarially determined contribution rates adopted by the Board of Administration. Employer contribution rates are adopted annually based upon recommendations received from LACERS' actuary after the completion of the annual actuarial valuation. The combined employer contribution rate as of June 30, 2017 was 22.98% of compensation.[2]

All members are required to make contributions to LACERS regardless of the tier in which they are included. Currently, all Tier 1 members contribute at 11.0% or 11.5% of compensation and all Tier 3 members contribute at 11.0% of compensation.

[2] *Based on the Tier 1 employer rate from the June 30, 2015 funding valuation (which established funding requirements for fiscal year 2016/2017) and on the Tier 3 employer rate from the Tier 3 study report dated March 14, 2016 (Tier 3 became effective February 21, 2016). Exhibit 6 in Section 2 of this report provides details on how this rate was calculated.*

EXHIBIT 2

Net Pension Liability

Reporting Date for Employer under GAS 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
The components of the Net Pension Liability are as follows:		
Total Pension Liability	\$18,458,187,953	\$17,424,996,329
Plan's Fiduciary Net Position	-13,180,515,725	-11,809,329,415
Net Pension Liability	\$5,277,672,228	\$5,615,666,914
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	71.41%	67.77%

The Net Pension Liability was measured as of June 30, 2017 and 2016. The Plan's Fiduciary Net Position (plan assets) was valued as of the measurement date, while the Total Pension Liability was determined based upon the results of the actuarial valuations as of June 30, 2017 and 2016, respectively.

Plan provisions. The plan provisions used in the measurement of the NPL as of June 30, 2017 and 2016 are the same as those used in the LACERS funding valuations as of June 30, 2017 and 2016, respectively.

Actuarial assumptions. The Total Pension Liability as of June 30, 2017 was determined by an actuarial valuation as of June 30, 2017. The actuarial assumptions in the June 30, 2017 valuation were based on the results of an experience study for the period from July 1, 2011 through June 30, 2014 and the June 30, 2017 Review of Economic Actuarial Assumptions dated June 30, 2017. They are the same as the assumptions used in the June 30, 2017 funding actuarial valuation for LACERS. The assumptions are outlined in Section 3 of this report. In particular, the following actuarial assumptions were applied to all periods included in the measurement:

Inflation	3.00%
Salary increases	Ranges from 10.00% to 3.90% based on years of service, including inflation
Investment rate of return	7.25%, net of pension plan investment expense, including inflation
Other assumptions	Same as those used in the June 30, 2017 actuarial valuation

The Total Pension Liability as of June 30, 2016 was determined by an actuarial valuation as of June 30, 2016. The actuarial assumptions in the June 30, 2016 valuation were based on the results of an experience study for the period from July 1, 2011 through June 30, 2014. They are the same as the assumptions used in the June 30, 2016 funding actuarial valuation for LACERS.

In particular, the following actuarial assumptions were applied to all periods included in the measurement:

Inflation	3.25%
Salary increases	Ranges from 10.50% to 4.40% based on years of service, including inflation
Investment rate of return	7.50%, net of pension plan investment expense, including inflation
Other assumptions	Same as those used in the June 30, 2016 actuarial valuation

EXHIBIT 3

Target Asset Allocation

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before deducting investment expenses, used in the derivation of the June 30, 2017 long-term expected investment rate of return assumption are summarized in the following table:

Asset Class	Target Allocation	Long-Term (Arithmetic) Expected Real Rate of Return
U.S. Large Cap Equity	19.00%	5.61%
U.S. Small Cap Equity	5.00%	6.48%
Developed International Equity	19.00%	7.08%
Developed International Small Cap Equity	3.00%	7.32%
Emerging Market Equity	7.00%	9.35%
Core Bonds	19.00%	1.08%
Private Real Estate	5.00%	4.44%
Cash	1.00%	-0.06%
Credit Opportunities	5.00%	3.75%
Public Real Assets	5.00%	3.35%
Private Equity	12.00%	8.97%
Total	**100.00%**	

Discount rate: The discount rate used to measure the Total Pension Liability was 7.25% as of June 30, 2017 and 7.50% as of June 30, 2016. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the actuarially determined contribution rates. For this purpose, only employee and employer contributions that are intended to fund benefits for current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service costs for future plan members and their beneficiaries, as well as projected contributions from future plan members, are not included. Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments for current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability as of both June 30, 2017 and June 30, 2016.

EXHIBIT 4

Discount Rate Sensitivity

Sensitivity of the Net Pension Liability to changes in the discount rate. The following presents the Net Pension Liability of LACERS as of June 30, 2017, which is allocated to all employer categories, calculated using the discount rate of 7.25%, as well as what LACERS' NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.25%) or 1-percentage-point higher (8.25%) than the current rate:

	Net Pension Liability		
Employer Category	**1% Decrease (6.25%)**	**Current Discount (7.25%)**	**1% Increase (8.25%)**
City	$6,364,984,439	$4,350,001,537	$2,673,203,369
Airports	1,057,994,863	723,062,142	444,342,867
Harbor	299,386,154	204,608,549	125,737,947
Total for all Employer Categories	$7,722,365,456	$5,277,672,228	$3,243,284,183

EXHIBIT 5

Schedule of Changes in Net Pension Liability – Last Two Fiscal Years

Reporting Date for Employer under GAS 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
Total Pension Liability		
1. Service cost[(1)]	$340,758,622	$322,574,274
2. Interest	1,302,278,282	1,263,555,893
3. Change of benefit terms	0	0
4. Differences between expected and actual experience	-146,474,065	-300,812,751
5. Changes of assumptions or other inputs	340,717,846	0
6. Benefit payments, including refunds of member contributions	-804,089,061	-770,317,467
7. Net change in Total Pension Liability	$1,033,191,624	$514,999,949
8. Total Pension Liability – beginning	17,424,996,329	16,909,996,380
9. Total Pension Liability – ending	$18,458,187,953	$17,424,996,329
Plan's Fiduciary Net Position		
10. Contributions – employer	$453,356,059	$440,546,011
11. Contributions – employee	221,828,781	206,377,251
12. Net investment income	1,517,544,363	29,357,755
13. Benefit payments, including refunds of member contributions	-804,089,061	-770,317,467
14. Administrative expense	-17,453,832	-17,204,154
15. Other	0	0
16. Net change in Plan's Fiduciary Net Position	$1,371,186,310	-$111,240,604
17. Plan's Fiduciary Net Position – beginning	11,809,329,415	11,920,570,019
18. Plan's Fiduciary Net Position – ending	$13,180,515,725	$11,809,329,415
19. Net Pension Liability – ending: (9) – (18)	$5,277,672,228	$5,615,666,914
20. Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	71.41%	67.77%
21. Covered-employee payroll[(2)]	$1,973,048,633	$1,876,946,179
22. Plan Net Pension Liability as percentage of covered-employee payroll	267.49%	299.19%

[(1)] *The service cost is based on the previous year's valuation, meaning the June 30, 2017 and June 30, 2016 measurement date values are based on the valuations as of June 30, 2016 and June 30, 2015, respectively. Both of the service costs have been calculated using the assumptions shown on page iv in the June 30, 2016 measurement date column, as there had been no changes in the actuarial assumptions between the June 30, 2015 and June 30, 2016 valuations.*

[(2)] *Covered-employee payroll represents the collective total of the pensionable wages of all LACERS membership tiers.*

EXHIBIT 6

Schedule of Employer Contributions – Last Ten Fiscal Years

Year Ended June 30,	Actuarially Determined Contributions	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency/(Excess)	Covered-Employee Payroll[1]	Contributions as a Percentage of Covered-Employee Payroll
2008	$288,119,041	$288,119,041	$0	$1,741,849,669	16.54%
2009	274,554,786	274,554,786	0	1,832,795,577	14.98%
2010	258,642,795	258,642,795	0	1,827,864,283	14.15%
2011	303,560,953	303,560,953	0	1,678,059,440	18.09%
2012	308,539,905	308,539,905	0	1,715,197,133	17.99%
2013	346,180,852	346,180,852	0	1,736,112,598	19.94%
2014	357,649,232	357,649,232	0	1,802,931,195	19.84%
2015	381,140,923	381,140,923	0	1,835,637,409	20.76%
2016	440,546,011	440,546,011	0	1,876,946,179	23.47%
2017	453,356,059	453,356,059	0	1,973,048,633	22.98%

[1] *Covered-employee payroll represents the collective total of the pensionable wages of all LACERS membership tiers.*

Notes to Exhibit 6

Methods and assumptions used to establish "actuarially determined contribution" (ADC) rates:	
Valuation date	Actuarially determined contribution rates are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported
Actuarial cost method	Entry Age Cost Method (individual basis)
Amortization method	Level percent of payroll
Amortization period	Multiple layers, closed amortization periods. Actuarial gains/losses are amortized over 15 years. Assumption or method changes are amortized over 20 years. Plan changes, including the 2009 ERIP, are amortized over 15 years. Future ERIPs will be amortized over 5 years. Actuarial surplus is amortized over 30 years. The existing layers on June 30, 2012, except those arising from the 2009 ERIP and the two GASB 25/27 layers, were combined and amortized over 30 years.
Asset valuation method	Market value of assets less unrecognized returns in each of the last seven years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a seven-year period. The actuarial value of assets cannot be less than 60% or greater than 140% of the market value of assets.
Actuarial assumptions:	June 30, 2017 valuation date
Investment rate of return	7.25%
Inflation rate	3.00%
Real across the board salary increase	0.50%
Projected salary increases[1]	Ranges from 10.00% to 3.90%, based on years of service
Cost of living adjustments	3.00% for Tier 1; 2.00% for Tier 3 (actual increases are contingent upon CPI increases with a 3.00% maximum for Tier 1 and a 2.00% maximum for Tier 3)
Mortality	Healthy: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females
Other assumptions	Same as those used in the June 30, 2017 funding actuarial valuation

[1] *Includes inflation at 3.00% plus across the board salary increases of 0.50% plus merit and promotional increases.*

EXHIBIT 7

Determination of Proportionate Share

Actual Employer Contributions by Employer Category
July 1, 2015 to June 30, 2016

Employer Category	Contributions	Percentage[1]
City	$362,439,265	82.271%
Airports	60,747,823	13.789%
Harbor	17,358,923	3.940%
Total for all Employer Categories	$440,546,011	100.000%

[1] The unrounded percentages are used in the allocation of the NPL amongst employer categories.

Allocation of June 30, 2016 Net Pension Liability

Employer Category	NPL	Percentage
City	$4,620,035,451	82.271%
Airports	774,356,211	13.789%
Harbor	221,275,252	3.940%
Total for all Employer Categories	$5,615,666,914	100.000%

Notes:

1. Based on the July 1, 2015 through June 30, 2016 employer contributions as provided by LACERS.
2. The Net Pension Liability is the Total Pension Liability minus the Plan's Fiduciary Net Position (plan assets).
3. The NPL is allocated based on the actual contributions from each employer category. The steps used for the allocation are as follows:
   - First calculate the ratio of the contributions from the employer category to the total contributions.
   - Then multiply this ratio by the NPL to determine the employer category's proportionate share of the NPL.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Actual Employer Contributions by Employer Category
July 1, 2016 to June 30, 2017

Employer Category	Contributions	Percentage[1]
City	$373,668,441	82.423%
Airports	62,111,588	13.700%
Harbor	17,576,030	3.877%
Total for all Employer Categories	$453,356,059	100.000%

[1] The unrounded percentages are used in the allocation of the NPL amongst employer categories.

Allocation of June 30, 2017 Net Pension Liability

Employer Category	NPL	Percentage
City	$4,350,001,537	82.423%
Airports	723,062,142	13.700%
Harbor	204,608,549	3.877%
Total for all Employer Categories	$5,277,672,228	100.000%

Notes:

1. Based on the July 1, 2016 through June 30, 2017 employer contributions as provided by LACERS.
2. The Net Pension Liability is the Total Pension Liability minus the Plan's Fiduciary Net Position (plan assets).
3. The NPL is allocated based on the actual contributions from each employer category. The steps used for the allocation are as follows:
   - First calculate the ratio of the contributions from the employer category to the total contributions.
   - Then multiply this ratio by the NPL to determine the employer category's proportionate share of the NPL.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Notes:

For purposes of the above results, the reporting date for the employer under GAS 68 is June 30, 2018. The reporting date and measurement date for the Plan under GAS 67 are June 30, 2017. Consistent with the provisions of GAS 68, the assets and liabilities measured as of June 30, 2017 are not adjusted or rolled forward to the June 30, 2018 reporting date. Other results, such as the total deferred inflows and outflows would also be allocated based on the same proportionate shares determined above.

The following items are allocated based on the corresponding proportionate share:

1) Net Pension Liability
2) Service cost
3) Interest on the Total Pension Liability
4) Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability
5) Expensed portion of current-period changes of assumptions or other inputs
6) Member contributions
7) Projected earnings on plan investments
8) Expensed portion of current-period differences between actual and projected earnings on plan investments
9) Administrative expense
10) Recognition of beginning of year deferred outflows of resources as pension expense
11) Recognition of beginning of year deferred inflows of resources as pension expense

EXHIBIT 8

Pension Expense – Total for all Employer Categories

Reporting Date for Employer under GAS 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
Components of Pension Expense		
1. Service cost	$340,758,622	$322,574,274
2. Interest on the Total Pension Liability	1,302,278,282	1,263,555,893
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	-28,331,541	-57,407,014
6. Expensed portion of current-period changes of assumptions or other inputs	65,902,872	0
7. Actual member contributions	-221,828,781	-206,377,251
8. Projected earnings on plan investments	-895,795,394	-903,897,010
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	-124,349,794	174,907,851
10. Administrative expense	17,453,832	17,204,154
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	431,406,029	256,498,178
13. Recognition of beginning of year deferred inflows of resources as pension expense	-314,840,022	-257,433,008
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
Pension Expense	$572,654,105	$609,626,067

EXHIBIT 8 (continued)

Pension Expense – City

Reporting Date for Employer under GAS 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
Components of Pension Expense		
1. Service cost	$280,862,559	$265,383,365
2. Interest on the Total Pension Liability	1,073,373,314	1,039,533,346
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	1,475,900	3,711,207
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	-23,351,630	-47,229,019
6. Expensed portion of current-period changes of assumptions or other inputs	54,318,947	0
7. Actual member contributions	-182,837,337	-169,787,531
8. Projected earnings on plan investments	-738,339,020	-743,640,300
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	-102,492,495	143,897,508
10. Administrative expense	14,385,924	14,153,938
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	355,576,627	211,022,252
13. Recognition of beginning of year deferred inflows of resources as pension expense	-259,499,741	-211,791,340
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	7,171,395	3,460,188
Pension Expense	$480,644,443	$508,713,614

EXHIBIT 8 (continued)

Pension Expense – Airports

Reporting Date for Employer under GAS 68 **Measurement Date for Employer under GAS 68** **Components of Pension Expense**	**June 30, 2018** **June 30, 2017**	**June 30, 2017** **June 30, 2016**
1. Service cost	$46,685,291	$44,480,450
2. Interest on the Total Pension Liability	178,417,318	174,234,400
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	-860,879	-1,755,743
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	-3,881,534	-7,915,975
6. Expensed portion of current-period changes of assumptions or other inputs	9,028,956	0
7. Actual member contributions	-30,391,428	-28,457,796
8. Projected earnings on plan investments	-122,727,541	-124,640,274
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	-17,036,418	24,118,414
10. Administrative expense	2,391,245	2,372,317
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	59,104,346	35,369,077
13. Recognition of beginning of year deferred inflows of resources as pension expense	-43,134,339	-35,497,983
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	-4,382,887	-2,627,144
Pension Expense	$73,212,130	$79,679,743

EXHIBIT 8 (continued)

Pension Expense – Harbor

Reporting Date for Employer under GAS 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
Components of Pension Expense		
1. Service cost	$13,210,772	$12,710,459
2. Interest on the Total Pension Liability	50,487,650	49,788,147
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	-615,021	-1,955,464
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	-1,098,377	-2,262,020
6. Expensed portion of current-period changes of assumptions or other inputs	2,554,969	0
7. Actual member contributions	-8,600,016	-8,131,924
8. Projected earnings on plan investments	-34,728,833	-35,616,436
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	-4,820,881	6,891,929
10. Administrative expense	676,663	677,899
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	16,725,056	10,106,849
13. Recognition of beginning of year deferred inflows of resources as pension expense	-12,205,942	-10,143,685
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	-2,788,508	-833,044
Pension Expense	$18,797,532	$21,232,710

EXHIBIT 9

Deferred Outflows of Resources and Deferred Inflows of Resources – Total for all Employer Categories

Reporting Date for Employer under GAS 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$28,975,744	$32,437,213
2. Changes of assumptions or other inputs	501,222,692	366,165,567
3. Net excess of projected over actual earnings on pension plan investments (if any)	57,233,980	642,710,282
4. Difference between expected and actual experience in the Total Pension Liability	0	0
5. Total deferred outflows of resources	$587,432,416	$1,041,313,062
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$28,975,744	$32,437,213
7. Changes of assumptions or other inputs	0	0
8. Net excess of actual over projected earnings on pension plan investments (if any)	N/A	N/A
9. Difference between expected and actual experience in the Total Pension Liability	411,445,007	404,571,452
10. Total deferred inflows of resources	$440,420,751	$437,008,665

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GAS 68, Year Ended June 30:		
2018	N/A	$116,566,007
2019	$29,787,543	116,566,006
2020	191,195,646	277,974,109
2021	20,197,493	106,975,956
2022	-100,556,143	-13,777,681
2023	6,387,126	0
Thereafter	0	0

[1] *Calculated in accordance with Paragraphs 54 and 55 of GAS 68.*

EXHIBIT 9

Deferred Outflows of Resources and Deferred Inflows of Resources – City

Reporting Date for Employer under GAS 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions(1)	$25,251,342	$27,173,802
2. Changes of assumptions or other inputs	413,121,426	301,246,126
3. Net excess of projected over actual earnings on pension plan investments (if any)	47,173,809	528,760,756
4. Difference between expected and actual experience in the Total Pension Liability	0	0
5. Total deferred outflows of resources	$485,546,577	$857,180,684
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions(1)	$2,191,481	$3,097,052
7. Changes of assumptions or other inputs	0	0
8. Net excess of actual over projected earnings on pension plan investments (if any)	N/A	N/A
9. Difference between expected and actual experience in the Total Pension Liability	339,124,207	332,842,827
10. Total deferred inflows of resources	$341,315,688	$335,939,879

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GAS 68, Year Ended June 30:		
2018	N/A	$103,070,794
2019	$33,199,001	103,070,793
2020	164,576,976	234,203,005
2021	21,454,093	91,340,488
2022	-80,514,531	-10,444,275
2023	5,515,350	0
Thereafter	0	0

(1) *Calculated in accordance with Paragraphs 54 and 55 of GAS 68.*

EXHIBIT 9

Deferred Outflows of Resources and Deferred Inflows of Resources – Airports

Reporting Date for Employer under GAS 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$3,724,402	$5,263,411
2. Changes of assumptions or other inputs	68,669,508	50,491,346
3. Net excess of projected over actual earnings on pension plan investments (if any)	7,841,283	88,624,683
4. Difference between expected and actual experience in the Total Pension Liability	0	0
5. Total deferred outflows of resources	$80,235,193	$144,379,440
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$16,027,641	$18,359,669
7. Changes of assumptions or other inputs	0	0
8. Net excess of actual over projected earnings on pension plan investments (if any)	N/A	N/A
9. Difference between expected and actual experience in the Total Pension Liability	56,369,607	55,787,215
10. Total deferred inflows of resources	$72,397,248	$74,146,884

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GAS 68, Year Ended June 30:		
2018	N/A	$11,690,647
2019	-$1,162,754	11,690,647
2020	22,533,938	35,530,690
2021	796,899	13,641,782
2022	-15,058,848	-2,321,210
2023	728,710	0
Thereafter	0	0

(1) *Calculated in accordance with Paragraphs 54 and 55 of GAS 68.*

EXHIBIT 9

Deferred Outflows of Resources and Deferred Inflows of Resources – Harbor

Reporting Date for Employer under GAS 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
2. Changes of assumptions or other inputs	19,431,758	14,428,095
3. Net excess of projected over actual earnings on pension plan investments (if any)	2,218,888	25,324,843
4. Difference between expected and actual experience in the Total Pension Liability	0	0
5. Total deferred outflows of resources	$21,650,646	$39,752,938
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$10,756,622	$10,980,492
7. Changes of assumptions or other inputs	0	0
8. Net excess of actual over projected earnings on pension plan investments (if any)	N/A	N/A
9. Difference between expected and actual experience in the Total Pension Liability	15,951,193	15,941,410
10. Total deferred inflows of resources	$26,707,815	$26,921,902

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GAS 68, Year Ended June 30:		
2018	N/A	$1,804,566
2019	-$2,248,704	1,804,566
2020	4,084,732	8,240,414
2021	-2,053,499	1,993,686
2022	-4,982,764	-1,012,196
2023	143,066	0
Thereafter	0	0

[1] *Calculated in accordance with Paragraphs 54 and 55 of GAS 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources

There are changes in each employer category's proportionate share of the total Net Pension Liability during the measurement period ended June 30, 2017. The net effect of the change on the employer category's proportionate share of the collective Net Pension Liability and collective deferred outflows of resources and deferred inflows of resources is recognized over the average of the expected remaining service lives of all employees that are provided with pensions through LACERS which is 5.17 years determined as of June 30, 2016 (the beginning of the measurement period ending June 30, 2017).

In addition, the difference between the actual employer contributions and the proportionate share of the employer contributions during the measurement period ended June 30, 2017 is recognized over the same period.

The average of the expected service lives of all employees is determined by:

- Calculating each active employee's expected remaining service life as the present value of $1 per year of future service at zero percent interest.
- Setting the remaining service life to zero for each nonactive or retired member.
- Dividing the sum of the above amounts by the total number of active employee, nonactive and retired members.

EXHIBIT 10

Schedule of Proportionate Share of the Net Pension Liability – Total for all Employer Categories

Reporting Date for Employer under GAS 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered-employee payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered-employee payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	100.000%	$4,727,177,064	$1,736,112,598	272.29%	68.23%
2015	100.000%	4,457,773,626	1,802,931,195	247.25%	72.57%
2016	100.000%	4,989,426,361	1,835,637,409	271.81%	70.49%
2017	100.000%	5,615,666,914	1,876,946,179	299.19%	67.77%
2018	100.000%	5,277,672,228	1,973,048,633	267.49%	71.41%

[1] *Covered-employee payroll represents the collective total of the pensionable wages of all LACERS membership tiers.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability – City

Reporting Date for Employer under GAS 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered-employee payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered-employee payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	81.453%	$3,850,425,590	$1,414,115,080	272.29%	68.23%
2015	81.972%	3,654,125,793	1,477,663,755	247.29%	72.57%
2016	81.869%	4,084,786,762	1,504,659,940	271.48%	70.49%
2017	82.271%	4,620,035,451	1,540,925,299	299.82%	67.77%
2018	82.423%	4,350,001,537	1,625,808,930	267.56%	71.41%

[1] *Covered-employee payroll represents the collective total of the pensionable wages of all LACERS membership tiers.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability – Airports

Reporting Date for Employer under GAS 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered-employee payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered-employee payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	14.299%	$675,950,764	$248,251,046	272.29%	68.23%
2015	13.804%	615,348,678	249,227,877	246.90%	72.57%
2016	13.979%	697,482,231	255,014,220	273.51%	70.49%
2017	13.789%	774,356,211	260,929,145	296.77%	67.77%
2018	13.700%	723,062,142	271,035,342	266.78%	71.41%

(1) *Covered-employee payroll represents the collective total of the pensionable wages of all LACERS membership tiers.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability – Harbor

Reporting Date for Employer under GAS 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered-employee payroll(1)	Proportionate share of the Net Pension Liability as a percentage of its covered-employee payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	4.248%	$200,800,710	$73,746,472	272.29%	68.23%
2015	4.224%	188,299,155	76,039,563	247.63%	72.57%
2016	4.152%	207,157,368	75,963,249	272.71%	70.49%
2017	3.940%	221,275,252	75,091,735	294.67%	67.77%
2018	3.877%	204,608,549	76,204,361	268.50%	71.41%

(1) *Covered-employee payroll represents the collective total of the pensionable wages of all LACERS membership tiers.*

EXHIBIT 11

Schedule of Reconciliation of Net Pension Liability – Total for all Employer Categories

Reporting Date for Employer under GAS 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$5,615,666,914	$4,989,426,361
2. Pension Expense	572,654,105	609,626,067
3. Employer Contributions	-453,356,059	-440,546,011
4. New Net Deferred Inflows/Outflows	-340,726,725	456,225,667
5. Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6. New Net Deferred Flows Due to Change in Proportion	0	0
7. Recognition of Prior Deferred Inflows/Outflows	-116,566,007	934,830
8. Recognition of Prior Deferred Flows Due to Change in Proportion	0	0
9. Ending Net Pension Liability	$5,277,672,228	$5,615,666,914

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability – City

Reporting Date for Employer under GAS 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$4,620,035,451	$4,084,786,762
2. Pension Expense	480,644,443	508,713,614
3. Employer Contributions	-373,668,441	-362,439,265
4. New Net Deferred Inflows/Outflows	-280,836,269	375,338,992
5. Change in Allocation of Prior Deferred Inflows/Outflows	920,128	590,933
6. New Net Deferred Flows Due to Change in Proportion	6,154,506	15,735,515
7. Recognition of Prior Deferred Inflows/Outflows	-96,076,886	769,088
8. Recognition of Prior Deferred Flows Due to Change in Proportion	-7,171,395	-3,460,188
9. Ending Net Pension Liability	$4,350,001,537	$4,620,035,451

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability – Airports

	Reporting Date for Employer under GAS 68	June 30, 2018	June 30, 2017
	Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
	Reconciliation of Net Pension Liability		
1.	Beginning Net Pension Liability	$774,356,211	$697,482,231
2.	Pension Expense	73,212,130	79,679,743
3.	Employer Contributions	-62,111,588	-60,747,823
4.	New Net Deferred Inflows/Outflows	-46,680,921	62,909,924
5.	Change in Allocation of Prior Deferred Inflows/Outflows	-536,702	-279,566
6.	New Net Deferred Flows Due to Change in Proportion	-3,589,868	-7,444,348
7.	Recognition of Prior Deferred Inflows/Outflows	-15,970,007	128,906
8.	Recognition of Prior Deferred Flows Due to Change in Proportion	4,382,887	2,627,144
9.	Ending Net Pension Liability	$723,062,142	$774,356,211

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability – Harbor

Reporting Date for Employer under GAS 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GAS 68	**June 30, 2017**	**June 30, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$221,275,252	$207,157,368
2. Pension Expense	18,797,532	21,232,710
3. Employer Contributions	-17,576,030	-17,358,923
4. New Net Deferred Inflows/Outflows	-13,209,535	17,976,751
5. Change in Allocation of Prior Deferred Inflows/Outflows	-383,426	-311,367
6. New Net Deferred Flows Due to Change in Proportion	-2,564,638	-8,291,167
7. Recognition of Prior Deferred Inflows/Outflows	-4,519,114	36,836
8. Recognition of Prior Deferred Flows Due to Change in Proportion	2,788,508	833,044
9. Ending Net Pension Liability	$204,608,549	$221,275,252

EXHIBIT 12

Schedule of Recognition of Changes in Total Net Pension Liability

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience on Total Pension Liability

Reporting Date for Employer under GAS 68, Year Ended June 30	Differences between Expected and Actual Experience	Recognition Period (Years)	Reporting Date for Employer under GAS 68, Year Ended June 30: 2017	2018	2019	2020	2021	2022	2023	Thereafter
2015	-$161,871,265	5.62	-$28,802,716	-$28,802,716	-$28,802,716	-$17,857,685	$0	$0	$0	$0
2016	-135,821,076	5.42	-25,059,239	-25,059,239	-25,059,239	-25,059,239	-10,524,881	0	0	0
2017	-300,812,751	5.24	-57,407,014	-57,407,014	-57,407,014	-57,407,014	-57,407,014	-13,777,681	0	0
2018	-146,474,065	5.17	N/A	-28,331,541	-28,331,541	-28,331,541	-28,331,541	-28,331,541	-4,816,360	0
Net increase (decrease) in pension expense			-$111,268,969	-$139,600,510	-$139,600,510	-$128,655,479	-$96,263,436	-$42,109,222	-$4,816,360	$0

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Assumption Changes

Reporting Date for Employer under GAS 68, Year Ended June 30	Effects of Assumption Changes	Recognition Period (Years)	Reporting Date for Employer under GAS 68, Year Ended June 30: 2017	2018	2019	2020	2021	2022	2023	Thereafter
2015	$785,439,114	5.62	$139,757,849	$139,757,849	$139,757,849	$86,649,869	$0	$0	$0	$0
2016	0	5.42	0	0	0	0	0	0	0	0
2017	0	5.24	0	0	0	0	0	0	0	0
2018	340,717,846	5.17	N/A	65,902,872	65,902,872	65,902,872	65,902,872	65,902,872	11,203,486	0
Net increase (decrease) in pension expense			$139,757,849	$205,660,721	$205,660,721	$152,552,741	$65,902,872	$65,902,872	$11,203,486	$0

As described in Exhibit 9, the average of the expected remaining service lives of all employees that are provided with pensions through LACERS (active and inactive employees) determined as of June 30, 2016 (the beginning of the measurement period ending June 30, 2017) is 5.17 years.

EXHIBIT 12 (continued)

Schedule of Recognition of Changes in Total Net Pension Liability

Increase (Decrease) in Pension Expense Arising from the Recognition of Differences between Projected and Actual Earnings on Pension Plan Investments

Reporting Date for Employer under GAS 68, Year Ended June 30	Differences between Projected and Actual Earnings	Recognition Period (Years)	Reporting Date for Employer under GAS 68, Year Ended June 30: 2017	2018	2019	2020	2021	2022	2023	Thereafter
2015	-$1,017,855,266	5.00	-$203,571,053	-$203,571,053	-$203,571,054	$0	$0	$0	$0	$0
2016	583,701,643	5.00	116,740,329	116,740,329	116,740,329	116,740,327	0	0	0	0
2017	874,539,255	5.00	174,907,851	174,907,851	174,907,851	174,907,851	174,907,851	0	0	0
2018	-621,748,969	5.00	N/A	-124,349,794	-124,349,794	-124,349,794	-124,349,794	-124,349,793	0	0
Net increase (decrease) in pension expense			$88,077,127	-$36,272,667	-$36,272,668	$167,298,384	$50,558,057	-$124,349,793	$0	$0

The differences between projected and actual earnings on pension plan investments are recognized over a five-year period per Paragraph 33b. of GASB 68.

Increase (Decrease) in Pension Expense

Reporting Date for Employer under GAS 68, Year Ended June 30	Total Differences and Changes	Reporting Date for Employer under GAS 68, Year Ended June 30: 2017	2018	2019	2020	2021	2022	2023	Thereafter
2015	-$394,287,417	-$92,615,920	-$92,615,920	-$92,615,921	$68,792,184	$0	$0	$0	$0
2016	447,880,567	91,681,090	91,681,090	91,681,090	91,681,088	-10,524,881	0	0	0
2017	573,726,504	117,500,837	117,500,837	117,500,837	117,500,837	117,500,837	-13,777,681	0	0
2018	-427,505,188	N/A	-86,778,463	-86,778,463	-86,778,463	-86,778,463	-86,778,462	6,387,126	0
Net increase (decrease) in pension expense		$116,566,007	$29,787,544	$29,787,543	$191,195,646	$20,197,493	-$100,556,143	$6,387,126	$0

Amortization amounts prior to June 30, 2017 have been omitted from this exhibit. These amounts can be found in prior years' GAS 68 reports.

EXHIBIT 13

Allocation of Changes in Total Net Pension Liability

In addition to the amounts shown in Exhibit 12, there are changes in each employer's proportionate share of the total Net Pension Liability during the measurement period ending on June 30, 2017. The net effect of the change on the employer's proportionate share of the collective Net Pension Liability and collective deferred outflows of resources and deferred inflows of resources is also recognized over the average of the expected remaining service lives of all employees shown above. The difference between the actual employer contributions and the proportionate share of the employer contributions during the measurement period ending on June 30, 2017 is recognized over the same periods. These amounts are shown below. While these amounts are different for each employer, they sum to zero over the entire LACERS.

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of the Change in Proportion and Change in Employer Contributions for the Reporting Date for Employer under GAS 68, Year Ended June 30, 2018

	Total Change to be Recognized	Recognition Period (Years)	Reporting Date for Employer under GAS 68, Year Ended June 30: 2018	2019	2020	2021	2022	2023	Thereafter
City	7,630,406	5.17	1,475,900	1,475,900	1,475,900	1,475,900	1,475,900	250,906	$0
Airports	-4,450,747	5.17	-860,879	-860,879	-860,879	-860,879	-860,879	-146,352	0
Harbor	-3,179,659	5.17	-615,021	-615,021	-615,021	-615,021	-615,021	-104,554	0
Total for all Employer Categories	$0		$0	$0	$0	$0	$0	$0	$0

EXHIBIT 13 (continued)

Allocation of Changes in Total Net Pension Liability

The corresponding amounts for the measurement period ending on June 30, 2016 are shown below:

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of the Change in Proportion and Change in Employer Contributions for the Reporting Date for Employer under GAS 68, Year Ended June 30, 2017

	Total Change to be Recognized	Recognition Period (Years)	Reporting Date for Employer under GAS 68, Year Ended June 30: 2017	2018	2019	2020	2021	2022	Thereafter
City	$19,446,722	5.24	$3,711,207	$3,711,207	$3,711,207	$3,711,207	$3,711,207	$890,687	$0
Airports	-9,200,091	5.24	-1,755,743	-1,755,743	-1,755,743	-1,755,743	-1,755,743	-421,376	0
Harbor	-10,246,631	5.24	-1,955,464	-1,955,464	-1,955,464	-1,955,464	-1,955,464	-469,311	0
Total for all Employer Categories	$0		$0	$0	$0	$0	$0	$0	$0

EXHIBIT 13 (continued)

Allocation of Changes in Total Net Pension Liability

The corresponding amounts for the measurement period ending on June 30, 2015 are shown below:

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of the Change in Proportion and Change in Employer Contributions for the Reporting Date for Employer under GAS 68, Year Ended June 30, 2016

	Total Change to be Recognized	Recognition Period (Years)	Reporting Date for Employer under GAS 68, Year Ended June 30: 2016	2017	2018	2019	2020	2021	Thereafter
City	-$4,908,194	5.42	-$905,571	-$905,571	-$905,571	-$905,571	-$905,571	-$380,339	$0
Airports	8,341,429	5.42	1,539,009	1,539,009	1,539,009	1,539,009	1,539,009	646,384	0
Harbor	-3,433,235	5.42	-633,438	-633,438	-633,438	-633,438	-633,438	-266,045	0
Total for all Employer Categories	$0		$0	$0	$0	$0	$0	$0	$0

EXHIBIT 13 (continued)

Allocation of Changes in Total Net Pension Liability

The corresponding amounts for the measurement period ending on June 30, 2014 are shown below:

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of the Change in Proportion and Change in Employer Contributions for the Reporting Date for Employer under GAS 68, Year Ended June 30, 2015

	Total Change to be Recognized	Recognition Period (Years)	Reporting Date for Employer under GAS 68, Year Ended June 30: 2015	2016	2017	2018	2019	2020	Thereafter
City	$24,535,564	5.62	$4,365,759	$4,365,759	$4,365,759	$4,365,759	$4,365,759	$2,706,769	$0
Airports	-23,413,780	5.62	-4,166,153	-4,166,153	-4,166,153	-4,166,153	-4,166,153	-2,583,015	0
Harbor	-1,121,784	5.62	-199,606	-199,606	-199,606	-199,606	-199,606	-123,754	0
Total for all Employer Categories	$0		$0	$0	$0	$0	$0	$0	$0

Actuarial Assumptions and Methods

For June 30, 2017 Measurement Date and Employer Reporting as of June 30, 2018

Rationale for Assumptions: The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the July 1, 2011 through June 30, 2014 Actuarial Experience Study dated October 8, 2014 and the June 30, 2017 Review of Economic Actuarial Assumptions dated June 30, 2017. Unless otherwise noted, all actuarial assumptions and methods shown below apply to both Tier 1 and Tier 3 members. These assumptions were adopted by the Board.

Economic Assumptions:

Net Investment Return: 7.25%, net of investment expenses

Consumer Price Index: Increase of 3.00% per year; benefit increases due to CPI subject to 3.00% maximum for Tier 1 and 2.00% maximum for Tier 3.

Employee Contribution Crediting Rate: Based on average of 5-year Treasury note rate. An assumption of 3.00% is used to approximate that crediting rate in this valuation.

Salary Increases: Inflation: 3.00%; plus additional 0.50% "across the board" salary increases (other than inflation); plus the following merit and promotional increases:

Service	Percentage Increase
0	6.50%
1	6.20%
2	5.10%
3	3.10%
4	2.10%
5	1.10%
6	1.00%
7	0.90%
8	0.70%
9	0.60%
10+	0.40%

<u>Demographic Assumptions:</u>

Post-Retirement Mortality Rates:

Healthy Members and All Beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.

Disabled Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward seven years for males and set forward eight years for females.

The above mortality tables contain about a 10% margin, based on actual to expected deaths, as a provision to anticipate future mortality improvement, based on a review of mortality experience as of the measurement date.

Termination Rates Before Retirement:

Pre-Retirement Mortality: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.

	Rate (%)	
Age	**Disability**	**Termination***
25	0.01	5.75
30	0.03	5.75
35	0.05	4.85
40	0.09	3.50
45	0.15	2.70
50	0.19	2.50
55	0.20	2.35
60	0.20	2.25

** Rates for members with five or more years of service. Termination rates are zero for members eligible to retire.*

Rates of termination for members with less than 5 years of service are as follows:

Service	Rate (%) Termination (Based on Service)
0	13.25
1	11.00
2	8.75
3	7.25
4	5.75

Retirement Rates:

	Rate (%)			
	Tier 1		Tier 3	
Age	Non-55/30	55/30	Non-55/30	55/30
50	6.0	0.0	6.0	0.0
51	3.0	0.0	3.0	0.0
52	3.0	0.0	3.0	0.0
53	3.0	0.0	3.0	0.0
54	16.0	0.0	15.0	0.0
55	6.0	20.0	0.0[1]	19.0
56	6.0	14.0	0.0[1]	13.0
57	6.0	14.0	0.0[1]	13.0
58	6.0	14.0	0.0[1]	13.0
59	6.0	14.0	0.0[1]	13.0
60	6.0	14.0	5.0	13.0
61	6.0	14.0	5.0	13.0
62	7.0	15.0	6.0	14.0
63	7.0	15.0	6.0	14.0
64	7.0	16.0	6.0	15.0
65	12.0	17.0	11.0	16.0
66	12.0	17.0	11.0	16.0
67	12.0	17.0	11.0	16.0
68	12.0	17.0	11.0	16.0
69	12.0	17.0	11.0	16.0
70	100.0	100.0	100.0	100.0

(1) *Not eligible to retire under the provisions of the Tier 3 plan.*

Retirement Age and Benefit for Inactive Vested Participants:	Pension benefit paid at the later of age 58 or the current attained age. For reciprocals, 3.90% compensation increases per annum.
Exclusion of Inactive Members:	All inactive participants are included in the valuation.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Percent Married/Domestic Partner:	76% of male participants; 50% of female participants.
Age of Spouse:	Male retirees are assumed to be 4 years older than their female spouses. Female retirees are assumed to be 2 years younger than their male spouses.
Service:	Employment service is used for eligibility determination purposes. Benefit service is used for benefit calculation purposes.
Future Benefit Accruals:	1.0 year of service per year.
Other Reciprocal Service:	5% of future inactive vested members will work at a reciprocal system.
<u>Actuarial Methods:</u>	
Actuarial Value of Assets:	The market value of assets less unrecognized returns in each of the last seven years. Unrecognized return is equal to the difference between the actual and expected returns on a market value basis and is recognized over a seven-year period. The actuarial value of assets cannot be less than 60% or greater than 140% of the market value of assets.
Actuarial Cost Method:	Entry Age Cost Method, level percent of salary.

Funding Policy:

The plan sponsor of the City of Los Angeles Employees' Retirement System makes contributions equal to the normal cost adjusted by an amount to amortize any surplus or unfunded actuarial accrued liability. The amortization method for the UAAL is a level percent of payroll, assuming annual increases in total covered payroll equal to inflation plus across the board increases (other than inflation). Both the normal cost and the actuarial accrued liability are determined under the Entry Age cost method and are calculated on an individual basis. Entry age is calculated as age on the valuation date minus years of service.

Under the current funding policy, changes in the UAAL due to actuarial gains/losses are amortized over separate 15-year periods. Any changes in the UAAL due to assumption or method changes are amortized over separate 20-year periods. Plan changes, including the 2009 ERIP, are amortized over separate 15-year periods. Future ERIPs will be amortized over 5 years. Any actuarial surplus is amortized over 30 years. All the bases on or before June 30, 2012, except those arising from the 2009 ERIP and the two GASB 25/27 layers, were combined and amortized over 30 years effective June 30, 2012.

The recommended contribution is set equal to the greater of the current funding policy or the minimum Annual Required Contribution (ARC) as determined by the then current GASB Statements 25 and 27. In particular, an additional contribution due to the application of the 40-year minimum amortization requirement for both fiscal year 2003/2004 and fiscal year 2004/2005 is included in the calculation of the recommended contribution.

Expected Remaining Service Lives:

The average of the expected service lives of all employees is determined by:

- Calculating each active employee's expected remaining service life as the present value of $1 per year of future service at zero percent interest.
- Setting the remaining service life to zero for each nonactive or retired member.
- Dividing the sum of the above amounts by the total number of active employee, nonactive and retired members.

Changes in Actuarial Assumptions: Based on the June 30, 2017 Review of Economic Actuarial Assumptions, the following actuarial assumptions were changed. Previously, these assumptions were as follows:

Economic Assumptions:

Net Investment Return: 7.50%, net of investment and administrative expenses.

Consumer Price Index: Increase of 3.25% per year; benefit increases due to CPI subject to 3.00% maximum for Tier 1 and 2.00% maximum for Tier 3.

Employee Contribution Crediting Rate: Based on average of 5-year Treasury note rate. An assumption of 3.25% is used to approximate that crediting rate in this valuation.

Salary Increases: Inflation: 3.25%; plus additional 0.75% "across the board" salary increases (other than inflation); plus the following merit and promotional increases:

Service	Percentage Increase
0	6.50%
1	6.20%
2	5.10%
3	3.10%
4	2.10%
5	1.10%
6	1.00%
7	0.90%
8	0.70%
9	0.60%
10+	0.40%

Retirement Age and Benefit for Inactive Vested Participants: Pension benefit paid at the later of age 58 or the current attained age. For reciprocals, 4.40% compensation increases per annum.

APPENDIX A

Calculation of Discount Rate of 7.25% as of June 30, 2017
Projection of Pension Plan's Fiduciary Net Position ($ in millions)

Year Beginning July 1,	Projected Beginning Plan Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Plan Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2016	$11,809	$675	$804	$17	$1,518	$13,181
2017	13,181	681	917	19	943	13,868
2018	13,868	684	946	20	991	14,576
2019	14,576	681	1,005	22	1,040	15,270
2020	15,270	679	1,067	23	1,088	15,948
2021	15,948	697	1,131	24	1,135	16,626
2022	16,626	707	1,197	25	1,182	17,293
2023	17,293	699	1,265	26	1,227	17,928
2024	17,928	659	1,332	26	1,269	18,498
2043	24,126	114 *	2,269	36	1,660	23,596
2044	23,596	109 *	2,270	35	1,622	23,021
2045	23,021	103 *	2,266	34	1,580	22,405
2046	22,405	98 *	2,259	33	1,535	21,745
2047	21,745	92 *	2,250	32	1,488	21,043
2080	1,224	11 *	280	2	78	1,032
2081	1,032	10 *	243	2	65	863
2082	863	9 *	209	1	54	716
2083	716	8 *	179	1	45	589
2084	589	7 *	151	1	37	481
2100	12	0 *,**	4	0	1	10
2101	10	0 *,**	3	0	1	8
2102	8	0 *,**	2	0	0	6
2103	6	0 *,**	2	0	0	5
2104	5	0 *,**	1	0	0	4
2105	4	0 *,**	1	0	0	3
2106	3	0 *,**	1	0	0	3
2107	3	0 *,**	1	0	0	2
2108	2	0 *,**	1	0	0	2
2109	2	0 *,**	0 **	0	0	1
2110	1	0 *,**	0 **	0	0	1
2111	1	0 *,**	0 **	0	0	1
2112	1	0 *,**	0 **	0	0	1
2113	1	0 *,**	0 **	0	0	0
2114	0	0 *,**	0 **	0	0	0
2115	0	0 *,**	0 **	0	0	0

* Mainly attributable to employer contributions to fund each year's annual administrative expenses.

** Less than $1 million, when rounded.

Note that in preparing the above projections, we have not taken into consideration the one-year delay between the date of the contribution rate calculation and the implementation.

APPENDIX A (continued)

Calculation of Discount Rate of 7.25% as of June 30, 2017
Projection of Pension Plan's Fiduciary Net Position ($ in millions)

Notes:

(1) Amounts may not total exactly due to rounding.

(2) Amounts shown for the year beginning July 1, 2016 row are actual amounts, based on the unaudited financial statements provided by LACERS.

(3) Years 2025-2042, 2048-2079, and 2085-2099 have been omitted from this table.

(4) Column (a): None of the projected beginning Plan Fiduciary Net Position amounts shown have been adjusted for the time value of money.

(5) Column (b): Projected total contributions include employee and employer normal cost contributions based on closed group projections (based on covered active members as of June 30, 2017); plus employer contributions to the unfunded actuarial accrued liability; plus contributions to fund each year's annual administrative expenses reflecting a 15-year amortization schedule. Contributions are assumed to occur halfway through the year, on average.

(6) Column (c): Projected benefit payments have been determined in accordance with paragraph 39 of GAS Statement No. 67, and are based on the closed group of active, inactive vested, retired members, and beneficiaries as of June 30, 2017. The projected benefit payments reflect the cost of living increase assumptions used in the June 30, 2017 funding valuation report. Benefit payments are assumed to occur halfway through the year, on average. In accordance with paragraph 31.b.(1)(e) of GASB Statement No. 67, the long-term expected rate of return on Plan investments of 7.25% was applied to all periods of projected benefit payments to determine the discount rate.

(7) Column (d): Projected administrative expenses are calculated as approximately 0.15% of the projected beginning Plan Fiduciary Net Position amount. The 0.15% portion was based on the actual fiscal year 2016 - 2017 administrative expenses as a percentage of the beginning Plan Fiduciary Net Position amount as of July 1, 2016. Administrative expenses are assumed to occur halfway through the year, on average.

(8) Column (e): Projected investment earnings are based on the assumed investment rate of return of 7.25% per annum.

(9) As illustrated in this Exhibit, the Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments for current Plan members. In other words, there is no projected 'cross-over date' when projected benefits are not covered by projected assets. Therefore, the long-term expected rate of return on Plan investments of 7.25% per annum was applied to all periods of projected benefit payments to determine the Total Pension Liability as of June 30, 2017 shown earlier in this report, pursuant to paragraph 44 of GASB Statement No. 67.

APPENDIX B

Glossary of Terms

Definitions of certain terms *as they are used in Statement 68;* the terms may have different meanings in other contexts.

Active employees
Individuals employed at the end of the reporting or measurement period, as applicable.

Actual contributions
Cash contributions recognized as additions to a pension plan's fiduciary net position.

Actuarial present value of projected benefit payments
Projected benefit payments discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.

Actuarial valuation
The determination, as of a point in time (the actuarial valuation date), of the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions performed in conformity with Actuarial Standards of Practice unless otherwise specified by the GASB.

Actuarial valuation date
The date as of which an actuarial valuation is performed.

Actuarially determined contribution
A target or recommended contribution to a defined benefit pension plan for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

Ad hoc cost-of-living adjustments (ad hoc COLAs)
Cost-of-living adjustments that require a decision to grant by the authority responsible for making such decisions.

Ad hoc postemployment benefit changes
Postemployment benefit changes that require a decision to grant by the authority responsible for making such decisions.

Agent employer
An employer whose employees are provided with pensions through an agent multiple-employer defined benefit pension plan.

APPENDIX B (continued)

Glossary of Terms

Agent multiple-employer defined benefit pension plan (agent pension plan)
A multiple-employer defined benefit pension plan in which pension plan assets are pooled for investment purposes but separate accounts are maintained for each individual employer so that each employer's share of the pooled assets is legally available to pay the benefits of only its employees.

Allocated insurance contract
A contract with an insurance company under which related payments to the insurance company are currently used to purchase immediate or deferred annuities for individual employees. Also may be referred to as an annuity contract.

Automatic cost-of-living adjustments (automatic COLAs)
Cost-of-living adjustments that occur without a requirement for a decision to grant by a responsible authority, including those for which the amounts are determined by reference to a specified experience factor (such as the earnings experience of the pension plan) or to another variable (such as an increase in the consumer price index).

Automatic postemployment benefit changes
Postemployment benefit changes that occur without a requirement for a decision to grant by a responsible authority, including those for which the amounts are determined by reference to a specified experience factor (such as the earnings experience of the pension plan) or to another variable (such as an increase in the consumer price index).

Closed period
A specific number of years that is counted from one date and declines to zero with the passage of time. For example, if the recognition period initially is five years on a closed basis, four years remain after the first year, three years after the second year, and so forth.

Collective deferred outflows of resources and deferred inflows of resources related to pensions
Deferred outflows of resources and deferred inflows of resources related to pensions arising from certain changes in the collective net pension liability.

Collective net pension liability
The net pension liability for benefits provided through (1) a cost-sharing pension plan or (2) a single-employer or agent pension plan in circumstances in which there is a special funding situation.

Collective pension expense
Pension expense arising from certain changes in the collective net pension liability.

APPENDIX B (continued)

Glossary of Terms

Contributions
Additions to a pension plan's fiduciary net position for amounts from employers, nonemployer contributing entities (for example, state government contributions to a local government pension plan), or employees. Contributions can result from cash receipts by the pension plan or from recognition by the pension plan of a receivable from one of these sources.

Cost-of-living adjustments
Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.

Cost-sharing employer
An employer whose employees are provided with pensions through a cost-sharing multiple-employer defined benefit pension plan.

Cost-sharing multiple-employer defined benefit pension plan (cost-sharing pension 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.

Covered-employee payroll
The payroll of employees that are provided with pensions through the pension plan.

Deferred retirement option program (DROP)
A program that permits an employee to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The employee continues to provide service to the employer and is paid for that service by the employer after the DROP entry date; however, the pensions that would have been paid to the employee (if the employee had retired and not entered the DROP) are credited to an individual employee account within the defined benefit pension plan until the end of the DROP period.

Defined benefit pension plans
Pension plans that are used to provide defined benefit pensions.

Defined benefit pensions
Pensions for which the income or other benefits that the employee will receive at or after separation from employment are defined by the benefit terms. The pensions may be stated as a specified dollar amount or as an amount that is calculated based on one or more factors such as age, years of service, and compensation. (A pension that does not meet the criteria of a defined contribution pension is classified as a defined benefit pension for purposes of Statement 68.)

APPENDIX B (continued)

Glossary of Terms

Defined contribution pension plans
Pension plans that are used to provide defined contribution pensions.

Defined contribution pensions
Pensions having terms that (1) provide an individual account for each employee; (2) define the contributions that an employer is required to make (or the credits that it is required to provide) to an active employee's account for periods in which that employee renders service; and (3) provide that the pensions an employee will receive will depend only on the contributions (or credits) to the employee's account, actual earnings on investments of those contributions (or credits), and the effects of forfeitures of contributions (or credits) made for other employees, as well as pension plan administrative costs, that are allocated to the employee's account.

Discount rate
The single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the total of the following:

1. The actuarial present value of benefit payments projected to be made in future periods in which (a) the amount of the pension plan's fiduciary net position is projected (under the requirements of Statement 68) to be greater than the benefit payments that are projected to be made in that period and (b) pension plan assets up to that point are expected to be invested using a strategy to achieve the long-term expected rate of return, calculated using the long-term expected rate of return on pension plan investments.
2. The actuarial present value of projected benefit payments not included in (1), calculated using the municipal bond rate.

Entry age actuarial cost method
A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age(s). The portion of this actuarial present value allocated to a valuation year is called the *normal cost.* The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is called the *actuarial accrued liability.*

Inactive employees
Terminated individuals that have accumulated benefits but are not yet receiving them, and retirees or their beneficiaries currently receiving benefits.

Measurement period
The period between the prior and the current measurement dates.

APPENDIX B (continued)

Glossary of Terms

Multiple-employer defined benefit pension plan
A defined benefit pension plan that is used to provide pensions to the employees of more than one employer.

Net pension liability
The liability of employers and nonemployer contributing entities to employees for benefits provided through a defined benefit pension plan.

Nonemployer contributing entities
Entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of Statement 68, employees are not considered nonemployer-contributing entities.

Other postemployment benefits
All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits, regardless of the manner in which they are provided. Other postemployment benefits do not include termination benefits.

Pension plans
Arrangements through which pensions are determined, assets dedicated for pensions are accumulated and managed, and benefits are paid as they come due.

Pensions
Retirement income and, if provided through a pension plan, postemployment benefits other than retirement income (such as death benefits, life insurance, and disability benefits). Pensions do not include postemployment healthcare benefits and termination benefits.

Plan members
Individuals that are covered under the terms of a pension plan. Plan members generally include (1) employees in active service (active plan members) and (2) terminated employees who have accumulated benefits but are not yet receiving them and retirees or their beneficiaries currently receiving benefits (inactive plan members).

Postemployment
The period after employment.

APPENDIX B (continued)

Glossary of Terms

Postemployment benefit changes
Adjustments to the pension of an inactive employee.

Postemployment healthcare benefits
Medical, dental, vision, and other health-related benefits paid subsequent to the termination of employment.

Projected benefit payments
All benefits estimated to be payable through the pension plan to current active and inactive employees as a result of their past service and their expected future service.

Public employee retirement system
A special-purpose government that administers one or more pension plans; also may administer other types of employee benefit plans, including postemployment healthcare plans and deferred compensation plans.

Real rate of return
The rate of return on an investment after adjustment to eliminate inflation.

Service costs
The portions of the actuarial present value of projected benefit payments that are attributed to valuation years.

Single employer
An employer whose employees are provided with pensions through a single-employer defined benefit pension plan.

Single-employer defined benefit pension plan (single-employer pension plan)
A defined benefit pension plan that is used to provide pensions to employees of only one employer.

Special funding situations
Circumstances in which a nonemployer entity is legally responsible for making contributions directly to a pension plan that is used to provide pensions to the employees of another entity or entities and either of the following conditions exists:

1. The amount of contributions for which the nonemployer entity legally is responsible is *not* dependent upon one or more events or circumstances unrelated to the pensions.
2. The nonemployer entity is the only entity with a legal obligation to make contributions directly to a pension plan.

APPENDIX B (continued)

Glossary of Terms

Termination benefits
Inducements offered by employers to active employees to hasten the termination of services, or payments made in consequence of the early termination of services. Termination benefits include early-retirement incentives, severance benefits, and other termination-related benefits.

Total pension liability
The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of Statement 68.

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ATTACHMENT B

Segal Consulting

Los Angeles City Employees' Retirement System

Governmental Accounting Standards (GAS) 75 Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) Based on June 30, 2017 Measurement Date for Employer Reporting as of June 30, 2018

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June 26, 2018

Board of Administration
Los Angeles City Employees Retirement System
202 W. 1st Street, Suite 500
Los Angeles, CA, 90012-4401

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards (GAS) 75 Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) based on a June 30, 2017 measurement date for employer reporting as of June 30, 2018. It contains various information that will need to be disclosed in order for the three employer categories in LACERS (i.e., the City, Airports, and Harbor) to comply with GAS 75.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist the sponsors in preparing their financial report for their liabilities associated with the LACERS OPEB plan. The census and financial information on which our calculations were based was provided by LACERS. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law.

The actuarial calculations were completed under the supervision of Anna Buzueva, ASA, MAAA, Enrolled Actuary and Andy Yeung, ASA, MAAA, FCA, Enrolled Actuary. The health components of the valuation were reviewed under the supervision of Thomas Bergman, ASA, MAAA, Enrolled Actuary. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions used in this valuation and described in Section 3 are reasonably related to the experience of and the expectations for LACERS.

We look forward to reviewing this report with you and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

Paul Angelo, FSA, MAAA, FCA, EA
Senior Vice President and Actuary

Andy Yeung, ASA, MAAA, FCA, EA
Vice President and Actuary

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SECTION 1

VALUATION SUMMARY

SECTION 2

GAS 75 INFORMATION

SECTION 2 (CONTINUED)

SECTION 3

ACTUARIAL ASSUMPTIONS AND METHODS

Purpose

This report has been prepared by Segal Consulting to present certain disclosure information required by Governmental Accounting Standard (GAS) 75 for employer reporting as of June 30, 2018. The results used in preparing this GAS 75 report are comparable to those used in preparing the Governmental Accounting Standard (GAS) 74 report for LACERS based on a measurement date and a reporting date as of June 30, 2017. This valuation is based on:

- The benefit provisions of the OPEB Plan, as administered by the Board of Administration;
- The characteristics of covered active members, inactive vested members, and retired members and surviving spouses as of June 30, 2017, provided by LACERS;
- The assets of the Plan as of June 30, 2017, provided by LACERS;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board for the June 30, 2017 valuation; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, and healthcare trend, etc. adopted by the Board for the June 30, 2017 valuation.

General Observations on GAS 75 Actuarial Valuation

The following points should be considered when reviewing this GAS 75 report:

- The Government Accounting Standard Board (GASB) rules only define OPEB liability and expense for financial reporting purposes, and do not apply to contribution amounts for OPEB funding purposes. Employers and plans still develop and adopt funding policies under current practices.
- When measuring OPEB liability, GASB uses the same actuarial cost method (Entry Age method) and, for benefits that are being fully funded on an actuarial basis, the same type of discount rate (expected return on assets) as LACERS uses for funding. This means that the Total OPEB Liability (TOL) measure for financial reporting shown in this report is determined on the same basis as LACERS' Actuarial Accrued Liability (AAL) measure for funding. We note that the same is true for the Normal Cost component of the annual plan cost for funding and financial reporting.
- The Net OPEB Liability (NOL) is equal to the difference between the TOL and the Plan's Fiduciary Net Position. The Plan's Fiduciary Net Position is equal to the market value of assets and therefore, the NOL measure is very similar to an Unfunded Actuarial Accrued Liability (UAAL) calculated on a market value basis. The NOL reflects all investment gains and losses as of the measurement date.

- For this report, the reporting dates for the employer is June 30, 2018. The NOL was measured as of June 30, 2017, and determined based upon the results of the actuarial valuation as of June 30, 2017. The Plan's Fiduciary Net Position (plan assets) and the TOL were valued as of the measurement date. Consistent with the provisions of GAS 75, the assets and liabilities measured as of June 30, 2017 are not adjusted or rolled forward to the June 30, 2018 reporting date.

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The NOL decreased from $658.8 million as of June 30, 2016 to $566.9 million as of June 30, 2017 mainly due to the return on the market value of assets during 2016/2017 that was more than the assumption of 7.50% used in the June 30, 2016 valuation and the change in medical trend rates, offset to some extent by the change in the economic assumptions. Changes in these values during the last fiscal year ending June 30, 2017 can be found in Exhibit 5.
- The discount rate used to measure the TOL and NOL as of June 30, 2017 and 2016 was 7.25% and 7.50%, respectively, following the same assumptions used by LACERS in the funding valuations as of the same dates. As contributions that are required to be made by the City to amortize the OPEB Unfunded Actuarial Accrued Liability in the funding valuation are determined on an actuarial basis, the future Actuarially Determined Contributions and current Plan assets, when projected in accordance with the method prescribed by GAS 75, are expected to be sufficient to make all benefit payments to current members. Various information that is required to be disclosed can be found throughout Exhibits 1 through 13 in Section 2.
- The NOLs for the three employer categories in LACERS (i.e., the City, Airports, and Harbor) as of June 30, 2016 and June 30, 2017 are allocated based on the actual employer contributions made during 2015/2016 and 2016/2017, respectively. The steps we used for the allocation are as follows:
  - First calculate the ratio of the employer category's contributions to the total contributions.
  - Then multiply this ratio by the NOL to determine the employer category's proportionate share of the NOL. The NOL allocation can be found in Exhibit 7 in Section 2.
- Results shown in this report exclude any employer contributions made after the measurement date of June 30, 2017. Employers should consult with their auditors to determine the deferred outflow that should be created for these contributions.

- As we noted in our GAS 74 valuation report, Ordinance No. 184853 was adopted by the City Council on March 28, 2017, and that Ordinance allowed Airport Peace Officers (APO) at LACERS to elect to remain in LACERS and be eligible for enhanced benefits under Tier 1, or to transfer to Los Angeles Fire and Police Pension Plan (LAFPP) Tier 6 prior to January 7, 2018. We mentioned in the GAS 74 report that we did not include any additional liabilities associated with the enhanced benefits for the APO who would elect to remain in LACERS since the elections had not yet been completed at the time we prepared the GAS 74 report. Similarly, we did not include any decrease in liabilities associated with APO members transferring to LAFPP in our GAS 74 report, for the same reason. Based on recent discussions with LACERS, we have been directed to continue excluding the liabilities associated with any APO benefit enhancements at LACERS and any APO transfers to LAFPP for the June 30, 2017 (measurement date) GAS 75 valuation report.

Summary of Key Valuation Results

Reporting Date for Employer under GAS 75	**June 30, 2018[1]**
Measurement Date for Employer under GAS 75	**June 30, 2017**
Disclosure elements for fiscal year ending June 30:	
1. Service cost[2]	$68,385,120
2. Total OPEB Liability[3]	3,005,806,234
3. Plan's Fiduciary Net Position[3]	2,438,861,850
4. Net OPEB Liability[3] (2) – (3)	566,944,384
5. OPEB expense	95,328,791
Schedule of contributions for fiscal year ending June 30:	
6. Actuarially determined contributions	$97,457,455
7. Actual contributions	97,457,455
8. Contribution deficiency (excess) (6) – (7)	0
Demographic data for plan year ending June 30:	
9. Number of retired members and surviving spouses[4]	14,652
10. Number of vested terminated members	1,280
11. Number of active members	25,457
Key assumptions as of June 30:	
12. Discount Rate	7.25%
13. Medical cost trend rates	
Non-Medicare medical plan	Graded from 6.87% to ultimate 4.50% over 10 years
Medicare medical plan	Graded from 6.37% to ultimate 4.50% over 8 years
Medicare Part B	4.50%

(1) *The reporting date and measurement date for the Plan are June 30, 2017.*

(2) *Please note that the service cost is based on the previous year's valuation, meaning the 2017 value is based on the valuation as of June 30, 2016.*

(3) *For informational purposes, the TOL, Plan's Fiduciary Net Position and NOL as of June 30, 2016 are as follows:*

	June 30, 2016
Total OPEB Liability	*$2,793,688,955*
Plan's Fiduciary Net Position	*2,134,877,117*
Net OPEB Liability	*$658,811,838*

(4) *The total number of participants, including married dependents, receiving benefits is 19,539 as of June 30, 2017.*

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of an OPEB plan. It is an estimated forecast – the actual long-term cost of the Plan will be determined by the actual benefits and expenses paid and the actual investment experience of the Plan.

In order to prepare an actuarial valuation, Segal Consulting ("Segal") relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan description in this report to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by the System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** This valuation is based on the market value of assets as of the valuation date, as provided by the System. The System uses an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining contribution requirements.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to healthcare cost trend increases. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The valuation is prepared at the request of LACERS. Segal is not responsible for the use or misuse of its report, particularly by any other party.

- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the Plan will be determined by the actual benefits and expenses paid and the actual investment experience of the Plan.
- If LACERS is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. LACERS should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of LACERS, it is not a fiduciary in its capacity as actuaries and consultants with respect to LACERS.

EXHIBIT 1

General Information – "Financial Statements", Note Disclosures and Required Supplementary Information for a Single-Employer OPEB Plan

Plan Description

Plan administration. The Los Angeles City Employees' Retirement System (LACERS) was established by City Charter in 1937. LACERS is a single employer public employee retirement system whose main function is to provide retirement benefits to the civilian employees of the City of Los Angeles.

Under the provisions of the City Charter, the Board of Administration (the "Board") has the responsibility and authority to administer the Plan and to invest its assets. The Board members serve as trustees and must act in the exclusive interest of the Plan's members and surviving spouses. The Board has seven members: four members, one of whom shall be a retired member of the system, shall be appointed by the Mayor subject to the approval of the Council; two members shall be active employee members of the system elected by the active employee members; one shall be a retired member of the system elected by the retired members of the system.

Plan membership. At June 30, 2017, OPEB plan membership consisted of the following:

Retired members or surviving spouses currently receiving benefits[1]	14,652
Vested terminated members entitled to, but not yet receiving benefits	1,280
Active members	25,457
Total	41,389

[1] *The total number of participants, including married dependents, receiving benefits is 19,539.*

Benefits provided. LACERS provides benefits to eligible employees.

Membership Eligibility:

Tier 1 (§4.1002(a))	All employees who became members of LACERS before July 1, 2013, and certain employees who became members of LACERS on or after July 1, 2013. In addition, pursuant to Ordinance No. 184134, all Tier 2 employees who became members of LACERS between July 1, 2013 and February 21, 2016 were transferred to Tier 1 effective February 21, 2016.
Tier 3 (§4.1080.2(a))	All employees who became members of LACERS on or after February 21, 2016, except as provided otherwise in Section 4.1080.2(b) of the Los Angeles Administrative Code.

Benefit Eligibility:

Tier 1 (§4.1111(a)) and Tier 3 (§4.1126(a))	Retired age 55 or older with at least 10 years of service (including deferred vested members who terminate employment and receive a retirement benefit from LACERS), or if retirement date is between October 2, 1996, and September 30, 1999 at age 50 or older with at least 30 years of service. Benefits are also payable to spouses, domestic partners, or other qualified dependents while the retiree is alive. Please note that the health subsidy is not payable to a disabled retiree before the member reaches age 55.

Medical Subsidy for Members Not Subject to Cap:

Under Age 65 or Over Age 65 Without Medicare Part A

Tier 1 (§4.1111(d)) and Tier 3 (§4.1126(c))	The System will pay 4% of the maximum health subsidy (limited to actual premium) for each year of Service Credit, up to 100% of the maximum health subsidy. As of July 1, 2017, the maximum health subsidy is $1,736.88 per month, increasing to $1,790.80 in calendar year 2018.

Over Age 65 and Enrolled in Both Medicare Parts A and B

Tier 1 (§4.1111(e)) and Tier 3 (§4.1126(d))

For retirees, a maximum health subsidy shall be paid in the amount of the single-party monthly premium of the approved Medicare supplemental or coordinated plan in which the retiree is enrolled, subject to the following vesting schedule:

Completed Years of Service	Vested Percentage
1-14	75%
15-19	90%
20+	100%

Subsidy Cap for Tier 1:

(§4.1111(b))

As of the June 30, 2011 valuation, the retiree health benefits program was changed to cap the medical subsidy for non-retired members who do not contribute an additional 4% or 4.5% of employee contributions to the Pension Plan.

The capped subsidy is different for Medicare and non-Medicare retirees.

The cap applies to the medical subsidy limits at the 2011 calendar year level.

The cap does not apply to the dental subsidy or the Medicare Part B premium reimbursement.

Dependents:

Tier 1 (§4.1111(e)(4)) and Tier 3 (§4.1126(d)(4))

An additional amount is added for coverage of dependents which shall not exceed the amount provided to a retiree not enrolled in Medicare Parts A and B and covered by the same medical plan with the same years of service. The combined member and dependent subsidy shall not exceed the actual premium.

Dental Subsidy for Members:

Tier 1 (§4.1114(b)) and Tier 3 (§4.1129(b))

The System will pay 4% of the maximum dental subsidy (limited to actual premium) for each year of Service Credit, up to 100% of the maximum dental subsidy. As of July 1, 2017, the maximum dental subsidy is $44.60 per month; remaining unchanged in calendar year 2018.

There is no subsidy available to spouses or domestic partners or for dependent coverage. There is also no reimbursement for dental plans not sponsored by the System.

Medicare Part B Reimbursement for Members:

Tier 1 (§4.1113) and Tier 3 (§4.1128)

If a Retiree is covered by both Medicare Parts A and B, and enrolled in a LACERS medical plan or participates in the LACERS Retiree Medical Premium Reimbursement Program, LACERS will reimburse the retiree the basic Medicare Part B premium.

Surviving Spouse Medical Subsidy

Tier 1 (§4.1115) and Tier 3 (§4.1129.1)

The surviving spouse or domestic partner will be entitled to a health subsidy (limited to the actual lowest cost plan available single-party premium) based on the member's years of service and the surviving dependent's eligibility for Medicare.

Under Age 65 or Over Age 65 Without Medicare Part A

The maximum health subsidy available for survivors is the lowest cost plan available (currently Kaiser) single-party premium ($826.43 per month as of July 1, 2017, increasing to $853.39 on January 1, 2018).

Over Age 65 and Enrolled in Both Medicare Parts A and B

For survivors, a maximum health subsidy limited to the single-party monthly premium of the Plan in which the survivor is enrolled, is provided subject to the following vesting schedule:

Completed Years of Service	Vested Percentage
1-14	75%
15-19	90%
20+	100%

In compliance with the City Charter Sections 1158 and 1160, the City of Los Angeles contributes to the health plan based upon actuarially determined contribution rates adopted by the Board of Administration. Employer contribution rates are adopted annually based upon recommendations received from LACERS' actuary after the completion of the annual actuarial valuation. The combined employer contribution rate as of June 30, 2017 was 4.94% of compensation.[1]

[1] *Based on the Tier 1 employer rate from the June 30, 2015 funding valuation (which established funding requirements for fiscal year 2016/2017) and on the Tier 3 employer rate from the Tier 3 study report dated March 14, 2016 (Tier 3 became effective February 21, 2016). Exhibit 6 in Section 2 of this report provides details on how this rate was calculated.*

EXHIBIT 2

Net OPEB Liability

Reporting Date for Employer under GAS 75	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GAS 75	**June 30, 2017**	**June 30, 2016**
The components of the Net OPEB Liability are as follows:		
Total OPEB Liability	$3,005,806,234	$2,793,688,955
Plan's Fiduciary Net Position	-2,438,861,850	-2,134,877,117
Net OPEB Liability	$566,944,384	$658,811,838
Plan's Fiduciary Net Position as a Percentage of the Total OPEB Liability	81.14%	76.42%

The Net OPEB Liability (NOL) for the Plan was measured as of June 30, 2017. The Plan's Fiduciary Net Position (plan assets) and Total OPEB Liability (TOL) were valued as of the measurement date and are based on the actuarial valuation as of June 30, 2017.

Plan provisions. The plan provisions used in the measurement of the NOL are the same as those used in the LACERS actuarial valuation as of June 30, 2017.

Actuarial assumptions. The TOL as of June 30, 2017 was determined by an actuarial valuation as of June 30, 2017. The actuarial assumptions used in the June 30, 2017 valuation were based on the results of an experience study for the period from July 1, 2011 through June 30, 2014. However, based on the results of an economic actuarial assumptions study as of June 30, 2017, the investment return and inflation assumptions were changed for the 2017 valuation. The assumptions are outlined in Section 3 of this report. In particular, the following assumptions were applied to all periods included in the June 30, 2017 measurement:

Inflation	3.00%
Salary increases	Ranges from 10.00% to 3.90% based on years of service, including inflation
Investment rate of return	7.25%, net of OPEB plan investment expense, including inflation
Other assumptions	Same as those used in the June 30, 2017 funding valuation

The TOL as of June 30, 2016 was determined by an actuarial valuation as of June 30, 2016. The actuarial assumptions used in the June 30, 2016 valuation were based on the results of an experience study for the period from July 1, 2011 through June 30, 2014. In particular, the following assumptions were applied to all periods included in the June 30, 2016 measurement:

Inflation	3.25%
Salary increases	Ranges from 10.50% to 4.40% based on years of service, including inflation
Investment rate of return	7.50%, net of OPEB plan investment expense, including inflation
Other assumptions	Same as those used in the June 30, 2016 funding valuation

EXHIBIT 3

Target Asset Allocation

The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of OPEB plan investment expense and inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage, adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before deducting investment expenses, used in the derivation of the long-term expected investment rate of return assumption as of June 30, 2017 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Arithmetic Real Rate of Return
U.S. Large Cap Equity	19.00%	5.61%
U.S. Small Cap Equity	5.00%	6.48%
Developed International Equity	19.00%	7.08%
Developed International Small Cap Equity	3.00%	7.32%
Emerging Market Equity	7.00%	9.35%
Core Bonds	19.00%	1.08%
Private Real Estate	5.00%	4.44%
Cash	1.00%	(0.06)%
Credit Opportunities	5.00%	3.75%
Public Real Assets	5.00%	3.35%
Private Equity	12.00%	8.97%
Total	100.00%	

Discount rate. The discount rates used to measure the Total OPEB Liability (TOL) were 7.25% as of June 30, 2017 and 7.50% as of June 30, 2016. As contributions that are required to be made by the City to amortize the Unfunded Actuarial Accrued Liability in the funding valuation are determined on an actuarial basis, the future Actuarially Determined Contributions and current Plan assets, when projected in accordance with the method prescribed by GAS 75, are expected to be sufficient to make all benefit payments to current members.

EXHIBIT 4

Discount Rate and Healthcare Cost Trend Rate Sensitivity

Sensitivity of the Net OPEB Liability to changes in the discount rate. The following presents the Net OPEB Liability (NOL) of LACERS as of June 30, 2017, calculated using the discount rate of 7.25%, as well as what LACERS' NOL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.25%) or 1-percentage-point higher (8.25%) than the current rate:

Net OPEB Liability	1% Decrease (6.25%)	Current Discount Rate (7.25%)	1% Increase (8.25%)
City	$802,648,134	$467,468,218	$189,164,526
Airports	133,182,431	77,566,434	31,387,840
Harbor	37,619,254	21,909,732	8,865,938
Total for all Employer Categories	$973,449,819	$566,944,384	$229,418,304

Sensitivity of the Net OPEB Liability to changes in the healthcare cost trend rate. The following presents the Net OPEB Liability of LACERS as of June 30, 2017, as well as what LACERS' Net OPEB Liability would be if it were calculated using a trend rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate.

Net OPEB Liability	1% Decrease	Current Trend Rates*	1% Increase
City	$145,657,074	$467,468,218	$884,362,939
Airports	24,168,701	77,566,434	146,741,269
Harbor	6,826,790	21,909,732	41,449,139
Total for all Employer Categories	$176,652,565	$566,944,384	$1,072,553,347

* *Current trend rates: 6.87% graded down to 4.50% over 10 years for Non-Medicare medical plan costs; 6.37% graded down to 4.50% over 8 years for Medicare medical plan costs and 4.50% for all years for Dental and Medicare Part B cost.*

EXHIBIT 5

Schedule of Changes in Net OPEB Liability – Last Fiscal Year

Reporting Date for Employer under GAS 75 **Measurement Date for Employer under GAS 75**	**June 30, 2018** **June 30, 2017**
Total OPEB Liability	
Service cost[1]	$68,385,120
Interest	210,169,949
Change of benefit terms	0
Differences between actual and expected experience	19,666,471
Changes of assumptions	33,511,927
Benefit payments	-119,616,188
Net change in Total OPEB Liability	$212,117,279
Total OPEB Liability – beginning	2,793,688,955
Total OPEB Liability – ending (a)	$3,005,806,234
Plan's Fiduciary Net Position	
Contributions – employer	$97,457,455
Contributions – employee	0
Net investment income	330,707,601
Benefit payments	-119,616,188
Administrative expense	-4,564,135
Other	0
Net change in Plan's Fiduciary Net Position	$303,984,733
Plan's Fiduciary Net Position – beginning	2,134,877,117
Plan's Fiduciary Net Position – ending (b)	$2,438,861,850
System's Net OPEB Liability – ending (a) – (b)	$566,944,384
Plan's Fiduciary Net Position as a percentage of the Total OPEB Liability	81.14%
Covered-employee payroll[2]	$1,973,048,633
Plan's Net OPEB Liability as percentage of covered-employee payroll	28.73%

(1) *The service cost is always based on the previous year's valuation, meaning the 2017 value is based on the valuation as of June 30, 2016.*
(2) *Covered-employee payroll represents the collective total of the pensionable wages of all LACERS membership tiers.*

EXHIBIT 6

Schedule of Employer Contributions – Last Ten Fiscal Years

Year Ended June 30,	Actuarially Determined Contributions[1]	Contributions in Relation to the Actuarially Determined Contributions[1]	Contribution Deficiency (Excess)	Covered-Employee Payroll[2]	Contributions as a Percentage of Covered Employee Payroll
2008	$108,848,499	$108,848,499	$0	$1,741,849,669	6.25%
2009	95,122,090	95,122,090	0	1,832,795,577	5.19%
2010	96,511,234	96,511,234	0	1,827,864,283	5.28%
2011	107,395,804	107,395,804	0	1,678,059,440	6.40%
2012	115,208,835	115,208,835	0	1,715,197,133	6.72%
2013	72,916,729	72,916,729	0	1,736,112,598	4.20%
2014	97,840,554	97,840,554	0	1,802,931,195	5.43%
2015	100,466,945	100,466,945	0	1,835,637,409	5.47%
2016	105,983,112	105,983,112	0	1,876,946,179	5.65%
2017	97,457,455	97,457,455	0	1,973,048,633	4.94%

(1) *All "Actuarially Determined Contributions" through June 30, 2017 were determined as the "Annual Required Contribution" under GAS 43 and 45.*

(2) *Covered-employee payroll represents the collective total of the pensionable wages of all LACERS membership tiers.*

See accompanying notes to this schedule on next page.

Notes to Exhibit 6

Methods and assumptions used to establish "actuarially determined contribution" rates:	
Valuation date	Actuarially determined contribution rates are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported
Actuarial cost method	Entry Age Cost Method (level percent of payroll)
Amortization method	Level percent of payroll
Amortization period	Multiple layers, closed amortization periods. The costs associated with the 2009 ERIP have been amortized over 15 years beginning with the June 30, 2009 valuation date. The unfunded actuarial accrued liability as of June 30, 2012 is amortized over a fixed period of 30 years beginning July 1, 2012. Assumption changes resulting from the triennial experience study will be amortized over 20 years. Health trend and premium assumption changes, plan changes, and gains and losses will be amortized over 15 years.
Asset valuation method	Market value of assets less unrecognized returns in each of the last seven years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a seven-year period. The actuarial value of assets cannot be less than 60% or greater than 140% of the market value of assets.
Actuarial assumptions:	June 30, 2017 valuation date
Investment rate of return	7.25%
Inflation rate	3.00%
Real across-the-board salary increase	0.50%
Projected salary increases[1]	Ranges from 10.00% to 3.90%, based on years of service
Mortality	Healthy: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females
Other assumptions	Same as those used in the June 30, 2017 funding actuarial valuation

[1] *Includes inflation at 3.00% plus across the board salary increases of 0.50% plus merit and promotional increases.*

EXHIBIT 7

Determination of Proportionate Share

Actual Employer Contributions by Employer Category
July 1, 2015 to June 30, 2016

Employer Category	Contributions	Percentage[1]
City	$87,146,743	82.227%
Airports	14,653,479	13.826%
Harbor	4,182,890	3.947%
Total for all Employer Categories	$105,983,112	100.000%

[1] The unrounded percentages are used in the allocation of the NOL amongst employer categories.

Allocation of June 30, 2016 Net OPEB Liability

Employer Category	NOL	Percentage
City	$541,721,269	82.227%
Airports	91,088,903	13.826%
Harbor	26,001,666	3.947%
Total for all Employer Categories	$658,811,838	100.000%

Notes:

1. Based on the July 1, 2015 through June 30, 2016 employer contributions as provided by LACERS.
2. The Net OPEB Liability (NOL) is the Total OPEB Liability (TOL) minus the Plan's Fiduciary Net Position (plan assets).
3. The NOL is allocated based on the actual contributions from each employer category. The steps used for the allocation are as follows:
   - First calculate the ratio of the contributions from the employer category to the total contributions.
   - Then multiply this ratio by the NOL to determine the employer category's proportionate share of the NOL.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Actual Employer Contributions by Employer Category
July 1, 2016 to June 30, 2017

Employer Category	Contributions	Percentage[1]
City	$80,357,552	82.454%
Airports	13,333,631	13.681%
Harbor	3,766,272	3.865%
Total for all Employer Categories	$97,457,455	100.000%

[1] The unrounded percentages are used in the allocation of the NOL amongst employer categories.

Allocation of June 30, 2017 Net OPEB Liability

Employer Category	NOL	Percentage
City	$467,468,218	82.454%
Airports	77,566,434	13.681%
Harbor	21,909,732	3.865%
Total for all Employer Categories	$566,944,384	100.000%

Notes:

1. Based on the July 1, 2016 through June 30, 2017 employer contributions as provided by LACERS.
2. The Net OPEB Liability (NOL) is the Total OPEB Liability (TOL) minus the Plan's Fiduciary Net Position (plan assets).
3. The NOL is allocated based on the actual contributions from each employer category. The steps used for the allocation are as follows:
   - First calculate the ratio of the contributions from the employer category to the total contributions.
   - Then multiply this ratio by the NOL to determine the employer category's proportionate share of the NOL.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Notes:

For purposes of the results in this exhibit, the reporting date for the employer under GAS 75 is June 30, 2018. The reporting date and measurement date for the Plan under GAS 74 are June 30, 2017. Consistent with the provisions of GAS 75, the assets and liabilities measured as of June 30, 2017 are not adjusted or rolled forward to the June 30, 2018 reporting date. Other results, such as the total deferred inflows and outflows would also be allocated based on the same proportionate shares determined above.

The following items are allocated based on the corresponding proportionate share:

1) Net OPEB Liability
2) Service Cost
3) Interest on the Total OPEB Liability
4) Current-period benefit changes
5) Expensed portion of current-period difference between actual and expected experience in the Total OPEB Liability
6) Expensed portion of current-period changes of assumptions or other inputs
7) Member contributions
8) Projected earnings on plan investments
9) Expensed portion of current-period differences between actual and projected earnings on plan investments
10) Administrative expense
11) Recognition of beginning of year deferred outflows of resources as OPEB expense
12) Recognition of beginning of year deferred inflows of resources as OPEB expense

EXHIBIT 8
OPEB Expense – Total for all Employer Categories

Reporting Date for Employer under GAS 75 Measurement Date for Employer under GAS 75	June 30, 2018 June 30, 2017
Components of OPEB Expense	
1. Service cost	$68,385,120
2. Interest on the Total OPEB Liability	210,169,949
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0
4. Current-period benefit changes	0
5. Expensed portion of current-period difference between actual and expected experience in the Total OPEB Liability	3,077,695
6. Expensed portion of current-period changes of assumptions or other inputs	5,244,433
7. Member contributions	0
8. Projected earnings on plan investments	(162,463,776)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(33,648,765)
10. Administrative expense	4,564,135
11. Other	0
12. Recognition of beginning of year deferred outflows of resources as OPEB expense	0
13. Recognition of beginning of year deferred inflows of resources as OPEB expense	0
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0
OPEB Expense	$95,328,791

EXHIBIT 8 (continued)

OPEB Expense – City

Reporting Date for Employer under GAS 75 **Measurement Date for Employer under GAS 75**	**June 30, 2018** **June 30, 2017**
Components of OPEB Expense	
1. Service cost	$56,386,254
2. Interest on the Total OPEB Liability	173,293,491
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	234,010
4. Current-period benefit changes	0
5. Expensed portion of current-period difference between actual and expected experience in the Total OPEB Liability	2,537,682
6. Expensed portion of current-period changes of assumptions or other inputs	4,324,244
7. Member contributions	0
8. Projected earnings on plan investments	(133,957,852)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(27,744,746)
10. Administrative expense	3,763,311
11. Other	0
12. Recognition of beginning of year deferred outflows of resources as OPEB expense	0
13. Recognition of beginning of year deferred inflows of resources as OPEB expense	0
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0
OPEB Expense	$78,836,394

EXHIBIT 8 (continued)

OPEB Expense – Airports

Reporting Date for Employer under GAS 75	June 30, 2018
Measurement Date for Employer under GAS 75	June 30, 2017
Components of OPEB Expense	
1. Service cost	$9,356,102
2. Interest on the Total OPEB Liability	28,754,378
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	(149,239)
4. Current-period benefit changes	0
5. Expensed portion of current-period difference between actual and expected experience in the Total OPEB Liability	421,075
6. Expensed portion of current-period changes of assumptions or other inputs	717,517
7. Member contributions	0
8. Projected earnings on plan investments	(22,227,464)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(4,603,652)
10. Administrative expense	624,442
11. Other	0
12. Recognition of beginning of year deferred outflows of resources as OPEB expense	0
13. Recognition of beginning of year deferred inflows of resources as OPEB expense	0
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0
OPEB Expense	$12,893,159

EXHIBIT 8 (continued)

OPEB Expense – Harbor

Reporting Date for Employer under GAS 75 **Measurement Date for Employer under GAS 75**	**June 30, 2018** **June 30, 2017**
Components of OPEB Expense	
1. Service cost	$2,642,764
2. Interest on the Total OPEB Liability	8,122,080
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	(84,771)
4. Current-period benefit changes	0
5. Expensed portion of current-period difference between actual and expected experience in the Total OPEB Liability	118,938
6. Expensed portion of current-period changes of assumptions or other inputs	202,672
7. Member contributions	0
8. Projected earnings on plan investments	(6,278,460)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(1,300,367)
10. Administrative expense	176,382
11. Other	0
12. Recognition of beginning of year deferred outflows of resources as OPEB expense	0
13. Recognition of beginning of year deferred inflows of resources as OPEB expense	0
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0
OPEB Expense	$3,599,238

EXHIBIT 9

Deferred Outflows of Resources and Deferred Inflows of Resources – Total for all Employer Categories

Reporting Date for Employer under GAS 75 **Measurement Date for Employer under GAS 75**	**June 30, 2018** **June 30, 2017**
Deferred Outflows of Resources	
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$1,261,313
2. Changes of assumptions or other inputs	28,267,494
3. Net excess of projected over actual earnings on OPEB plan investments (if any)	0
4. Difference between actual and expected experience in the Total OPEB Liability	16,588,776
5. Total Deferred Outflows of Resources	$46,117,583
Deferred Inflows of Resources	
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$1,261,313
7. Changes of assumptions or other inputs	0
8. Net excess of actual over projected earnings on OPEB plan investments (if any)	134,595,060
9. Difference between expected and actual experience in the Total OPEB Liability	0
10. Total Deferred Inflows of Resources	$135,856,373

Deferred outflows of resources and deferred inflows of resources related to OPEB expense will be recognized as follows:

Reporting Date for Employer under GAS 75 Year Ended June 30:	
2019	$(25,326,637)
2020	(25,326,637)
2021	(25,326,637)
2022	(25,326,637)
2023	8,322,128
2024	3,245,630
Thereafter	0

[1] *Calculated in accordance with Paragraphs 63 and 64 of GAS 75.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources – City

Reporting Date for Employer under GAS 75 Measurement Date for Employer under GAS 75	June 30, 2018 June 30, 2017
Deferred Outflows of Resources	
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$1,261,313
2. Changes of assumptions or other inputs	23,307,674
3. Net excess of projected over actual earnings on OPEB plan investments (if any)	0
4. Difference between actual and expected experience in the Total OPEB Liability	13,678,106
5. Total Deferred Outflows of Resources	$38,247,093
Deferred Inflows of Resources	
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0
7. Changes of assumptions or other inputs	0
8. Net excess of actual over projected earnings on OPEB plan investments (if any)	110,978,986
9. Difference between expected and actual experience in the Total OPEB Liability	0
10. Total Deferred Inflows of Resources	$110,978,986

Deferred outflows of resources and deferred inflows of resources related to OPEB expense will be recognized as follows:

Reporting Date for Employer under GAS 75 Year Ended June 30:	
2019	$(20,648,811)
2020	(20,648,811)
2021	(20,648,811)
2022	(20,648,811)
2023	7,095,936
2024	2,767,415
Thereafter	0

[1] *Calculated in accordance with Paragraphs 63 and 64 of GAS 75.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources – Airports

Reporting Date for Employer under GAS 75 Measurement Date for Employer under GAS 75	June 30, 2018 June 30, 2017
Deferred Outflows of Resources	
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0
2. Changes of assumptions or other inputs	3,867,414
3. Net excess of projected over actual earnings on OPEB plan investments (if any)	0
4. Difference between actual and expected experience in the Total OPEB Liability	2,269,592
5. Total Deferred Outflows of Resources	$6,137,006
Deferred Inflows of Resources	
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$804,395
7. Changes of assumptions or other inputs	0
8. Net excess of actual over projected earnings on OPEB plan investments (if any)	18,414,608
9. Difference between expected and actual experience in the Total OPEB Liability	0
10. Total Deferred Inflows of Resources	$19,219,003

Deferred outflows of resources and deferred inflows of resources related to OPEB expense will be recognized as follows:

Reporting Date for Employer under GAS 75 Year Ended June 30:	
2019	$(3,614,300)
2020	(3,614,300)
2021	(3,614,300)
2022	(3,614,300)
2023	989,352
2024	385,851
Thereafter	0

(1) *Calculated in accordance with Paragraphs 63 and 64 of GAS 75.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources – Harbor

Reporting Date for Employer under GAS 75 Measurement Date for Employer under GAS 75	June 30, 2018 June 30, 2017
Deferred Outflows of Resources	
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0
2. Changes of assumptions or other inputs	1,092,406
3. Net excess of projected over actual earnings on OPEB plan investments (if any)	0
4. Difference between actual and expected experience in the Total OPEB Liability	641,078
5. Total Deferred Outflows of Resources	$1,733,484
Deferred Inflows of Resources	
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$456,918
7. Changes of assumptions or other inputs	0
8. Net excess of actual over projected earnings on OPEB plan investments (if any)	5,201,466
9. Difference between expected and actual experience in the Total OPEB Liability	0
10. Total Deferred Inflows of Resources	$5,658,384

Deferred outflows of resources and deferred inflows of resources related to OPEB expense will be recognized as follows:

Reporting Date for Employer under GAS 75 Year Ended June 30:	
2019	$(1,063,526)
2020	(1,063,526)
2021	(1,063,526)
2022	(1,063,526)
2023	236,840
2024	92,364
Thereafter	0

Calculated in accordance with Paragraphs 63 and 64 of GAS 75.

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources

There are changes in each employer's proportionate share of the total Net OPEB Liability (NOL) during the measurement period ended June 30, 2017. The net effect of the change on the employer category's proportionate share of the collective NOL and collective deferred outflows of resources and deferred inflows of resources is recognized over the average of the expected remaining service lives of all employees that are provided with benefits through LACERS which is 6.39[(2)] years determined as of June 30, 2016 (the beginning of the measurement period ended June 30, 2017). This is described in Paragraph 64 of GAS 75.

In addition, the difference between the actual employer contributions and the proportionate share of the employer contributions during the measurement period ended June 30, 2017 is recognized over the same period. This is zero because the proportionate share was determined using the actual employer contributions.

The average of the expected service lives of all employees is determined by:

- Calculating each active employee's expected remaining service life as the present value of $1 per year of future service at zero percent interest.
- Setting the remaining service life to zero for each nonactive or retired member.
- Dividing the sum of the above amounts by the total number of active employee, nonactive and retired members.

We did not attempt to determine the beginning balances for deferred inflows of resources and deferred outflows of resources as of beginning of the period for the 2017 plan year. Per paragraph 244 of GAS 75, these balances are assumed to be zero.

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(2) *The remaining service lives of all employees of 6.39 years used here for GAS 75 is different from the 5.17 years used for GAS 68 because the number of payees and nonactive members (with 0 years of expected remaining service lives) receiving health benefits under the Plan is less than the number of payees and nonactive members receiving pension benefits.*

EXHIBIT 10

Schedule of Proportionate Share of the Net OPEB Liability – Total for all Employer Categories

Reporting Date for Employer under GAS 75 as of June 30	Measurement Date as of June 30	Proportion of the Net OPEB Liability	Proportionate share of Net OPEB Liability	Employer Contribution	Covered-employee payroll[1]	Proportionate share of the Net OPEB Liability as a percentage of its covered-employee payroll	Plan's Fiduciary Net Position as a percentage of the Total OPEB Liability
2017	2016	100.000%	$658,811,838	$105,983,112	$1,876,946,179	35.10%	76.42%
2018	2017	100.000%	566,944,384	97,457,455	1,973,048,633	28.73%	81.14%

[1] *Covered-employee payroll represents the collective total of the pensionable wages of all LACERS membership tiers.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net OPEB Liability – City

Reporting Date for Employer under GAS 75 as of June 30	Measurement Date as of June 30	Proportion of the Net OPEB Liability	Proportionate share of Net OPEB Liability	Employer Contribution	Covered-employee payroll[1]	Proportionate share of the Net OPEB Liability as a percentage of its covered-employee payroll	Plan's Fiduciary Net Position as a percentage of the Total OPEB Liability
2017	2016	82.227%	$541,721,269	$87,146,743	$1,540,925,299	35.16%	76.42%
2018	2017	82.454%	467,468,218	80,357,552	1,625,808,930	28.75%	81.14%

[1] *Covered-employee payroll represents the collective total of the pensionable wages of all LACERS membership tiers.*

EXHIBIT 10 (continued)
Schedule of Proportionate Share of the Net OPEB Liability – Airports

Reporting Date for Employer under GAS 75 as of June 30	Measurement Date as of June 30	Proportion of the Net OPEB Liability	Proportionate share of Net OPEB Liability	Employer Contribution	Covered-employee payroll[1]	Proportionate share of the Net OPEB Liability as a percentage of its covered-employee payroll	Plan's Fiduciary Net Position as a percentage of the Total OPEB Liability
2017	2016	13.826%	$91,088,903	$14,653,479	$260,929,145	34.91%	76.42%
2018	2017	13.681%	77,566,434	13,333,631	271,035,342	28.62%	81.14%

[1] *Covered-employee payroll represents the collective total of the pensionable wages of all LACERS membership tiers.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net OPEB Liability – Harbor

Reporting Date for Employer under GAS 75 as of June 30	Measurement Date as of June 30	Proportion of the Net OPEB Liability	Proportionate share of Net OPEB Liability	Employer Contribution	Covered-employee payroll[1]	Proportionate share of the Net OPEB Liability as a percentage of its covered-employee payroll	Plan's Fiduciary Net Position as a percentage of the Total OPEB Liability
2017	2016	3.947%	$26,001,666	$4,182,890	$75,091,735	34.63%	76.42%
2018	2017	3.865%	21,909,732	3,766,272	76,204,361	28.75%	81.14%

[1] *Covered-employee payroll represents the collective total of the pensionable wages of all LACERS membership tiers.*

EXHIBIT 11
Schedule of Reconciliation of Net OPEB Liability – Total for all Employer Categories

Reporting Date for Employer under GAS 75	**June 30, 2018**
Measurement Date for Employer under GAS 75	**June 30, 2017**
Reconciliation of Net OPEB Liability	
1. Beginning Net OPEB Liability	$658,811,838
2. OPEB Expense	95,328,791
3. Employer Contributions	(97,457,455)
4. New Net Deferred Inflows/Outflows	(89,738,790)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0
6. New Net Deferred Flows Due to Change in Proportion	0
7. Recognition of Prior Deferred Inflows/Outflows	0
8. Recognition of Prior Deferred Flows Due to Change in Proportion	0
9. Ending Net OPEB Liability	$566,944,384

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net OPEB Liability – City

Reporting Date for Employer under GAS 75	**June 30, 2018**
Measurement Date for Employer under GAS 75	**June 30, 2017**
Reconciliation of Net OPEB Liability	
1. Beginning Net OPEB Liability	$541,721,269
2. OPEB Expense	78,836,394
3. Employer Contributions	(80,357,552)
4. New Net Deferred Inflows/Outflows	(73,993,206)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0
6. New Net Deferred Flows Due to Change in Proportion	1,261,313
7. Recognition of Prior Deferred Inflows/Outflows	0
8. Recognition of Prior Deferred Flows Due to Change in Proportion	0
9. Ending Net OPEB Liability	$467,468,218

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net OPEB Liability – Airports

Reporting Date for Employer under GAS 75	June 30, 2018
Measurement Date for Employer under GAS 75	**June 30, 2017**
Reconciliation of Net OPEB Liability	
1. Beginning Net OPEB Liability	$91,088,903
2. OPEB Expense	12,893,159
3. Employer Contributions	(13,333,631)
4. New Net Deferred Inflows/Outflows	(12,277,602)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0
6. New Net Deferred Flows Due to Change in Proportion	(804,395)
7. Recognition of Prior Deferred Inflows/Outflows	0
8. Recognition of Prior Deferred Flows Due to Change in Proportion	0
9. Ending Net OPEB Liability	$77,566,434

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net OPEB Liability – Harbor

Reporting Date for Employer under GAS 75	**June 30, 2018**
Measurement Date for Employer under GAS 75	**June 30, 2017**
Reconciliation of Net OPEB Liability	
1. Beginning Net OPEB Liability	$26,001,666
2. OPEB Expense	3,599,238
3. Employer Contributions	(3,766,272)
4. New Net Deferred Inflows/Outflows	(3,467,982)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0
6. New Net Deferred Flows Due to Change in Proportion	(456,918)
7. Recognition of Prior Deferred Inflows/Outflows	0
8. Recognition of Prior Deferred Flows Due to Change in Proportion	0
9. Ending Net OPEB Liability	$21,909,732

EXHIBIT 12

Schedule of Recognition of Changes in Total Net OPEB Liability

Increase (Decrease) in OPEB Expense Arising from the Recognition of the Effects of Differences between Actual and Expected Experience on Total OPEB Liability

Reporting Date for Employer under GAS 75 Year Ended June 30	Differences Between Actual and Expected Experience	Recognition Period (Years)	Reporting Date for Employer under GAS 75 Year Ended June 30						
			2018	2019	2020	2021	2022	2023	2024
2018	$19,666,471	6.39	$3,077,695	$3,077,695	$3,077,695	$3,077,695	$3,077,695	$3,077,695	$1,200,301
Net increase (decrease) in OPEB expense			$3,077,695	$3,077,695	$3,077,695	$3,077,695	$3,077,695	$3,077,695	$1,200,301

Increase (Decrease) in OPEB Expense Arising from the Recognition of the Effects of Assumption Changes

Reporting Date for Employer under GAS 75 Year Ended June 30	Effect of Assumption Changes	Recognition Period (Years)	Reporting Date for Employer under GAS 75 Year Ended June 30						
			2018	2019	2020	2021	2022	2023	2024
2018	$33,511,927	6.39	$5,244,433	$5,244,433	$5,244,433	$5,244,433	$5,244,433	$5,244,433	$2,045,329
Net increase (decrease) in OPEB expense			$5,244,433	$5,244,433	$5,244,433	$5,244,433	$5,244,433	$5,244,433	$2,045,329

As described in Exhibit 9, the average of the expected remaining service lives of all employees that are provided with benefits through LACERS (active and inactive employees) determined as of June 30, 2016 (the beginning of the measurement period ending June 30, 2017) is 6.39 years.

EXHIBIT 12 (continued)

Schedule of Recognition of Changes in Total Net OPEB Liability

Increase (Decrease) in OPEB Expense Arising from the Recognition of Differences between Projected and Actual Earnings on OPEB Plan Investments

Reporting Date for Employer under GAS 75 Year Ended June 30	Differences between Projected and Actual Earnings	Recognition Period (Years)	Reporting Date for Employer under GAS 75 Year Ended June 30				
			2018	2019	2020	2021	2022
2018	$(168,243,825)	5.00	$(33,648,765)	$(33,648,765)	$(33,648,765)	$(33,648,765)	$(33,648,765)
Net increase (decrease) in OPEB expense			$(33,648,765)	$(33,648,765)	$(33,648,765)	$(33,648,765)	$(33,648,765)

The differences between projected and actual earnings on OPEB plan investments are recognized over a five-year period per Paragraph 43b. of GAS 75.

Total Increase (Decrease) in OPEB Expense

Reporting Date for Employer under GAS 75 Year Ended June 30	Total Differences	Reporting Date for Employer under GAS 75 Year Ended June 30						
		2018	2019	2020	2021	2022	2023	2024
2018	$(115,065,427)	$(25,326,637)	$(25,326,637)	$(25,326,637)	$(25,326,637)	$(25,326,637)	$8,322,128	$3,245,630
Net increase (decrease) in OPEB expense		$(25,326,637)	$(25,326,637)	$(25,326,637)	$(25,326,637)	$(25,326,637)	$8,322,128	$3,245,630

EXHIBIT 13
Allocation of Changes in Total Net OPEB Liability

In addition to the amounts shown in Exhibit 12, there are changes in each employer's proportionate share of the total Net OPEB Liability (NOL) during the measurement period ending on June 30, 2017. The net effect of the change on the employer's proportionate share of the collective NOL and collective deferred outflows of resources and deferred inflows of resources is also recognized over the average of the expected remaining service lives of all employees shown previously. The differences between the actual employer contributions and the proportionate share of the employer contributions during the measurement period ending on June 30, 2017 is recognized over the same period. These amounts are shown below. While these amounts are different for each employer, they sum to zero for the entire LACERS.

Increase (Decrease) in OPEB Expense Arising from the Recognition of the Effects of the Change in Proportion and Change in Employer Contributions for the Reporting Year Ended June 30, 2018

	Total Change to be Recognized	Recognition Period (Years)	Reporting Date for Employer under GAS 75 Year Ended June 30						
			2018	2019	2020	2021	2022	2023	2024
City	$1,495,323	6.39	$234,010	$234,010	$234,010	$234,010	$234,010	$234,010	$91,263
Airports	(953,634)	6.39	(149,239)	(149,239)	(149,239)	(149,239)	(149,239)	(149,239)	(58,200)
Harbor	(541,689)	6.39	(84,771)	(84,771)	(84,771)	(84,771)	(84,771)	(84,771)	(33,063)
Total for all Employer Categories	$0		$0	$0	$0	$0	$0	$0	$0

Actuarial Assumptions and Methods

For June 30, 2017 Measurement Date and Employer Reporting as of June 30, 2018

Rationale for Assumptions:	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the July 1, 2011 through June 30, 2014 Actuarial Experience Study dated October 8, 2014, economic assumption review dated June 30, 2017 and retiree health assumptions letter dated September 20, 2017. Unless otherwise noted, all actuarial assumptions and methods shown below apply to both Tier 1 and Tier 3 members. These assumptions have been adopted by the Board.
Measurement Date:	June 30, 2017
Data:	LACERS provided detailed census data and financial data for post-employment benefits.
Post-Retirement Mortality Rates:	
Healthy Members and All Beneficiaries:	RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.
Disabled Members:	RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward seven years for males and set forward eight years for females.

The above mortality tables contain about a 10% margin, based on actual to expected deaths, as a provision to anticipate future mortality improvement, based on a review of mortality experience as of the measurement date.

Termination Rates Before Retirement:

Pre-Retirement Mortality: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.

	Rate (%)	
Age	**Disability**	**Termination***
25	0.01	5.75
30	0.03	5.75
35	0.05	4.85
40	0.09	3.50
45	0.15	2.70
50	0.19	2.50
55	0.20	2.35
60	0.20	2.25

**Rates for members with five or more years of service. Termination rates are zero for members eligible to retire.*

Rates of termination for members with less than 5 years of service are as follows:

	Rate (%)
Service	**Termination (Based on Service)**
0	13.25
1	11.00
2	8.75
3	7.25
4	5.75

Retirement Rates:

	Rate (%)			
	Tier 1		Tier 3	
Age	Non-55/30	55/30	Non-55/30	55/30
50	6.0	0.0	6.0	0.0
51	3.0	0.0	3.0	0.0
52	3.0	0.0	3.0	0.0
53	3.0	0.0	3.0	0.0
54	16.0	0.0	15.0	0.0
55	6.0	20.0	0.0[1]	19.0
56	6.0	14.0	0.0[1]	13.0
57	6.0	14.0	0.0[1]	13.0
58	6.0	14.0	0.0[1]	13.0
59	6.0	14.0	0.0[1]	13.0
60	6.0	14.0	5.0	13.0
61	6.0	14.0	5.0	13.0
62	7.0	15.0	6.0	14.0
63	7.0	15.0	6.0	14.0
64	7.0	16.0	6.0	15.0
65	12.0	17.0	11.0	16.0
66	12.0	17.0	11.0	16.0
67	12.0	17.0	11.0	16.0
68	12.0	17.0	11.0	16.0
69	12.0	17.0	11.0	16.0
70	100.0	100.0	100.0	100.0

[1] *Not eligible to retire under the provisions of the Tier 3 plan.*

Retirement Age and Benefit for Inactive Vested Participants: Assume retiree health benefit will be paid at the later of age 58 or the current attained age.

Exclusion of Inactive Vested: Inactive vested with less than 10 years of service are excluded.

Definition of Active Members: First day of biweekly payroll following employment for new department employees or immediately following transfer from other city department.

Unknown Data for Members: Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.

Service: Employment service is used for eligibility determination purposes. Benefit service is used for benefit calculation purposes.

Future Benefit Accruals: 1.0 year of service per year.

Net Investment Return: 7.25%, net of investment expenses

Salary Increases: Inflation: 3.00%; plus additional 0.50% "across the board" salary increases (other than inflation); plus the following merit and promotional increases:

Service	Percentage Increase
0	6.50%
1	6.20%
2	5.10%
3	3.10%
4	2.10%
5	1.10%
6	1.00%
7	0.90%
8	0.70%
9	0.60%
10+	0.40%

Actuarial Value of Assets: The market value of assets less unrecognized returns in each of the last seven years. Unrecognized return is equal to the difference between the actual and expected returns on a market value basis and is recognized over a seven-year period. The actuarial value of assets cannot be less than 60% or greater than 140% of the market value of assets.

Actuarial Cost Method: Entry Age Cost Method, level percent of salary.

Expected Remaining Service Lives: The average of the expected service lives of all employees is determined by:

- Calculating each active employee's expected remaining service life as the present value of $1 per year of future service at zero percent interest.
- Setting the remaining service life to zero for each nonactive or retired member.
- Dividing the sum of the above amounts by the total number of active employee, nonactive and retired members.

Per Capita Cost Development: The assumed costs on a composite basis are the future costs of providing postemployment healthcare benefits at each age. To determine the assumed costs on a composite basis, historical premiums are reviewed and adjusted for increases in the cost of healthcare services.

Maximum Dental Subsidy

Carrier	Election Percent	Monthly 2017-2018 Fiscal Year Subsidy
Delta Dental PPO	79.0%	$44.50
DeltaCare USA	21.0%	$12.50

Per Capita Cost Development – Tier 1, Not Subject to Medical Subsidy Cap:
Participant Under Age 65 or Not Eligible for Medicare A & B

2017-2018 Fiscal Year		Single Party			Married/With Domestic Partner			Eligible Survivor		
CARRIER	Observed and Assumed Election Percent	Monthly Premium*	Maximum Subsidy	**Subsidy**	Monthly Premium*	Maximum Subsidy	**Subsidy**	Monthly Premium*	Maximum Subsidy	**Subsidy**
Kaiser HMO	**61.9%**	$839.91	$1,763.84	**$839.91**	$1,679.82	$1,763.84	**$1,679.82**	$839.91	$839.91	**$839.91**
Anthem Blue Cross PPO	**22.5%**	$1,226.65	$1,763.84	**$1,226.65**	$2,448.77	$1,763.84	**$1,763.84**	$1,226.65	$839.91	**$839.91**
Anthem Blue Cross HMO	**15.6%**	$1,018.18	$1,763.84	**$1,018.18**	$2,031.82	$1,763.84	**$1,763.84**	$1,018.18	$839.91	**$839.91**

* With the exception of Kaiser, the amounts above reflect the inclusion of the vision insurance plan premium.

Participant Eligible for Medicare A & B

2017-2018 Fiscal Year		Single Party			Married/With Domestic Partner			Eligible Survivor		
CARRIER	Observed and Assumed Election Percent	Monthly Premium*	Maximum Subsidy	**Subsidy**	Monthly Premium*	Maximum Subsidy	**Subsidy**	Monthly Premium*	Maximum Subsidy	**Subsidy**
Kaiser Senior Advantage HMO	**58.0%**	$251.25	$251.25	**$251.25**	$502.50	$502.50	**$502.50**	$251.25	$251.25	**$251.25**
Anthem Blue Cross Medicare Supplement	**30.3%**	$524.22	$524.22	**$524.22**	$1,043.91	$1,034.95	**$1,034.95**	$524.22	$524.22	**$524.22**
UHC Medicare Adv. HMO for California**	**11.7%**	$267.26	$267.26	**$267.26**	$529.98	$529.98	**$529.98**	$267.26	$267.26	**$267.26**

* With the exception of Kaiser, the amounts above reflect the inclusion of the vision insurance plan premium.
** Rates for CA plan.

Members who are subject to the retiree medical subsidy cap will have monthly health insurance subsidy maximums capped at the levels in effect at July 1, 2011, as shown in the table below:

	Single Party	Married/With Domestic Partner	Eligible Survivor
Under 65 – All Plans	$1,190.00	$1,190.00	$593.62
<u>Over 65</u>			
Kaiser HMO	$203.27	$406.54	$203.27
Blue Cross Medicare Supplement	$478.43	$482.19	$478.43
UHC Medicare Adv. HMO for California	$219.09	$390.92	$219.09

Adjustments to per-capita costs (as shown on page 41) based on age, gender, and status, are as follows:

	Retiree		Spouse	
Age	**Male**	**Female**	**Male**	**Female**
55	0.9003	0.9295	0.7085	0.8025
60	1.0692	1.0019	0.9485	0.9308
64	1.2266	1.0628	1.1974	1.0476
65	0.9188	0.7809	0.9188	0.7809
70	1.0648	0.8416	1.0648	0.8416
75	1.1475	0.9059	1.1475	0.9059
80+	1.2357	0.9766	1.2357	0.9766

Spouse/Domestic Partner Coverage: 60% of male and 30% of female retirees who receive a subsidy are assumed to be married or have a qualified domestic partner and elect dependent coverage. Of these covered spouses/domestic partners, 100% are assumed to continue coverage if the retiree predeceases the spouse/domestic partner.

Spouse Age Difference: Male retirees are assumed to be 4 years older than their female spouses. Female retirees are assumed to be 2 years younger than their male spouses.

Participation: Retiree Medical and Dental Coverage Participation:

Service Range	Percent Covered*
10 – 14	65%
15 – 19	80%
20 – 24	90%
25 and Over	95%

* *Inactive members are assumed to elect coverages at 50% of the rates shown above.*

100% of retirees becoming eligible for Medicare are assumed to be covered by both Parts A and B.

Health Care Cost Subsidy Trend Rates:

MEDICAL TRENDS FOR THE JUNE 30, 2017 VALUATION

Trends to be applied in following fiscal years, to all health plans.

Trend is to be applied to premium for shown fiscal year to calculate next fiscal year's projected premium

First Fiscal Year (July 1, 2017 through June 30, 2018)

Plan	Anthem Blue Cross PPO, Under Age 65	Anthem Blue Cross Medicare Supplement	Kaiser HMO, Under Age 65	Kaiser Senior Advantage	Anthem Blue Cross HMO, Under 65	UHC Medicare HMO
Trend to be applied to 2017-2018 Fiscal Year premium	7.23%	6.85%	5.16%	5.72%	7.18%	5.74%

The fiscal year trend rates are based on the following calendar year trend rates:

Fiscal Year	Trend (Approx.) Non-Medicare	Trend (Approx.) Medicare	Calendar Year	Trend (applied to calculate following year premium) Non-Medicare	Trend (applied to calculate following year premium) Medicare
2018-2019	6.87%	6.37%	2018	7.00%*	6.50%*
2019-2020	6.62%	6.12%	2019	6.75%	6.25%
2020-2021	6.37%	5.87%	2020	6.50%	6.00%
2021-2022	6.12%	5.62%	2021	6.25%	5.75%
2022-2023	5.87%	5.37%	2022	6.00%	5.50%
2023-2024	5.62%	5.12%	2023	5.75%	5.25%
2024-2025	5.37%	4.87%	2024	5.50%	5.00%
2025-2026	5.12%	4.62%	2025	5.25%	4.75%
2026-2027	4.87%	4.50%	2026	5.00%	4.50%
2027-2028	4.62%	4.50%	2027	4.75%	4.50%
2028 and later	4.50%	4.50%	2028	4.50%	4.50%

Dental Premium Trend	4.50% for all years
Medicare Part B Premium Trend	Trend for the 2017-18 fiscal year will be calculated based on the actual increase in Medicare B premium from 2017 to 2018, when it becomes available. 4.50% for years following the 2018 calendar year.

** For example, the 7.00% assumption when applied to the 2018 non-Medicare medical premiums would provide the projected 2019 non-Medicare medical premiums. This trend would also be applied to the maximum medical subsidy, based on the non-Medicare Kaiser premium.*

Health Care Reform:	As directed by LACERS, we have reflected in the current valuation the impact of potential excise tax imposed by the Affordable Care Act (ACA) and related statutes on certain health plans in calculating the contribution rates for the employer. We understand that Statements No. 74 and No. 75 by the Governmental Accounting Standards Board (GASB) for financial reporting purposes is expected to require the inclusion of the excise tax in the liability. Statement No. 74 is effective for fiscal years beginning after June 15, 2016 for plan reporting and Statement No. 75 is effective for fiscal years beginning after June 15, 2017 for employer reporting.
Administrative Expenses:	No administrative expenses were valued separately from the premium costs.
Assumption Changes Since Prior Valuation:	The discount rate was lowered from 7.50% to 7.25%. The salary scale assumption was updated. Different trend rates for Medicare and non-Medicare medical plans was introduced. The ultimate trend rate was reduced from 5.00% to 4.50%. Starting premium costs and first year trends were revised to reflect 2018 calendar year premium data. Medical and dental carrier election assumptions were updated.

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ATTACHMENT C

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM RETIREMENT PLAN (PLAN)

SCHEDULE OF EMPLOYER ALLOCATIONS AND SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

FOR EMPLOYER REPORTING UNDER GOVERNMENTAL ACCOUNTING STANDARDS BOARD (GASB) STATEMENT NO. 68 AS OF JUNE 30, 2018 USING A MEASUREMENT DATE OF JUNE 30, 2017

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM
RETIREMENT PLAN (PLAN)

SCHEDULE OF EMPLOYER ALLOCATIONS AND
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

FOR EMPLOYER REPORTING UNDER
GOVERNMENTAL ACCOUNTING STANDARDS
BOARD (GASB) STATEMENT NO. 68
AS OF JUNE 30, 2018
USING A MEASUREMENT DATE OF JUNE 30, 2017

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BROWN ARMSTRONG
Certified Public Accountants

INDEPENDENT AUDITOR'S REPORT

To the Audit Committee and Board of Administration of the
Los Angeles City Employees' Retirement System
Los Angeles, California

Report on the Schedules

We have audited the accompanying schedule of employer allocations of the Los Angeles City Employees' Retirement System (LACERS) Retirement Plan (Plan) for the fiscal years ended June 30, 2017 and 2016, and the related notes. We have also audited the total for all entities of the columns titled net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense (specified columns totals) included in the accompanying schedule of pension amounts by employer as of and for the fiscal year ended June 30, 2017, and the related notes.

Management's Responsibility for the Schedules

Management is responsible for the preparation and fair presentation of these schedules in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of schedules that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions on the schedule of employer allocations and the specified column totals included in the schedule of pension amounts by employer based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer are free from material misstatement.

Our audit involved performing procedures to obtain audit evidence about the amounts and disclosures in the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to LACERS preparation and fair presentation of the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of LACERS internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations for the fiscal years ended June 30, 2017 and 2016, and net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense for the total of all participating entities for LACERS as of and for the fiscal year ended June 30, 2017, in accordance with accounting principles generally accepted in the United States of America.

Other Matters

We have audited, in accordance with auditing standards generally accepted in the United States of America, the financial statements of LACERS as of and for the fiscal year ended June 30, 2017, and our report thereon, dated November 21, 2017, expressed an unmodified opinion on those financial statements.

Restriction on Use

Our report is intended solely for the information and use of LACERS management, the Audit Committee of LACERS, the Board of Administration of LACERS, and Plan sponsors and their auditors and is not intended to be, and should not be, used by anyone other than these specified parties.

BROWN ARMSTRONG
ACCOUNTANCY CORPORATION

Brown Armstrong
Accountancy Corporation

Bakersfield, California
July 12, 2018

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM
RETIREMENT PLAN (PLAN)

SCHEDULE OF EMPLOYER ALLOCATIONS
FOR THE FISCAL YEARS ENDED JUNE 30, 2017 AND 2016

	Proportionate Shares					
Employer	2017			2016		
	Actual Contributions	Percentage*	Net Pension Liability	Actual Contributions	Percentage*	Net Pension Liability
City	$ 373,668,441	82.423%	$ 4,350,001,537	$ 362,439,265	82.271%	$ 4,620,035,451
Airports	62,111,588	13.700%	723,062,142	60,747,823	13.789%	774,356,211
Harbor	17,576,030	3.877%	204,608,549	17,358,923	3.940%	221,275,252
Total for all Employers	$ 453,356,059	100.000%	$ 5,277,672,228	$ 440,546,011	100.000%	$ 5,615,666,914

* The unrounded percentages are used in the allocation of the Net Pension Liability among employers.

See accompanying notes and independent auditor's report.

NOTE 1 – PLAN DESCRIPTION

The Los Angeles City Employees' Retirement System (LACERS) is under the exclusive management and control of its Board of Administration (the Board), whose authority is granted by statute in Article XVI, Section 17 of the California State Constitution, and Article XI of the Los Angeles City Charter. LACERS is a Department of the Municipality of the City of Los Angeles (the City). LACERS financial statements are included in the City's Annual Financial Report as a pension trust fund. LACERS operates a single-employer defined benefit retirement plan (Plan) that provides for service and disability retirement benefits, as well as death benefits. Changes to the benefit terms require approval by the City Council.

The Plan covers all full-time personnel and department-certified part-time employees of the City, except for sworn employees of the Fire and Police departments, Department of Water and Power employees, elected officials who elected to participate in an alternative Defined Contribution Plan, certain Port Police officers of the Harbor Department, and certain Airport Peace Officers who elected to opt out of the Plan. For the presentation of the detailed allocation, the City has requested to break out three individual entities separately, which are the City, Airports, and Harbor (Employers).

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING AND REPORTING POLICIES

Basis of Presentation and Basis of Accounting

Employers participating in LACERS Retirement Plan are required to report pension information in their financial statements for fiscal periods beginning on or after June 15, 2014, in accordance with Governmental Accounting Standards Board (GASB) Statement No. 68, *Accounting and Financial Reporting for Pensions – an Amendment of GASB Statement No. 27*. The Schedule of Employer Allocations along with LACERS audited financial statements, the GASB Statement No. 67 Actuarial Valuation as of June 30, 2017, and the GASB Statement No. 68 Actuarial Valuation Based on June 30, 2017 Measurement Date for Employer Reporting as of June 30, 2018 prepared by LACERS independent actuary, provide the required information for financial reporting related to LACERS that Employers may use in their financial statements.

The accompanying schedule was prepared by LACERS independent actuary and was derived from information provided by LACERS in accordance with accounting principles generally accepted in the United States of America as applicable to governmental organizations.

LACERS funding policy under Article XI Sections 1158 and 1160 of the City Charter provides for periodic Employer contributions at actuarially-determined rates that, expressed as percentages of annual covered payroll, are sufficient to accumulate the required assets to pay benefits when due. Upon closing the fiscal year 2016-17, LACERS recalculated Employer contributions using actual payroll incurred during the fiscal year, which was less than projected covered payroll used by the City to make the advanced payment at the beginning of the fiscal year. As a result, Employer contributions received $18,921,000 more, and it was credited to the Employer toward employer contributions for fiscal year 2017-18. Based on actual payroll, the effective rate for the Plan was 22.98%. Contributions for Employers contributing to LACERS are reported on an accrual basis of accounting.

The employer allocation schedule includes the proportionate shares for each Employer, reflecting a methodology that allocates the Net Pension Liability and Pension Amounts based on each Employer's share of the total Employer contributions among the three Employers. Each Employer's share as of June 30, 2017 and 2016, is determined by the Employer's contributions for the 2016-17 and 2015-16 fiscal years, respectively.

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING AND REPORTING POLICIES (Continued)

Use of Estimates in the Preparation of the Schedule

The preparation of this schedule in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts and disclosures during the reporting period. Actual results could differ from those estimates.

NOTE 3 – RELATIONSHIP TO THE BASIC FINANCIAL STATEMENTS

LACERS policy for contributions states that actuarially determined rates expressed as a percentage of annual covered payroll are required to finance the costs of benefits earned by LACERS Members during the year, with an additional amount to finance any unfunded liability. Employer contributions are reported in the basic financial statements and are the basis for the proportionate share calculation.

NOTE 4 – ESTABLISHMENT OF ENHANCED BENEFITS FOR AIRPORT PEACE OFFICERS

The City Council adopted Ordinance No. 184853 on March 28, 2017, which allowed Airport Peace Officers (APO) at LACERS to elect to remain in LACERS Plan and be eligible for enhanced benefits under Tier 1, or to transfer to Los Angeles Fire and Police Pension Plan (LAFPP) Tier 6 prior to January 7, 2018. At the time of the preparation of the GASB Statement No. 74 valuation report, the election had not yet been completed; as such, the valuation report did not include any additional liabilities associated with the enhanced benefits for the APO who would elect to remain with LACERS, or decrease in liabilities associated with APO members transferring to LAFPP. As the GASB Statement No. 67 valuation has a measurement date of June 30, 2017, well before the election was completed, these additional liabilities and decrease in liabilities as previously described, were also excluded from the GASB Statement No. 68 valuation report.

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM
RETIREMENT PLAN (PLAN)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER
AS OF AND FOR THE FISCAL YEAR ENDED JUNE 30, 2017

		Deferred Outflows of Resources				Deferred Inflows of Resources			Pension Expense		
Employer	Net Pension Liability	Net Difference Between Projected and Actual Earnings on Pension Plan Investments	Changes in Assumptions	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Outflows of Resources	Differences Between Expected and Actual Experience	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Inflows of Resources	Proportionate Share of Allocable Plan Pension Expense	Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Employer Pension Expense
City	$ 4,350,001,537	$ 47,173,809	$ 413,121,426	$ 25,251,342	$ 485,546,577	$ 339,124,207	$ 2,191,481	$ 341,315,688	$ 471,997,148	$ 8,647,295	$ 480,644,443
Airports	723,062,142	7,841,283	68,669,508	3,724,402	80,235,193	56,369,607	16,027,641	72,397,248	78,455,896	(5,243,766)	73,212,130
Harbor	204,608,549	2,218,888	19,431,758	-	21,650,646	15,951,193	10,756,622	26,707,815	22,201,061	(3,403,529)	18,797,532
Total for All Employers	$ 5,277,672,228	$ 57,233,980	$ 501,222,692	$ 28,975,744	$ 587,432,416	$ 411,445,007	$ 28,975,744	$ 440,420,751	$ 572,654,105	$ -	$ 572,654,105

See accompanying notes and independent auditor's report.

NOTE 1 – SUMMARY OF SIGNIFICANT ACCOUNTING AND REPORTING POLICIES

Basis of Presentation and Basis of Accounting

For the presentation of the detailed allocation, the City of Los Angeles (the City) has requested to break out three individual entities separately, which are the City, Airports, and Harbor (Employers). Employers participating in Los Angeles City Employees' Retirement System defined benefit retirement plan (LACERS or the Plan) are required to report pension information in their financial statements for fiscal periods beginning on or after June 15, 2014, in accordance with Governmental Accounting Standards Board (GASB) Statement No. 68, *Accounting and Financial Reporting for Pensions – an Amendment of GASB Statement No. 27*. The Schedule of Pension Amounts by Employer along with LACERS audited financial statements, the GASB Statement No. 67 Actuarial Valuation as of June 30, 2017, and the GASB Statement No. 68 Actuarial Valuation Based on June 30, 2017 Measurement Date for Employer Reporting as of June 30, 2018 prepared by LACERS independent actuary, provide the required information for financial reporting related to LACERS that Employers may use in their financial statements.

The accompanying schedule was prepared by LACERS independent actuary and was derived from information provided by LACERS in accordance with accounting principles generally accepted in the United States of America as applicable to governmental organizations.

Use of Estimates in the Preparation of the Schedule

The preparation of this schedule in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts and disclosures during the reporting period. Actual results could differ from those estimates.

NOTE 2 – ACTUARIAL ASSUMPTIONS

Actuarial Methods and Assumptions Used to Determine Total Pension Liability

The actuarial assumptions used in the June 30, 2017 valuation were based on the results of an actuarial experience study for the period July 1, 2011, through June 30, 2014. Measurements as of the reporting date are based on the fair value of assets as of June 30, 2017, and the Total Pension Liability as of the valuation date June 30, 2017.

The components of the Plan's Net Pension Liability at June 30, 2017 and 2016, were as follows:

	Fiscal Year Ended June 30, 2017	Fiscal Year Ended June 30, 2016
Total Pension Liability	$ 18,458,187,953	$ 17,424,996,329
Plan Fiduciary Net Position	(13,180,515,725)	(11,809,329,415)
Plan's Net Pension Liability	$ 5,277,672,228	$ 5,615,666,914
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	71.41%	67.77%

NOTE 2 – <u>ACTUARIAL ASSUMPTIONS</u> (Continued)

<u>Actuarial Methods and Assumptions Used to Determine Total Pension Liability</u> (Continued)

The Total Pension Liabilities for June 30, 2017 and 2016, were determined based on the June 30, 2017 and 2016 actuarial valuations. The following actuarial assumptions were applied to the year ended June 30, 2017 included in the measurement:

ACTUARIAL VALUATION ASSUMPTIONS

Valuation Date	June 30, 2017
Investment Rate of Return	7.25%, net of pension plan investment expense, including inflation
Projected Salary Increases	Ranges from 3.90% to 10.00% based on years of service, including inflation
Inflation	3.00%
Cost-of-Living Adjustments	Tier 1: 3.00%, Tier 3: 2.00%, actual increases are contingent upon Consumer Price Index (CPI) increases with a 3.00% maximum for Tier 1 and a 2.00% maximum for Tier 3.

Postemployment mortality rates for healthy retirees and beneficiaries were based on the RP-2000 Combined Healthy Mortality Table projected with scale BB to the year 2020, set back one year for males and with no setback for females. Postemployment mortality rates for disabled retirees were based on the RP-2000 Combined Healthy Mortality Table projected with scale BB to the year 2020, set forward seven years for males and set forward eight years for females.

For pre-retirement mortality, withdrawal rates, disability rates, and service retirement rates, the rates vary by age, gender, and/or service.

<u>Discount Rate</u>

The discount rate used to measure the Total Pension Liabilities as of June 30, 2017 and 2016, were 7.25% and 7.50%, respectively. The projection of cash flows used to determine the discount rate assumed that contributions from Plan Members will be made at the current contribution rate and that contributions from the Employers will be made at contractually required rates, actuarially determined. For this purpose, only Employer contributions that are intended to fund benefits for current Plan Members and their beneficiaries are included. Projected Employer contributions that are intended to fund the service costs for future Plan Members and their beneficiaries, as well as projected contributions from future Plan Members, are not included. Based on those assumptions, the pension Plan's fiduciary net position was projected to be available to make all projected future benefit payments of current Plan Members. Therefore, the long-term expected rate of return on pension Plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability as of June 30, 2017 and 2016.

<u>Long-Term Expected Rate of Return by Asset Class</u>

The long-term expected rate of return on pension Plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of pension Plan investment expense and inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before deducting investment expenses, used in the derivation of the long-term expected investment rate of return assumption are summarized in the table on the following page:

NOTE 2 – ACTUARIAL ASSUMPTIONS (Continued)

Long-Term Expected Rate of Return by Asset Class (Continued)

Investment Asset Class	**Target Allocation**	**Long-Term Expected Real Rate of Return**
U.S. Large Cap Equity	19.00%	5.61%
U.S. Small Cap Equity	5.00%	6.48%
Developed International Equity	19.00%	7.08%
Developed International Small Cap Equity	3.00%	7.32%
Emerging Market Equity	7.00%	9.35%
Core Bonds	19.00%	1.08%
Private Real Estate	5.00%	4.44%
Cash	1.00%	-0.06%
Credit Opportunities	5.00%	3.75%
Public Real Assets	5.00%	3.35%
Private Equity	12.00%	8.97%
Total	100.00%	

Amortization of Deferred Outflows and Deferred Inflows of Resources

The difference between projected and actual investment earnings on pension Plan investments is amortized over 5 years on a straight-line basis. One-fifth was recognized in pension expense during the measurement period, and the remaining difference between projected and actual investment earnings on pension Plan investments at June 30, 2017, is to be amortized over the remaining periods.

The changes in assumptions and differences between expected and actual experience are recognized over the average of the expected remaining service lives of all employees that are provided with pensions through LACERS determined as of June 30, 2016, the beginning of the measurement period. For the measurement period ending June 30, 2017, the average is 5.17 years. Prior period changes in assumptions and differences between expected and actual experience are continued to be recognized based on the expected remaining service lives of all employees calculated as of those prior measurement dates.

In addition, the difference between the actual Employer contributions and the proportionate share of the Employer contributions are the same as noted above. The Schedule of Pension Amounts by Employer does not reflect contributions made to LACERS Retirement Plan subsequent to the measurement date as defined in GASB Statement No. 68 paragraphs 54, 55, and 57 and GASB Statement No. 71. Appropriate treatment of such amounts is the responsibility of the Employers.

NOTE 3 – RELATIONSHIP TO THE BASIC FINANCIAL STATEMENTS

The components of the schedule associated with pension expense and deferred outflows and inflows of resources have been determined based on the net decrease in fiduciary net position for LACERS as shown in the LACERS Statement of Changes in Fiduciary Net Position for the fiscal year ended June 30, 2017, and in accordance with requirements promulgated by GASB Statements No. 67 and No. 68. The net pension liability at June 30, 2017, is reported in the Notes to Los Angeles City Employees' Retirement System Basic Financial Statements and Required Supplementary Information following the Notes.

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM POSTEMPLOYMENT HEALTH CARE (OPEB) PLAN

SCHEDULE OF EMPLOYER ALLOCATIONS AND SCHEDULE OF OPEB AMOUNTS BY EMPLOYER

FOR EMPLOYER REPORTING UNDER GOVERNMENTAL ACCOUNTING STANDARDS BOARD (GASB) STATEMENT NO. 75 AS OF JUNE 30, 2018 USING A MEASUREMENT DATE OF JUNE 30, 2017

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM
POSTEMPLOYMENT HEALTH CARE (OPEB) PLAN

SCHEDULE OF EMPLOYER ALLOCATIONS AND
SCHEDULE OF OPEB AMOUNTS BY EMPLOYER

FOR EMPLOYER REPORTING UNDER
GOVERNMENTAL ACCOUNTING STANDARDS
BOARD (GASB) STATEMENT NO. 75
AS OF JUNE 30, 2018
USING A MEASUREMENT DATE OF JUNE 30, 2017

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BROWN ARMSTRONG
Certified Public Accountants

INDEPENDENT AUDITOR'S REPORT

To the Audit Committee and Board of Administration of the
Los Angeles City Employees' Retirement System
Los Angeles, California

Report on the Schedules

We have audited the accompanying schedule of employer allocations of the Los Angeles City Employees' Retirement System (LACERS) Postemployment Health Care (OPEB) Plan for the fiscal years ended June 30, 2017 and 2016, and the related notes. We have also audited the total for all entities of the columns titled net OPEB liability, total deferred outflows of resources, total deferred inflows of resources, and total OPEB expense (specified columns totals) included in the accompanying schedule of OPEB amounts by employer as of and for the fiscal year ended June 30, 2017, and the related notes.

Management's Responsibility for the Schedules

Management is responsible for the preparation and fair presentation of these schedules in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of schedules that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions on the schedule of employer allocations and the specified column totals included in the schedule of OPEB amounts by employer based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the schedule of employer allocations and specified column totals included in the schedule of OPEB amounts by employer are free from material misstatement.

Our audit involved performing procedures to obtain audit evidence about the amounts and disclosures in the schedule of employer allocations and specified column totals included in the schedule of OPEB amounts by employer. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the schedule of employer allocations and specified column totals included in the schedule of OPEB amounts by employer, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to LACERS preparation and fair presentation of the schedule of employer allocations and specified column totals included in the schedule of OPEB amounts by employer in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of LACERS internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the schedule of employer allocations and specified column totals included in the schedule of OPEB amounts by employer.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations for the fiscal years ended June 30, 2017 and 2016, and net OPEB liability, total deferred outflows of resources, total deferred inflows of resources, and total OPEB expense for the total of all participating entities for LACERS as of and for the fiscal year ended June 30, 2017, in accordance with accounting principles generally accepted in the United States of America.

Other Matters

We have audited, in accordance with auditing standards generally accepted in the United States of America, the financial statements of LACERS as of and for the fiscal year ended June 30, 2017, and our report thereon, dated November 21, 2017, expressed an unmodified opinion on those financial statements.

Restriction on Use

Our report is intended solely for the information and use of LACERS management, the Audit Committee of LACERS, the Board of Administration of LACERS, and Plan sponsors and their auditors and is not intended to be, and should not be, used by anyone other than these specified parties.

BROWN ARMSTRONG
ACCOUNTANCY CORPORATION

Brown Armstrong
Accountancy Corporation

Bakersfield, California
July 12, 2018

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM
POSTEMPLOYMENT HEALTH CARE (OPEB) PLAN

SCHEDULE OF EMPLOYER ALLOCATIONS
FOR THE FISCAL YEARS ENDED JUNE 30, 2017 AND 2016

	Proportionate Shares					
Employer	2017			2016		
	Actual Contributions	Percentage*	Net OPEB Liability	Actual Contributions	Percentage*	Net OPEB Liability
City	$ 80,357,552	82.454%	$ 467,468,218	$ 87,146,743	82.227%	$ 541,721,269
Airports	13,333,631	13.681%	77,566,434	14,653,479	13.826%	91,088,903
Harbor	3,766,272	3.865%	21,909,732	4,182,890	3.947%	26,001,666
Total for all Employers	$ 97,457,455	100.000%	$ 566,944,384	$105,983,112	100.000%	$ 658,811,838

* The unrounded percentages are used in the allocation of the Net OPEB Liability among employers.

NOTES TO SCHEDULE OF EMPLOYER ALLOCATIONS
FOR THE FISCAL YEARS ENDED JUNE 30, 2017 AND 2016

NOTE 1 – PLAN DESCRIPTION

The Los Angeles City Employees' Retirement System (LACERS) is under the exclusive management and control of its Board of Administration (the Board), whose authority is granted by statute in Article XVI, Section 17 of the California State Constitution, and Article XI of the Los Angeles City Charter. LACERS is a Department of the Municipality of the City of Los Angeles (the City). LACERS financial statements are included in the City's Annual Financial Report as a pension trust fund. LACERS operates a single-employer defined benefit plan (the Retirement Plan). LACERS also administers, and provides postemployment health care benefits (OPEB) Plan to eligible retirees and their eligible spouses/domestic partners. Changes to the benefit terms require approval by the City Council.

The LACERS OPEB Plan covers all personnel who participate in the Retirement Plan regardless of their membership tiers. Eligibility into the OPEB Plan requires Member 1) must be at least age 55; 2) have at least 10 complete years of service with LACERS; and 3) be enrolled in a System-sponsored medical or dental plan or be a participant in the Medical Premium Reimbursement Program (MPRP). The health care plans available include medical, dental, and vision benefits, or participate in the MPRP if he/she resides in an area not covered by the available medical plans. For the presentation of the detailed allocation, the City has requested to break out three individual entities separately, which are the City, Airports, and Harbor (Employers).

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING AND REPORTING POLICIES

Basis of Presentation and Basis of Accounting

Employers participating in LACERS OPEB Plan are required to report OPEB information in their financial statements for fiscal periods beginning on or after June 15, 2017, in accordance with Governmental Accounting Standards Board (GASB) Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions – an Amendment of GASB Statement No. 45, Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions,* as amended, and No. 57, *OPEB Measurements by Agent Employers and Agent Multiple-Employer Plans,* for OPEB. The Schedule of Employer Allocations along with LACERS audited financial statements, the GASB Statement No. 74 Actuarial Valuation as of June 30, 2017, and the GASB Statement No. 75 Actuarial Valuation Based on June 30, 2017 Measurement Date for Employer Reporting as of June 30, 2018 prepared by LACERS independent actuary, provide the required information for financial reporting related to LACERS that Employers may use in their financial statements.

The accompanying schedule was prepared by LACERS independent actuary and was derived from information provided by LACERS in accordance with accounting principles generally accepted in the United States of America as applicable to governmental organizations.

LACERS funding policy under Article XI Sections 1158 and 1160 of the City Charter provides for periodic Employer contributions at actuarially-determined rates that, expressed as percentages of annual covered payroll, are sufficient to accumulate the required assets to pay benefits when due.

Upon closing the fiscal year 2016-17, LACERS recalculated Employer contributions using actual payroll incurred during the fiscal year, which was smaller than projected covered payroll used by the City to make the advanced payment at the beginning of the fiscal year. As a result, Employer contributions for OPEB Plan were overpaid by $3,420,000, and the overpayment was returned to the employer as a credit toward employer contribution for fiscal year 2017-18. Based on the actual payroll, the effective rate of Employer contribution of OPEB Plan was 4.94%. Contributions for Employers contributing to LACERS are reported on an accrual basis of accounting.

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING AND REPORTING POLICIES (Continued)

Basis of Presentation and Basis of Accounting (Continued)

The employer allocation schedule includes the proportionate shares for each Employer, reflecting a methodology that allocates the Net OPEB Liability and OPEB Amounts based on each Employer's share of the total Employer contributions among the three Employers. Each Employer's share as of June 30, 2017 and 2016, is determined by the Employer's contributions for the 2016-17 and 2015-16 fiscal years, respectively.

Use of Estimates in the Preparation of the Schedule

The preparation of this schedule in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts and disclosures during the reporting period. Actual results could differ from those estimates.

NOTE 3 – RELATIONSHIP TO THE BASIC FINANCIAL STATEMENTS

LACERS policy for contributions states that actuarially determined rates expressed as a percentage of annual covered payroll are required to finance the costs of benefits earned by LACERS Members during the year, with an additional amount to finance any unfunded liability. Employer contributions are reported in the basic financial statements and are the basis for the proportionate share calculation.

NOTE 4 – ESTABLISHMENT OF ENHANCED BENEFITS FOR AIRPORT PEACE OFFICERS

The City Council adopted Ordinance No. 184853 on March 28, 2017, which allowed Airport Peace Officers (APO) at LACERS to elect to remain in LACERS Plan and be eligible for enhanced benefits under Tier 1, or to transfer to Los Angeles Fire and Police Pension Plan (LAFPP) Tier 6 prior to January 7, 2018. At the time of the preparation of the GASB Statement No. 74 valuation report, the election had not yet been completed; as such, the valuation report did not include any additional liabilities associated with the enhanced benefits for the APO who would elect to remain with LACERS, or decrease in liabilities associated with APO members transferring to LAFPP. As the GASB Statement No. 75 valuation has a measurement date of June 30, 2017, well before the election was completed, these additional liabilities and decrease in liabilities as previously described, were also excluded from the GASB Statement No. 75 valuation report.

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM
POSTEMPLOYMENT HEALTH CARE (OPEB) PLAN

SCHEDULE OF OPEB AMOUNTS BY EMPLOYER
AS OF AND FOR THE FISCAL YEAR ENDED JUNE 30, 2017

		Deferred Outflows of Resources				Deferred Inflows of Resources			OPEB Expense		
Employer	Net Postemployment Health Care (OPEB) Liability	Differences Between Expected and Actual Experience	Changes in Assumptions	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Outflows of Resources	Net Difference Between Projected and Actual Earnings on OPEB Plan Investments	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Inflows of Resources	Proportionate Share of Allocable Plan OPEB Expense	Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Employer OPEB Expense
City	$ 467,468,218	$ 13,678,106	$ 23,307,674	$ 1,261,313	$ 38,247,093	$ 110,978,986	$ -	$ 110,978,986	$ 78,602,384	$ 234,010	$ 78,836,394
Airports	77,566,434	2,269,592	3,867,414	-	6,137,006	18,414,608	804,395	19,219,003	13,042,398	(149,239)	12,893,159
Harbor	21,909,732	641,078	1,092,406	-	1,733,484	5,201,466	456,918	5,658,384	3,684,009	(84,771)	3,599,238
Total for All Employers	$ 566,944,384	$ 16,588,776	$ 28,267,494	$ 1,261,313	$ 46,117,583	$ 134,595,060	$ 1,261,313	$ 135,856,373	$ 95,328,791	$ -	$ 95,328,791

See accompanying notes and independent auditor's report.

**NOTES TO SCHEDULE OF OPEB AMOUNTS BY EMPLOYER
AS OF AND FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

NOTE 1 – SUMMARY OF SIGNIFICANT ACCOUNTING AND REPORTING POLICIES

Basis of Presentation and Basis of Accounting

For the presentation of the detailed allocation, the City of Los Angeles (the City) has requested to break out three individual entities separately, which are the City, Airports, and Harbor (Employers). Employers participating in Los Angeles City Employees' Retirement System (LACERS) Postemployment Health Care (OPEB) Plan are required to report OPEB information in their financial statements for fiscal periods beginning on or after June 15, 2017, in accordance with Governmental Accounting Standards Board (GASB) Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions – an Amendment of GASB Statement No. 45, Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions,* as amended, and No. 57, *OPEB Measurements by Agent Employers and Agent Multiple-Employer Plans,* for OPEB. The Schedule of OPEB Amounts by Employer along with LACERS audited financial statements, the GASB Statement No. 74 Actuarial Valuation as of June 30, 2017, and the GASB Statement No. 75 Actuarial Valuation Based on June 30, 2017 Measurement Date for Employer Reporting as of June 30, 2018 prepared by LACERS independent actuary, provide the required information for financial reporting related to LACERS that Employers may use in their financial statements.

The accompanying schedule was prepared by LACERS independent actuary and was derived from information provided by LACERS in accordance with accounting principles generally accepted in the United States of America as applicable to governmental organizations.

Use of Estimates in the Preparation of the Schedule

The preparation of this schedule in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts and disclosures during the reporting period. Actual results could differ from those estimates.

NOTE 2 – ACTUARIAL ASSUMPTIONS

Actuarial Methods and Assumptions Used to Determine Total OPEB Liability

The actuarial assumptions used in the June 30, 2017 valuation were based on the results of an actuarial experience study for the period July 1, 2011, through June 30, 2014. However, the investment return and inflation assumptions were changed based on the results of an economic actuarial assumptions study as of June 30, 2017. Measurements as of the reporting date are based on the fair value of assets as of June 30, 2017, and the Total OPEB Liability as of the valuation date June 30, 2017.

The components of the Plan's Net OPEB Liability at June 30, 2017 and 2016, were as follows:

	Fiscal Year Ended June 30, 2017	Fiscal Year Ended June 30, 2016
Total OPEB Liability	$ 3,005,806,234	$ 2,793,688,955
Plan Fiduciary Net Position	(2,438,861,850)	(2,134,877,117)
Plan's Net OPEB Liability	$ 566,944,384	$ 658,811,838
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	81.14%	76.42%

NOTE 2 – ACTUARIAL ASSUMPTIONS (Continued)

Actuarial Methods and Assumptions Used to Determine Total OPEB Liability (Continued)

The Total OPEB Liability for June 30, 2017, was determined based on the June 30, 2017 actuarial valuation, using the following actuarial assumptions, applied to all periods included in the measurement:

ACTUARIAL VALUATION ASSUMPTIONS

Valuation Date	June 30, 2017
Investment Rate of Return	7.25%, net of OPEB plan investment expense, including inflation
Projected Salary Increases	Ranges from 3.90% to 10.00% based on years of service, including inflation
Inflation	3.00%
Cost-of-Living Adjustments	Tier 1: 3.00%, Tier 3: 2.00%, actual increases are contingent upon Consumer Price Index (CPI) increases with a 3.00% maximum for Tier 1 and a 2.00% maximum for Tier 3.
Medical Cost Trend Rates	
Non-Medicare Medical Plan	Graded from 6.87% to ultimate 4.50% over 10 years
Medicare Medical Plan	Graded from 6.37% to ultimate 4.50% over 8 years
Medicare Part B	4.50%

Postemployment mortality rates for healthy retirees and beneficiaries were based on the RP-2000 Combined Healthy Mortality Table projected with scale BB to the year 2020, set back one year for males and with no setback for females. Postemployment mortality rates for disabled retirees were based on the RP-2000 Combined Healthy Mortality Table projected with scale BB to the year 2020, set forward seven years for males and set forward eight years for females.

For pre-retirement mortality, withdrawal rates, disability rates, and service retirement rates, the rates vary by age, gender, and/or service.

Discount Rate

The discount rate used to measure the Total OPEB Liability as of June 30, 2017 and 2016, were 7.25% and 7.50%, respectively. As contributions that are required to be made by the City to amortize the unfunded actuarial accrued liability in the funding valuation are determined on an actuarial basis, the future actuarially determined contributions and current Plan assets, when projected in accordance with the method prescribed by GASB Statement No. 74, are expected to be sufficient to make all benefit payments to current members. Therefore, the long-term expected rate of return on OPEB Plan investments was applied to all periods of projected benefit payments to determine the Total OPEB Liability as of June 30, 2017.

Long-Term Expected Rate of Return by Asset Class

The long-term expected rate of return on OPEB Plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of OPEB Plan investment expense and inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before deducting investment expenses, used in the derivation of the long-term expected investment rate of return assumption are summarized in the table on the following page:

NOTE 2 – ACTUARIAL ASSUMPTIONS (Continued)

Long-Term Expected Rate of Return by Asset Class (Continued)

Investment Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
U.S. Large Cap Equity	19.00%	5.61%
U.S. Small Cap Equity	5.00%	6.48%
Developed International Equity	19.00%	7.08%
Developed International Small Cap Equity	3.00%	7.32%
Emerging Market Equity	7.00%	9.35%
Core Bonds	19.00%	1.08%
Private Real Estate	5.00%	4.44%
Cash	1.00%	-0.06%
Credit Opportunities	5.00%	3.75%
Public Real Assets	5.00%	3.35%
Private Equity	12.00%	8.97%
Total	100.00%	

Amortization of Deferred Outflows and Deferred Inflows of Resources

The difference between projected and actual investment earnings on OPEB Plan investments is amortized over 5 years on a straight-line basis beginning with the year in which they occur. One-fifth was recognized in OPEB expense during the measurement period, and the remaining difference between projected and actual investment earnings on OPEB Plan investments at June 30, 2017, is to be amortized over the remaining periods.

The changes in assumptions and differences between expected and actual experience are recognized over the average of the expected remaining service lives of all employees that are provided with OPEB through LACERS determined as of June 30, 2016, the beginning of the measurement period. For the measurement period ending June 30, 2017, the average is 6.39 years. Prior period changes in assumptions and differences between expected and actual experience are continued to be recognized based on the expected remaining service lives of all employees calculated as of those prior measurement dates.

In addition, the difference between the actual Employer contributions and the proportionate share of the Employer contributions are the same as noted above. The Schedule of OPEB Amounts by Employer does not reflect contributions made to LACERS OPEB Plan subsequent to the measurement date as defined in GASB Statement No. 75. Appropriate treatment of such amounts is the responsibility of the Employers.

NOTE 3 – RELATIONSHIP TO THE BASIC FINANCIAL STATEMENTS

The components of the schedule associated with OPEB expense and deferred outflows and inflows of resources have been determined based on the net decrease in fiduciary net position for LACERS as shown in the LACERS Statement of Changes in Fiduciary Net Position for the year ended June 30, 2017, and in accordance with requirements promulgated by GASB Statements No. 74 and No. 75. The net OPEB liability at June 30, 2017, is reported in the Notes to Los Angeles City Employees' Retirement System Basic Financial Statements and Required Supplementary Information following the Notes.

LACERS
LOS ANGELES CITY EMPLOYEES'
RETIREMENT SYSTEM

Report to Board of Administration

Agenda of: **JULY 24, 2018**

From: Neil M. Guglielmo, General Manager

ITEM: **IX-D**

SUBJECT: **CONTINUED CONSIDERATION OF PROPOSED ASSUMPTION CHANGES BASED ON ACTUARIAL EXPERIENCE STUDY AND POSSIBLE BOARD ACTION**

Recommendation

That the Board adopt the following actuarial assumptions, as recommended by LACERS' consulting actuary, Segal Consulting:

1. **Inflation Rate:** Reduce the rate from 3.00% to 2.75%.
2. **Crediting Rate:** Reduce the rate from 3.00% to 2.75%.
3. **Investment Return:** Reduce the rate from 7.25% to 7.00%, net of investment expense and administrative expense.
4. **Individual Salary Increases:** Lower slightly overall –
    - Reduce the current inflationary salary increase assumption from 3.00% to 2.75%.
    - Maintain the real across-the-board salary increase at 0.50%.
    - Adjust the Promotional Merit Increases as contained in Appendix B of the attached Actuarial Experience Study report.
5. **Retirement Rates:** Anticipate earlier retirements for active members overall –
    - For active members, adjust the current retirement rates as contained in Appendix B of the attached Actuarial Experience Study report.
    - For active and inactive members, decrease the current assumption that male retirees are four years older than their spouses to a three-year age difference and maintain the current assumption that female retirees are two years younger than their spouses.
    - For inactive vested members, increase the assumed retirement age of deferred vested members from 58 to 59.
    - For future inactive vested members, maintain the current assumption that 5% of LACERS' members who terminate employment in the future will continue to work at a reciprocal system.
    - For all reciprocal members, lower the compensation increase assumption from 3.90% to 3.85%.
6. **Mortality Rates:** Anticipate longer life expectancy –
    - For healthy pensioners and all beneficiaries, change from the current RP-2000 Combined Healthy Mortality Tables for service retirements to the Headcount-Weighted

RP-2014 Healthy Annuitant Mortality Table projected generationally with the two-dimensional mortality improvement scale MP-2017.

- For disability retirements, change from the current RP-2000 Combined Healthy Mortality Tables to the Headcount-Weighted RP-2014 Disabled Retiree Mortality Table projected generationally with the two-dimensional mortality improvement scale MP-2017.
- For pre-retirement mortality, change from the current post-retirement mortality tables to the Headcount-Weighted RP-2014 Employee Mortality Table times 90 percent, projected generationally with the two-dimensional mortality improvement scale MP-2017.

7. **Termination Rates:** Anticipate slightly less terminations for Members with fewer than five years of employment service, and more terminations for Members with five or more years of employment service. Adjust the current termination rates as contained in Appendix B of the attached Actuarial Experience Study report.
8. **Disability Incidence Rate:** Anticipate slightly less disablements. Adjust the current disability incidence rates as contained in Appendix B of the attached Actuarial Experience Study report.
9. **Other Miscellaneous Assumptions:** As shown in Appendix B of the attached Actuarial Experience Study report.

Discussion

At the Board Meeting of July 10, 2018, the Board considered the Actuarial Experience Study conducted by Segal Consulting (Segal), as well as the assumption changes recommended by Segal. The Board requested that Segal provide additional information regarding the estimated cost impact associated with the proposed assumption changes, summarized in Table 1; and possible phase-in methods to mitigate the cost impact, summarized in Table 2.

Table 1: Cost Impact of Assumption Changes

	Current Assumptions	Segal Recommended OPTION		Static Mortality Table OPTION		Non-Economic Only OPTION	
		Assumption Changes	Cost as a % of Payroll	Assumption Changes	Cost as a % of Payroll	Assumption Changes	Cost as a % of Payroll
Economic							
Interest	7.25%	7.00%	3.14%	7.00%	3.14%	7.25%	0%
Inflation	3.00%	2.75%	(1.51)%	2.75%	(1.51)%	3.00%	0%
Subtotal			1.63%		1.63%		0%
Non-Economic							
Mortality	Static Table	Generational	2.12%	Static with increased margin	2.05%	Generational	2.12%
Other			(0.35)%		(0.35)%		(0.35)%
Subtotal			1.77%		1.70%		1.77%
Grand Total			**3.40%**		**3.33%**		**1.77%**

Staff supports Segal's recommended assumption changes which includes the adoption of the generational mortality table. The generational mortality tables more accurately reflect the System's mortality experience. The cost impact of the difference between generational and static with increased margin mortality is minimal at 7 basis points.

Table 2: Contribution Increases With and Without Phase-In
Payment at the Beginning of the Year

Fiscal Year	Without Phase-in	Two-Year With Phase-In	Three-Year With Phase-In	Five-Year With Phase-In
2019-20	**3.40%**	1.70%	1.14%	0.68%
2020-21	3.40%	**3.55%**	2.46%	1.60%
2021-22	3.40%	N/A	**3.70%**	2.46%
2022-23	3.40%	N/A	N/A	3.26%
2023-24	3.40%	N/A	N/A	**4.00%**
Estimated Additional Attributable Interest*	$0	$23.2M	$43.1M	$74.5M

*Additional interest attributable to the contribution shortfall that would accumulate over the 15-year amortization period used for actuarial losses based on 7 percent interest rate.

The phase-in scenarios to mitigate the cost impact are reflected in Table 2. The City may request a phase-in for the Board to consider prior to adoption of the Fiscal Year 2019-20 City Budget.

The Board also instructed staff to seek a legal review of and report back on introduction of an assumption to reflect Cost-of-Living-Adjustment (COLA) benefits in determining actuarial equivalence when a member elects an optional form of benefit at retirement. Staff will provide a separate report on this item when the review has been completed.

This report was prepared by Todd Bouey, Assistant General Manager, Administrative Operations.

NG:TB:DWN

Attachment: 1) July 19, 2018 Letter from Segal regarding Phase-In of Incremental City Contribution Rates
2) July 10, 2018 Board Report on Experience Study 2014-2017
3) July 24, 2018 Segal Slide Presentation – 2nd Discussion of 2018 Actuarial Experience Study

ATTACHMENT 1

Segal Consulting

100 Montgomery Street Suite 500 San Francisco, CA 94104-4308
T 415.263.8200 www.segalco.com

July 19, 2018

Mr. Neil Guglielmo
General Manager
Los Angeles City Employees' Retirement System
202 West First Street, Suite 500
Los Angeles, CA 90012-4401

**Re: Los Angeles City Employees' Retirement System
Response to the Board's Request for Phase-In of the Cost Impact of the Proposed New Actuarial Assumptions in the 2017 Experience Study**

Dear Neil:

On July 10, 2018, the Board discussed the possibility of phasing in the cost impact of the proposed new actuarial assumptions recommended in the June 30, 2017 triennial experience study on the City's retirement and health plan contributions beginning with the 2019-2020 fiscal year.[1] Subsequent to the July 10 Board meeting, LACERS' staff discussed several possible phase-in scenarios with Segal Consulting ("Segal") including a two-, three- and five-year phase-in.

LACERS' staff noted that LACERS used a five-year phase-in to provide temporary contribution rate relief from the assumption changes adopted in the June 30, 2011 triennial experience study. However, staff also noted that the use of the five-year phase-in followed a period of extraordinary economic circumstances (i.e., the recessionary downturn of the economy beginning 2008/2009).

Segal cautions that the phase-in period of the contribution rate impact of assumption changes should be no longer than the time until the next regular experience study.[2] This is to avoid overlapping phase-in periods from sequential experience studies. As you know, LACERS' regular experience study period is every three years. However, at the direction of LACERS' staff, we are including five-year phase-in information herein for informational purposes only, along with the two- and three-year phase-in.

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1 Any changes in actuarial assumptions resulting from the 2017 experience study will first be reflected in the upcoming June 30, 2018 valuations (note that the contribution rates developed in the June 30, 2018 valuations will be effective for Fiscal Year 2019-2020). However, for illustrative purposes we have estimated the effect of these proposed assumption changes as if they applied in the June 30, 2017 valuations, since the June 30, 2018 valuations have only just begun. These estimated costs are the basis for the results in this letter.

2 See for example the discussion of "direct rate smoothing" in the Conference of Consulting Actuaries Public Plans Community "White Paper" on Actuarial Funding Policies and Practices for Public Pension Plans, October 2014.

The recommended (i.e., pre-phase-in) contribution rates for Fiscal Year 2019-2020 will be developed in Segal's June 30, 2018 impending valuation reports. This letter provides an estimate of the incremental "phased-in" contribution rates for Fiscal Year 2019-2020 and an analysis of the future contribution rate impact of a two-, three- or five-year phase-in.

INCREMENTAL PHASE-IN CONTRIBUTION RATES FOR 2019-2020

Table A below shows the estimated full impact of all of the proposed actuarial assumptions on the City's retirement and health plan contributions for Fiscal Year 2019-2020, assuming payment at the beginning of the year, on July 15, 2019, or at the end of each pay period. This is the portion of the contribution rates to be developed in the upcoming June 30, 2018 valuations that would be phased-in over either two or three years.

Table A

Plan:	Estimated Full Impact of the Proposed New Actuarial Assumptions (percentage of payroll)		
	Beginning of Year	July 15	End of Pay Periods
Retirement	2.42%	2.43%	2.50%
Health	0.98%	0.98%	1.01%
Total	3.40%	3.41%	3.51%

To illustrate the dollar magnitude of the rate impact on an estimated payroll of $2.2 billion,[3] the 3.40% beginning of year rate increase would increase contributions by $74.8 million for Fiscal Year 2019-2020.

The increases in the City contribution rates for the first year of the phase-in are simply one-half of the rates shown in Table A for a two-year phase-in, one-third of those rates for a three-year phase-in, or one-fifth of those rates for a five-year phase-in. These first-year phase-in rates are shown below in Tables B-1 (two-year phase-in), B-2 (three-year phase-in), and B-3 (five-year phase-in), and they would apply to contributions for Fiscal Year 2019-2020:

Table B-1 (Two-Year Phase-In)

Plan:	First-Year Phase-In of the Impact of the Proposed New Actuarial Assumptions (percentage of payroll)		
	Beginning of Year	July 15	End of Pay Periods
Retirement	1.21%	1.21%	1.25%
Health	0.49%	0.49%	0.51%
Total	1.70%	1.70%	1.76%

[3] Reflects two annual increases of 3.25% in the 2017/2018 projected payroll estimated under the actuarial assumptions recommended in the June 30, 2017 triennial experience study.

Table B-2 (Three-Year Phase-In)

Plan:	First-Year Phase-In of the Impact of the Proposed New Actuarial Assumptions (percentage of payroll)		
	Beginning of Year	July 15	End of Pay Periods
Retirement	0.81%	0.81%	0.84%
Health	0.33%	0.33%	0.34%
Total	1.14%	1.14%	1.18%

Table B-3 (Five-Year Phase-In)

Plan:	First-Year Phase-In of the Impact of the Proposed New Actuarial Assumptions (percentage of payroll)		
	Beginning of Year	July 15	End of Pay Periods
Retirement	0.48%	0.48%	0.50%
Health	0.20%	0.20%	0.21%
Total	0.68%	0.68%	0.71%

Note that the actual rate impact for the remaining years of the phase-in would be slightly higher than simply adding another one-half (for the two-year phase-in), another one-third (for the three-year phase-in), or another one-fifth (for the five-year phase-in) of the full increases to the contribution rates for the preceding year. This is due to having to make up for the portion of the total contribution rate increase that would not be paid because of the phase-in, including interest at the assumed rate of 7.00%.

The actual cumulative increase in the City contribution rate due to the phase-in for the remaining years would be reflected in the new contribution rates determined at the time of each such future valuation. We have provided below in Tables C-1 (two-year phase-in), C-2 (three-year phase-in), and C-3 (five-year phase-in) an estimate of these cumulative increases, with and without the phase-in, assuming payment by the employer at the beginning of the year. These results illustrate the additional interest cost due to the phase-in.

Table C-1: Cumulative Contribution Increases Under Two-Year Phase-In; Payment at the Beginning of the Year

Fiscal Year	Pension Plan		Retiree Health Plan		Total	
	Without Phase-in	With Phase-in	Without Phase-in	With Phase-in	Without Phase-in	With Phase-in
2019/20	2.42%	1.21%	0.98%	0.49%	3.40%	1.70%
2020/21	2.42%	2.53%	0.98%	1.02%	3.40%	3.55%

Table C-2: Cumulative Contribution Increases Under Three-Year Phase-In; Payment at the Beginning of the Year

Fiscal Year	Pension Plan		Retiree Health Plan		Total	
	Without Phase-in	With Phase-in	Without Phase-in	With Phase-in	Without Phase-in	With Phase-in
2019/20	2.42%	0.81%	0.98%	0.33%	3.40%	1.14%
2020/21	2.42%	1.75%	0.98%	0.71%	3.40%	2.46%
2021/22	2.42%	2.63%	0.98%	1.07%	3.40%	3.70%

Table C-3: Cumulative Contribution Increases Under Five-Year Phase-In; Payment at the Beginning of the Year

Fiscal Year	Pension Plan		Retiree Health Plan		Total	
	Without Phase-in	With Phase-in	Without Phase-in	With Phase-in	Without Phase-in	With Phase-in
2019/20	2.42%	0.48%	0.98%	0.20%	3.40%	0.68%
2020/21	2.42%	1.14%	0.98%	0.46%	3.40%	1.60%
2021/22	2.42%	1.75%	0.98%	0.71%	3.40%	2.46%
2022/23	2.42%	2.33%	0.98%	0.93%	3.40%	3.26%
2023/24	2.42%	2.85%	0.98%	1.15%	3.40%	4.00%

In Table D below, we have provided the reduction in contributions due to the phase-in, under each of the phase-in scenarios. The amounts in Table D below represent the difference between (a) employer contributions assuming the full cost of the proposed new assumptions are paid each year, and (b) employer contributions assuming the phased-in costs are paid each year.

Table D: Reduction in Contributions due to Phase-In (Dollars in Millions; Assumes Payments at the Beginning of the Year)

Fiscal Year	Two-Year Phase-In	Three-Year Phase-In	Five-Year Phase-In
2019/20	$35.0	$46.6	$56.0
2020/21	N/A	19.9	38.3
2021/22	N/A	N/A	20.7
2022/23	N/A	N/A	3.3
2023/24	N/A	N/A	N/A

As the contribution reduction amounts provided above represent an actuarial loss, we have provided in Table E below the additional interest amounts that would accumulate over the 15-year amortization period currently used for actuarial losses.

Table E: Additional Interest Attributable to Contribution Shortfall (Dollars in Millions; Assumes Payments at the Beginning of the Year)

Two-Year Phase-In	Three-Year Phase-In	Five-Year Phase-In
$23.2	$43.1	$74.5

Unless otherwise noted above, these results reflect the same plan provisions and methods from the June 30, 2017 actuarial valuations. The actuarial calculations involved in determining these results were completed under the supervision of Andy Yeung, ASA, MAAA, FCA, EA.

We look forward to discussing these results with the Board. If you have any questions, please let us know.

Sincerely,

Paul Angelo, FSA, MAAA, FCA, EA
Senior Vice President and Actuary

Andy Yeung, ASA, MAAA, FCA, EA
Vice President and Actuary

DNA/bbf

ATTACHMENT 2

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Report to Board of Administration

From: Neil M. Guglielmo, General Manager

Agenda of: **JULY 10, 2018**

ITEM: **X-B**

SUBJECT: **ANALYSIS OF ACTUARIAL EXPERIENCE DURING THE PERIOD FROM JULY 1, 2014 THROUGH JUNE 30, 2017 AND POSSIBLE BOARD ACTION**

Recommendation

That the Board consider the following actuarial assumptions, as recommended by LACERS' consulting actuary, Segal Consulting (Segal):

1. **Inflation Rate:** Reduce the rate from 3.00% to 2.75%.
2. **Crediting Rate:** Reduce the rate from 3.00% to 2.75%.
3. **Investment Return:** Reduce the rate from 7.25% to 7.00%, net of investment expense and administrative expense.
4. **Individual Salary Increases:** Lower slightly overall –
   - Reduce the current inflationary salary increase assumption from 3.00% to 2.75%.
   - Maintain the real across-the-board salary increase at 0.50%.
   - Adjust the Promotional Merit Increases as contained in Appendix B of the attached Actuarial Experience Study report.
5. **Retirement Rates:** Anticipate earlier retirements for active members overall –
   - For active members, adjust the current retirement rates as contained in Appendix B of the attached Actuarial Experience Study report.
   - For active and inactive members, decrease the current assumption that male retirees are four years older than their spouses to a three-year age difference and maintain the current assumption that female retirees are two years younger than their spouses.
   - For inactive vested members, increase the assumed retirement age of deferred vested members from 58 to 59.
   - For future inactive vested members, maintain the current assumption that 5% of LACERS' members who terminate employment in the future will continue to work at a reciprocal system.
   - For all reciprocal members, lower the compensation increase assumption from 3.90% to 3.85%.
6. **Mortality Rates:** Anticipate longer life expectancy –
   - For healthy pensioners and all beneficiaries, change from the current RP-2000 Combined Healthy Mortality Tables for service retirements to the Headcount-Weighted

RP-2014 Healthy Annuitant Mortality Table projected generationally with the two-dimensional mortality improvement scale MP-2017.

- For disability retirements, change from the current RP-2000 Combined Healthy Mortality Tables to the Headcount-Weighted RP-2014 Disabled Retiree Mortality Table projected generationally with the two-dimensional mortality improvement scale MP-2017.
- For pre-retirement mortality, change from the current post-retirement mortality tables to the Headcount-Weighted RP-2014 Employee Mortality Table times 90 percent, projected generationally with the two-dimensional mortality improvement scale MP-2017.

7. **Termination Rates:** Anticipate slightly less terminations for Members with fewer than five years of employment service, and more terminations for Members with five or more years of employment service. Adjust the current termination rates as contained in Appendix B of the attached Actuarial Experience Study report.
8. **Disability Incidence Rate:** Anticipate slightly less disablements. Adjust the current disability incidence rates as contained in Appendix B of the attached Actuarial Experience Study report.
9. **Other Miscellaneous Assumptions:** As shown in Appendix B of the attached Actuarial Experience Study report.

It is additionally recommended that the Board request Segal to provide a breakdown of estimated employer costs by assumption change as well as present potential options for employer payment phase-in.

It is further recommended that the Board instruct staff to seek a legal review of and report back on introduction of an assumption to reflect Cost-of-Living-Adjustment (COLA) benefits in determining actuarial equivalence when a member elects an optional form of benefit at retirement.

Discussion:

Actuarial assumptions are used in the actuarial valuation process for measuring the costs/liabilities of the plan and the contribution requirements of the plan sponsor. While the City Charter requires that an actuarial experience study be completed every five years, the typical timeframe between experience studies for LACERS has been three years. LACERS' last full experience study was conducted in 2014. In May 2015, the Board approved a change in the timing for the completion of the subsequent experience study from 2017 to the first half of 2018 to help alleviate the tight time frames between the adoption of any assumption changes following the triennial experience study, and the immediate implementation of those changes for the actuarial valuation. Further, in March 2017 the Board adopted a two-phase approach to the current triennial experience study:

Phase A – Economic assumptions, including investment return, inflation, salary increase, and Cost-of-Living Adjustment (COLA) were reviewed in 2017. Changed economic assumptions were included in the June 30, 2017 actuarial valuation and reflected in the City contribution rates for fiscal year 2018-19.

Phase B – Demographic assumptions, such as termination, retirement, and mortality, were to be and have been conducted in the first half of 2018.

Phase A review was conducted from July through September 2017, wherein the Board considered actuarial assumption changes following a review of economic assumptions. Ultimately three options for assumption changes were presented by the consulting actuary Segal Consulting (Segal):

Recommended: 7.00% investment rate of return assumption
3.00% price inflation

Alternative 1: 7.25% investment rate of return assumption
3.00% inflation
Conduct full actuarial experience study in 2018, including both economic and demographic assumptions

Alternative 2: 7.00% investment rate of return assumption
2.75% inflation

The Board adopted Alternative 1 in order to allow for inclusion of a then pending asset/liability study and asset allocation exercise being undertaken by LACERS' new general fund investment consultant (NEPC) and LACERS' staff. Thus the investment rate of return assumption was reduced from 7.50 to 7.25 percent pending further analysis. Based on the Board's decision at the Board meeting of September 26, 2017, a full experience study is presently before the Board for action, including updated economic assumptions reflecting the most current targeted asset allocations.

Based on the additional analysis, Segal is now recommending reducing the investment rate of return assumption from 7.25 to 7.00 percent along with an inflation rate reduction from 3.00 to 2.75 percent. The investment rate of return confidence level would increase from 57 to 58 percent. Another major change is the treatment of mortality rates by going to a more contemporary model, although the industry is moving toward an even newer mortality rate model more specific to public sector plans with new tables expected to be available within the next year. These new tables may be considered in the next experience study.

Segal's estimated costs to the employer if all the recommended assumptions are adopted is 2.42 percent of payroll for the Retirement Plan and .98 percent of payroll for the Health Plan (based on contribution rates payable at the beginning of the year).

Paul Angelo of Segal Consulting will be in attendance at the Board meeting to present the report.

This report was prepared by Todd Bouey, Assistant General Manager, Administrative Operations.

NG:TB:DWN

Attachment: Analysis of the Actuarial Experience Study during the period July 1, 2014 through June 30, 2017 prepared by Segal Consulting

Segal Consulting

Los Angeles City Employees' Retirement System

ACTUARIAL EXPERIENCE STUDY

Analysis of Actuarial Experience
During the Period
July 1, 2014 through June 30, 2017

Segal Consulting

100 Montgomery Street Suite 500 San Francisco, CA 94104-4308
T 415.263.8200 www.segalco.com

June 29, 2018

Board of Administration
Los Angeles City Employees' Retirement System
202 W. First Street, Suite 500
Los Angeles, CA 90012-4401

Re: Review of Actuarial Assumptions for the June 30, 2018 Actuarial Valuation

Dear Members of the Board:

We are pleased to submit this report of our review of the actuarial experience for the Los Angeles City Employees' Retirement System. This study utilizes the census data for the period July 1, 2014 to June 30, 2017 and provides the proposed actuarial assumptions, both economic and demographic, to be used in the June 30, 2018 valuation.

Please note that our recommended assumptions unique to the health program (e.g., health care trend assumption) will be provided in a separate letter later this year.

We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

We look forward to reviewing this report with you and answering any questions you may have.

Sincerely,

Paul Angelo, FSA, MAAA, FCA, EA	Andy Yeung, ASA, MAAA, FCA, EA
Senior Vice President and Actuary	Vice President and Actuary

JRC/bqb

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Table of Contents

Actuarial Experience Study
Analysis of Actuarial Experience
During the Period July 1, 2014 through June 30, 2017

I. Introduction, Summary, and Recommendations

To project the cost and liabilities of the Retirement System, assumptions are made about all future events that could affect the amount and timing of the benefits to be paid and the assets to be accumulated. Each year actual experience is compared against the projected experience, and to the extent there are differences, the future contribution requirement is adjusted.

If assumptions are modified, contribution requirements are adjusted to take into account a change in the projected experience in all future years. There is a great difference in both philosophy and cost impact between recognizing the actuarial deviations as they occur annually and changing the actuarial assumptions. Taking into account one year's gains or losses without making a change in the assumptions means that year's experience is treated as temporary and that, over the long run, experience will return to what was originally assumed. Changing assumptions reflects a basic change in thinking about the future, and it has a much greater effect on the current contribution requirements than recognizing gains or losses as they occur.

The use of realistic actuarial assumptions is important in maintaining adequate funding, while paying the promised benefit amounts to participants already retired and to those near retirement. The actuarial assumptions used do not determine the "actual cost" of the plan. The actual cost is determined solely by the benefits and administrative expenses paid out, offset by investment income received. However, it is desirable to estimate as closely as possible what the actual cost will be so as to permit an orderly method for setting aside contributions today to provide benefits in the future, and to maintain equity among generations of participants and taxpayers.

This study was undertaken in order to review the economic and demographic actuarial assumptions and to compare the actual experience with that expected under the current assumptions during the three-year experience period from July 1, 2014 through June 30, 2017. The study was performed in accordance with Actuarial Standard of Practice (ASOP) No. 27 "Selection of Economic Assumptions for Measuring Pension Obligations" and ASOP No. 35 "Selection of Demographic and Other Non-Economic Assumptions for Measuring Pension Obligations." These Standards of Practice put forth guidelines for the selection of the various actuarial assumptions utilized in a pension plan actuarial valuation. Based on the study's results and expected future experience, we are recommending various changes in the current actuarial assumptions.

We are recommending changes in the assumptions for inflation, investment return, crediting rate for employee contributions, cost-of-living adjustments (COLA), promotional and merit salary increases, retirement from active employment, spouse age differences, retirement age for deferred vested members, reciprocal salary increases, pre-retirement mortality, healthy life post-retirement mortality, disabled life post-retirement mortality, termination, and disability. We are also recommending, subject to legal review, introduction of an assumption to reflect COLA benefits in determining actuarial equivalence when a member elects an optional form of benefit at retirement.

Our recommendations for the major actuarial assumption categories are as follows:

Pg #	Actuarial Assumption Categories	Recommendation
9	**Inflation:** Future increases in the Consumer Price Index (CPI) which drives investment returns and active member salary increases, as well as cost-of-living adjustments (COLAs) for retirees. **Crediting Rate for Employee Contributions:** Future increases in the account balance of a member between the date of the valuation and the date of separation from active service.	Reduce the inflation assumption from 3.00% to 2.75% per annum as discussed in Section III(A). (For Tier 3 retirees, the COLA assumption would remain at 2.00% per annum.) Reduce the interest crediting rate for employee contributions from 3.00% to 2.75% per annum as discussed in Section III(A).
12	**Investment Return:** The estimated average net rate of return on current and future assets of the System as of the valuation date. This rate is used to discount liabilities.	Reduce the investment return assumption from 7.25% to 7.00% per annum as discussed in Section III(B).
21	**Individual Salary Increases:** Increases in the salary of a member between the date of the valuation to the date of separation from active service. This assumption has three components: • Inflationary salary increases • Real "across the board" salary increases • Promotional and merit increases	Reduce the current inflationary salary increase assumption from 3.00% to 2.75% and maintain the current real "across the board" salary increase assumption at 0.50%. This means that the combined inflationary and real "across the board" salary increases will decrease from 3.50% to 3.25%. Change the promotional and merit increases to those developed in Section III(C). Future promotional and merit salary increases are higher under the proposed assumptions. The total salary increases (taking into account all three components) are slightly lower under the proposed assumptions.
25	**Retirement Rates:** The probability of retirement at each age at which participants are eligible to retire. **Other Retirement Related Assumptions including:** • Percent married and spousal age differences for members not yet retired • Retirement age for inactive vested members • Future reciprocal members and reciprocal salary increases	For active members, adjust the current retirement rates to those developed in Section IV(A). Overall, the recommended assumptions will anticipate earlier retirements for active members. For active and inactive members, decrease the current assumption that male retirees are four years older than their female spouses to a three-year age difference, and maintain the current age difference assumption for female retirees. For inactive vested members, increase the assumed retirement age from 58 to 59. For future inactive vested members, maintain the percentage assumed to work at a reciprocal system at 5%. For all reciprocal members, lower the compensation increase assumption from 3.90% to 3.85% per annum.

Pg #	Actuarial Assumption Categories	Recommendation
29 35	**Mortality Rates:** The probability of dying at each age. Mortality rates are used to project life expectancies.	For healthy pensioners and all beneficiaries, change from the RP-2000 Combined Healthy Mortality Table projected statically with Scale BB to 2020, with a one-year setback for males and with no setback for females, to the Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table projected generationally with the two-dimensional mortality improvement scale MP-2017. For disabled pensioners, change from the RP-2000 Combined Healthy Mortality Table projected statically with Scale BB to 2020, with a seven-year set forward for males and an eight-year set forward for females, to the Headcount-Weighted RP-2014 Disabled Retiree Mortality Table projected generationally with the two-dimensional mortality improvement scale MP-2017. For pre-retirement mortality, change from the current post-retirement mortality tables to the Headcount-Weighted RP-2014 Employee Mortality Table times 90%, projected generationally with the two-dimensional mortality improvement scale MP-2017. The recommended assumptions will anticipate longer life expectancy. Introduce an assumption to reflect COLA benefits in determining actuarial equivalence when a member elects an optional form of benefit at retirement.
37	**Termination Rates:** The probability of leaving employment at each age and receiving either a refund of contributions or a deferred vested retirement benefit.	Adjust the current termination rates to those developed in Section IV(D). The recommended assumption will anticipate slightly less terminations for members with fewer than five years of employment service, and more terminations for members with five or more years of employment service.
40	**Disability Incidence Rates:** The probability of becoming disabled at each age.	Adjust the current disability incidence rates to those developed in Section IV(E). The recommended assumption will anticipate slightly less disablements.

We have estimated the impact of the proposed assumption changes as if they were applied to the June 30, 2017 actuarial valuation. In particular, if all of the proposed assumption changes were implemented, the aggregate employer rate would have increased by 2.42% of payroll for the Retirement Plan and 0.98% of payroll for the Health Plan (based on contribution rates payable at the beginning of the year). Of the various assumption changes, the most significant cost impact is from the investment return assumption change and the mortality assumption change.

Section II provides some background on the basic principles and methodology used for the experience study and for the review of the economic and demographic actuarial assumptions. A detailed discussion of each assumption and reasons for the proposed changes are found in Section III for the economic assumptions and Section IV for the demographic assumptions. The cost impact of the proposed changes is detailed in Section V.

II. Background and Methodology

In this report, we analyzed both economic and demographic ("non-economic") assumptions. The primary economic assumptions reviewed are inflation, investment return, and salary increases. Demographic assumptions include the probabilities of certain events occurring in the population of members, referred to as "decrements," e.g., termination from service, disability retirement, service retirement, and death before and after retirement. In addition to decrements, other demographic assumptions reviewed in this study include the percentage of members with an eligible spouse or domestic partner, spousal age difference, percent of members assumed to go on to work for a reciprocal system, and reciprocal salary increases.

Economic Assumptions

Economic assumptions consist of:

- **Inflation:** Increases in the price of goods and services. The inflation assumption reflects the basic return that investors expect from securities markets. It also reflects the expected basic salary increase for active employees and drives increases in the allowances of retired members.

- **Investment Return:** Expected long-term rate of return on the System's investments after administrative and investment expenses. This assumption has a significant impact on contribution rates.

- **Salary Increases:** In addition to inflationary increases, it is assumed that salaries will also grow by "across the board" real pay increases in excess of price inflation. It is also assumed that employees will receive raises above these average increases as they advance in their careers. These are commonly referred to as promotional and merit increases. Payments to amortize any Unfunded Actuarial Accrued Liability (UAAL) are assumed to increase each year by the price inflation rate plus any "across the board" real pay increases that are assumed.

The setting of these economic assumptions is described in Section III.

Demographic Assumptions

In order to determine the probability of an event occurring, we examine the "decrements" and "exposures" of that event. For example, taking termination from service, we compare the number of employees who actually terminate in a certain age and/or service category (i.e., the number of "decrements") with those "who could have terminated" (i.e., the number of "exposures"). For example, if there were 500 active employees in the 20-24 age group at the beginning of the year and 50 of them terminate during the year, we would say the probability of termination in that age group is 50 ÷ 500 or 10%.

The reliability of the resulting probability is highly dependent on both the number of decrements and the number of exposures. For example, if there are only a few people in a high age category at the beginning of the year (number of exposures), we would not lend as much credibility to the probability of termination developed for that age category, especially if it is out of line with the pattern shown for the other age groups. Similarly, if we are considering the death decrement, there may be a large number of exposures in, say, the age 20-24 category, but very few decrements (actual deaths); therefore, we would not be able to rely heavily on the probability developed for that category.

One reason we use several years of experience for such a study is to have more exposures and decrements, and therefore more statistical reliability. Another reason for using several years of data is to smooth out fluctuations that may occur from one year to the next. However, we also calculate the rates on a year-to-year basis to check for any trend that may be developing in the later years.

III. Economic Assumptions

A. Inflation

Unless an investment grows at least as fast as prices increase, investors will experience a reduction in the inflation-adjusted value of their investment. There may be times when "riskless" investments return more or less than inflation, but over the long term, investment market forces will generally require an issuer of fixed income securities to maintain a minimum return which protects investors from inflation.

The inflation assumption is long term in nature, so our analysis included a review of historical information. Following is an analysis of 15- and 30-year moving averages of historical inflation rates:

HISTORICAL CONSUMER PRICE INDEX – 1930 TO 2017[1]
(U.S. City Average - All Urban Consumers)

	25th Percentile	Median	75th Percentile
15-year moving averages	2.4%	3.4%	4.5%
30-year moving averages	3.0%	3.8%	4.8%

The average inflation rates have continued to decline gradually over the last several years due to the relatively low inflationary period over the past two decades. Also, the later of the 15-year averages during the period are lower as they do not include the high inflation years of the mid-1970s and early 1980s.

Based on information found in the Public Plans Data website, which is produced in partnership with the National Association of State Retirement Administrators (NASRA), the median inflation assumption used by 168 large public retirement funds[2] in their 2016 fiscal year valuations was 3.00%. In California, CalPERS, CalSTRS, Contra Costa County, Los Angeles County, Orange County and three other 1937 Act CERL systems use an inflation assumption of 2.75%, one other 1937 Act CERL system uses an inflation assumption of 2.90%, two other 1937 Act CERL systems use an inflation assumption of 2.50%, and eleven other 1937 Act CERL systems use an inflation assumption of 3.00%.

LACERS' investment consultant, New England Pension Consultants (NEPC), anticipates an annual inflation rate of 2.75%, while the average inflation assumption provided by NEPC and six other investment advisory firms retained by Segal's California public sector clients was 2.36%. Note that, in general, investment consultants use a time horizon[3] for this assumption that is shorter than the time horizon of the actuarial valuation.

1 Source: Bureau of Labor Statistics – Based on CPI for All items in U.S. city average, all urban consumers, not seasonally adjusted (Series Id: CUUR0000SA0)

2 Among 168 large public retirement funds, the inflation assumption was not available for 14 of the public retirement funds in the survey data.

3 The time horizon used by the seven investment consultants included in our review generally ranges from 10 years to 30 years and NEPC uses 30 years.

To find a forecast of inflation based on a longer time horizon, we referred to the 2017 report on the financial status of the Social Security program.[4] The projected average increase in the Consumer Price Index (CPI) over the next 75 years under the intermediate cost assumptions used in that report was 2.60%. Besides projecting the results under the intermediate cost assumptions using an inflation assumption of 2.60%, alternative projections were also made using a lower and a higher inflation assumption of 2.00% and 3.20%, respectively.

We also compared the yields on the thirty-year inflation indexed U.S. Treasury bonds to comparable traditional U.S. Treasury bonds.[5] As of April 2018, the difference in yields is about 2.14%, which provides a measure of market expectations of inflation.

Based on all of the above information, we recommend that the current 3.00% annual inflation assumption be reduced to 2.75% for the June 30, 2018 actuarial valuation.

The setting of the inflation assumption using the information outlined above is a somewhat subjective process, and Segal does not apply a specific weight to each of the metrics in determining our recommended inflation assumption. Based on a consideration of all these metrics, we have recently been recommending the same 2.75% inflation assumption in our experience studies for our California based public retirement system clients. As discussed on the previous page of this report, several large California public retirement systems have recently adopted a 2.75% inflation assumption in their valuations, including six county retirement systems.

Crediting Rate for Employee Contributions

We note that the interest crediting rate for employee contributions is based on the average rates of a five-year U.S. Treasury Note. Currently, an assumption of 3.00% is used to approximate that crediting rate, and the 3.00% crediting rate assumption is tied to the current inflation assumption.

In conjunction with our recommendation to lower the current 3.00% annual inflation assumption to 2.75% for the June 30, 2018 valuation, as discussed above, and assuming the Board wishes to maintain the linkage between the two, we would also recommend that the assumed interest crediting rate for employee contributions be lowered from 3.00% to 2.75%.

Retiree Cost of Living Increases

In our June 30, 2017 economic assumptions study, consistent with the 3.00% annual inflation assumption adopted by the Board for that valuation, the Board maintained the 3.00% retiree cost-of-living adjustment for Tier 1 and a 2.00% retiree cost-of-living adjustment for Tier 3.

[4] Source: Social Security Administration – The 2017 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds

[5] Source: Board of Governors of the Federal Reserve System

Consistent with our recommended inflation assumption, we also recommend reducing the current assumption to value the post-retirement COLA benefit from 3.00% to 2.75% per year for Tier 1,[6] while maintaining the current assumption of 2.00% per year for Tier 3.

In developing the COLA assumption, we also considered the results of a stochastic approach that would attempt to account for the possible impact of low inflation that could occur before COLA banks (applicable to Tier 1 only) are able to be established for the member. Although the results of this type of analysis might justify the use of a COLA benefit assumption lower than 2.75%, we are not recommending that at this time. The reasons for this conclusion include the following:

- The results of the stochastic modeling are significantly dependent on assuming that lower levels of inflation will persist in the early years of the projections. If this is not assumed, then the stochastic modeling will produce results similar to our proposed COLA assumptions.
- Using a lower long-term COLA assumption based on a stochastic analysis would mean that an actuarial loss would occur even when the inflation assumption of 2.75% is met in a year. We question the reasonableness of this result.

We do not see the stochastic possibility of COLAs averaging less than those predicted by the assumed rate of inflation as a reliable source of cost savings that should be anticipated in our COLA assumptions. Therefore, we continue to recommend setting the COLA assumptions based on the long-term annual inflation assumption, as we have in prior years.

6 For current retirees and beneficiaries, we would utilize the accumulated COLA banks to value annual 3.00% COLA increases to Tier 1 members as long as the COLA banks are available.

B. Investment Return

The investment return assumption is comprised of two primary components, inflation and real rate of investment return, with adjustments for administrative and investment expenses and risk.

Real Rate of Investment Return

This component represents the portfolio's incremental investment market returns over inflation. Theory has it that as an investor takes a greater investment risk, the return on the investment is expected to also be greater, at least in the long run. This additional return is expected to vary by asset class and empirical data supports that expectation. For that reason, the real rate of return assumptions are developed by asset class. Therefore, the real rate of return assumption for a retirement system's portfolio will vary with the Board's asset allocation among asset classes.

The following is the System's current target asset allocation and the assumed real rate of return assumptions by asset class. The first column of real rate of return assumptions are determined by reducing NEPC's total or "nominal" 2018 return assumptions by their assumed 2.75% inflation rate. The second column of returns (except for Additional Public Real Assets, Real Estate Investment Trust (REIT), Private Debt, and Private Equity) represents the average of a sample of real rate of return assumptions. The sample includes the expected annual real rate of return provided to us by NEPC and six other investment advisory firms retained by Segal's public sector clients. We believe these averages are a reasonable consensus forecast of long-term future market returns in excess of inflation.[7]

[7] Note that, just as for the inflation assumption, in general the time horizon used by the investment consultants in determining the real rate of return assumption is shorter than the time horizon encompassed by the actuarial valuation.

LACERS' TARGET ASSET ALLOCATION AND ASSUMED ARITHMETIC REAL RATE OF RETURN ASSUMPTIONS BY ASSET CLASS AND FOR THE PORTFOLIO

Asset Class	Percentage of Portfolio	NEPC's Assumed Real Rate of Return[8]	Average Assumed Real Rate of Return from a Sample of Consultants to Segal's California Public Sector Clients[9]
U.S. Large Cap Equity	14.00%	6.08%	5.32%
U.S. Small Cap Equity	5.00%	6.89%	6.07%
Developed Int'l Large Cap Equity	17.00%	6.89%	6.67%
Developed Int'l Small Cap Equity	3.00%	7.31%	7.14%
Emerging Market Equity	7.00%	9.72%	8.87%
Core Bond	13.75%	1.17%	1.04%
High Yield Bond	2.00%	3.51%	3.09%
Bank Loan	2.00%	3.12%	3.00%
TIPS	3.50%	1.20%	0.97%
Emerging Market Debt (External)	4.50%	3.01%	3.44%
Real Estate	7.00%	5.10%	4.68%
Cash	1.00%	0.00%	0.01%
Commodities	1.00%	4.34%	3.36%
Additional Public Real Assets	1.00%	4.76%	4.76%[10]
Real Estate Investment Trust (REIT)	0.50%	5.91%	5.91%[10]
Private Debt	3.75%	5.50%	5.50%[10]
Private Equity	14.00%	8.97%	8.97%[10]
Total	**100.00%**	**5.68%**	**5.37%**

The above are representative of "indexed" returns and do not include any additional returns ("alpha") from active management. This is consistent with the Actuarial Standard of Practice No. 27, Section 3.8.3.d, which states:

> "Investment Manager Performance - Anticipating superior (or inferior) investment manager performance may be unduly optimistic (or pessimistic). The actuary should not assume that superior or inferior returns will be achieved, net of investment expenses, from an active investment management strategy compared to a passive investment management strategy unless the actuary believes, based on relevant supporting data, that such superior or inferior returns represent a reasonable expectation over the measurement period."

The following are some observations about the returns provided above:

8 Derived by reducing NEPC's nominal rate of return assumptions by their assumed 2.75% inflation rate. These returns are net of active management fees.

9 These are based on the projected arithmetic returns provided by NEPC and six other investment advisory firms serving the city retirement system of Los Angeles and 16 other city and county retirement systems in California. These return assumptions are gross of any applicable investment expenses, except for NEPC's returns as noted in the footnote above.

10 For these asset classes, NEPC's assumption is applied in lieu of the average because there is a larger disparity in returns for these asset classes among the firms surveyed and using NEPC's assumption should more closely reflect the underlying investments made specifically for LACERS.

1. The investment consultants to our California public sector clients have each provided us with their expected real rates of return for each asset class, over various future periods of time. However, in general, the returns available from investment consultants are projected over time periods shorter than the durations of a retirement plan's liabilities.

2. Using a sample average of expected real rate of returns allows the System's investment return assumption to reflect a broader range of capital market information and should help reduce year-to-year volatility in the investment return assumption.

3. Therefore, we recommend that the 5.37% portfolio real rate of return be used to determine the System's investment return assumption. This is 0.10% lower than the return that was used one year ago in the review to prepare the recommended investment return assumption for the June 30, 2017 valuation. The difference is primarily due to changes in the System's target asset allocation.

System Expenses

For funding purposes, the real rate of return assumption for the portfolio needs to be adjusted for investment and administrative expenses expected to be paid from investment income. We understand that as a result of a prior internal audit at LACERS, starting with fiscal year ended June 30, 2014, two items (i.e., Real Estate management fees and expenses, and Private Equity management fees and expenses) have been reclassified by LACERS and are now included as part of the investment management fees. Additionally, in preparing our June 30, 2017 economic assumptions report, we understand NEPC returns to be gross of active management fees. On a gross of active management fees basis, the following table provides these expenses in relation to the actuarial value of assets for the four years ending June 30, 2017, for informational purposes only.

ADMINISTRATIVE AND INVESTMENT EXPENSES AS A PERCENTAGE OF ACTUARIAL VALUE OF ASSETS GROSS OF ACTIVE MANAGEMENT FEES (Dollars in 000's)

Year Ending June 30	Actuarial Value of Assets[11]	Administrative Expenses[12]	Investment Expenses[13]	Administrative %	Investment %	Total %
2014	$12,935,503	$15,765	56,189	0.12%	0.43%	0.55%
2015	13,895,589	19,878[14]	62,595	0.14	0.45	0.59
2016	14,752,103	19,727[14]	66,540	0.13	0.45	0.58
2017	15,686,973	20,244	71,844	0.13	0.46	0.59
					Four-Year Average:	**0.58%**

11 At end of plan year.

12 Note that some California public retirement systems (including LAFPP) have taken the approach of including an explicit charge for administrative expenses instead of a reduction in the investment return assumption to implicitly defray the administrative expenses.

13 Includes investment management expenses and investment related administrative expense, gross of expenses associated with private equity.

14 Includes LACERS' share of the City's pension contributions of approximately $2.9 million for the year ended June 30, 2015 and $3.3 million for the year ended June 30, 2016.

Based on updated information provided by NEPC for this study and for another public retirement system client that uses NEPC as their investment consultant, we understand that the capital market assumptions for Private Equity is already net of active management fees. Accordingly, we have netted out the Private Equity management fees and expenses from the table above and the results are provided on the table below.

ADMINISTRATIVE AND INVESTMENT EXPENSES AS A PERCENTAGE OF ACTUARIAL VALUE OF ASSETS NET OF ACTIVE MANAGEMENT FEES (Dollars in 000's)

Year Ending June 30	Actuarial Value of Assets[15]	Administrative Expenses[16]	Investment Expenses[17]	Administrative %	Investment %	Total %
2014	$12,935,503	$15,765	$36,045	0.12%	0.28%	0.40%
2015	13,895,589	19,878[18]	42,278	0.14	0.30	0.44
2016	14,752,103	19,727[18]	39,926	0.13	0.27	0.40
2017	15,686,973	20,244[18]	40,006	0.13	0.26	0.39
			Four-Year Average	**0.13%**	**0.28%**	**0.41%**
			Recommendation	**0.15%**	**0.25%**	**0.40%**

Based on this experience, we recommend that the System's future expense component of the investment return assumption be decreased from 0.60% to 0.40%.

Note related to investment expenses paid to active managers – As cited above, under Section 3.8.3.d of ASOP No. 27, the effect of an active investment management strategy should be considered "net of investment expenses…unless the actuary believes, based on relevant supporting data, that such superior or inferior returns represent a reasonable expectation over the measurement period." For LACERS, about 1/3 of the investment expenses were paid for expenses associated with active managers, during the year ended June 30, 2017.

We have not performed a detailed analysis to measure how much of the investment expenses paid to active managers might have been offset by additional returns ("alpha") earned by that active management, nor are we aware of any study done by NEPC to quantify such alpha.

As noted above, we have excluded investment expenses associated with private equity. We could work with the LACERS' staff to determine whether future studies might potentially further exclude additional investment expenses for active managers that are expected to be offset by investment returns. For now, we will continue to use the current approach that any "alpha" that may be identified would be treated as an increase in the risk adjustment and corresponding

15 At end of plan year.

16 Note that some California public retirement systems (including LAFPP) have taken the approach of including an explicit charge for administrative expenses instead of a reduction in the investment return assumption to implicitly defray the administrative expenses.

17 Includes investment management expenses and investment related administrative expense, net of expenses associated with private equity.

18 Includes LACERS' share of the City's pension contributions of approximately $2.9 million for the year ended June 30, 2015, $3.3 million for the year ended June 30, 2016, and $3.2 million for the year ended June 30, 2017.

confidence level. For example, 0.25% of alpha would increase the confidence level by 3% (see discussions that follow on definitions of risk adjustment and confidence level).

Risk Adjustment

The real rate of return assumption for the portfolio is adjusted to reflect the potential risk of shortfalls in the return assumptions. The System's asset allocation determines this portfolio risk, since risk levels are driven by the variability of returns for the various asset classes and the correlation of returns among those asset classes. This portfolio risk is incorporated into the real rate of return assumption through a risk adjustment.

The purpose of the risk adjustment (as measured by the corresponding confidence level) is to increase the likelihood of achieving the actuarial investment return assumption in the long term.[19] This is consistent with our experience that retirement plan fiduciaries would generally prefer that returns exceed the assumed rate more often than not.

The 5.37% expected real rate of return developed earlier in this report was based on expected mean or average arithmetic returns. In our model, the confidence level associated with a particular risk adjustment represents the likelihood that future investment earnings would equal or exceed the assumed earnings over a 15-year period on an expected value basis.[20] For example, if we set our real rate of return assumption using a risk adjustment that produces a confidence level of 60%, then there would be a 60% chance (6 out of 10) that the actual earnings over 15 years will be equal to or greater than the expected earnings. The 15-year time horizon represents an approximation of the "duration" of the fund's liabilities, where the duration of a liability represents the sensitivity of that liability to interest rate variations. Note that, based on the investment return assumptions recently adopted by systems that have been analyzed under this model, we observe a confidence level generally in the range of 50% to 60%.

Last year the Board opted to lower the investment return assumption from 7.50% to 7.25%, which implied a risk adjustment of 0.62%. Together with an annual portfolio standard deviation of 13.2% (provided by NEPC in 2017), this reflected a confidence level of about 57% that the actual earnings over 15 years would not be less than the expected earnings, assuming that the distribution of returns over that period follows the normal statistical distribution.[21]

If we use the same 57% confidence level from our last study to set this year's risk adjustment, based on the current long-term portfolio standard deviation of 13.13% provided by NEPC in 2018, the corresponding risk adjustment would be 0.62%. Together with the other investment return components, this would result in an investment return assumption of 7.10%, which is lower than the current assumption of 7.25%. Based on the general practice of using one-quarter percentage point increments for economic assumptions, we evaluated the effect on the confidence level of a 7.00% investment return assumption. In particular, a net investment return

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19 This type of risk adjustment is sometimes referred to as a "margin for adverse deviation."

20 If a retirement system uses the expected arithmetic average return as the discount rate in the funding valuation, that retirement system is expected to have no surplus or asset shortfall relative to its expected obligations assuming all actuarial assumptions were met in the future.

21 Strictly speaking, future compounded long-term investment returns will tend to follow a log-normal distribution. However, we believe the normal distribution assumption is reasonable for purposes of setting this type of risk adjustment.

assumption of 7.00%, together with the other investment return components, would produce a risk adjustment of 0.72%, which when rounded corresponds to a confidence level of 58%. This is a slightly higher confidence level implicit in the investment return assumption adopted by the Board in the last study. For comparison, the confidence level associated with a 7.25% investment return assumption is 55%.

The table below shows LACERS' investment return assumptions, the risk adjustments and corresponding confidence levels for the current and prior studies.

HISTORICAL INVESTMENT RETURN ASSUMPTIONS, RISK ADJUSTMENTS AND CONFIDENCE LEVELS BASED ON ASSUMPTIONS ADOPTED BY THE BOARD

Year Ending June 30	Investment Return	Risk Adjustment	Corresponding Confidence Level
2005	8.00%	1.14%	65%
2008	8.00%	1.29%	66%
2011	7.75%	0.57%	57%
2014 (Alternative)	7.75%	0.69%	58%
2014 (Adopted)	7.50%	0.94%	61%
2014 (Adopted Value with Restated Expense Adjustment)	7.50%	0.74%	59%
2017 (Recommended)	7.00%	0.87%	60%
2017 (Alternative; Adopted)	7.25%	0.62%	57%
2018 (Recommended)	7.00%	0.72%	58%

As we have discussed in prior years, the risk adjustment model and associated confidence level is most useful as a means for comparing how the System has positioned itself relative to risk over periods of time.[22] The use of a confidence level of 58% should be considered in context with other factors, including:

- The confidence level is more of a relative measure than an absolute measure, and so can be reevaluated and reset for future comparisons.
- A lower level of inflation should reduce the overall risk of failing to meet the investment return assumption.
- The confidence level is based on the standard deviation of the portfolio that is determined and provided to us by NEPC. The standard deviation is a statistical measure of the future volatility of the portfolio and so is itself based on assumptions about future portfolio volatility and can be considered somewhat of a "soft" number.
- While a confidence level of 58% is at the upper end of the range of about 50% to 60% that corresponds to the risk adjustments used by most of Segal's other California public

[22] In particular, it would not be appropriate to use this type of risk adjustment as a measure of determining an investment return rate that is "risk-free."

retirement system clients, the level is in-line with how LACERS' has positioned itself historically.

- Most public retirement systems that have recently reviewed their investment return assumptions have seen decreases in their confidence level even though they adopted more conservative investment return assumptions for their valuations.

- As with any model, the results of the risk adjustment model should be evaluated for reasonableness and consistency. This is discussed in the later section on "Comparison with Other Public Retirement Systems".

Recommended Investment Return Assumption

Taking into account the factors above, we have developed our recommended investment return assumption for LACERS' consideration. Our recommendation is to reduce the net investment return assumption from 7.25% to 7.00%. As noted above, this return implies a risk adjustment of 0.72%, reflecting a confidence level of 58% that the actual arithmetic average return over 15 years would not fall below the assumed return. This reduction in the net investment return assumption from 7.25% to 7.00% reflects the 0.25% lower inflation expectation, the 0.10% decrease in the portfolio's real rate of return, the 0.20% "saving" as a result of a decrease in the expense assumption resulting from a clarification received from NEPC that their assumed returns provided are net of active management fees,[23] and a 0.10% increase in the risk adjustment.

The following table summarizes the components of the investment return assumption developed in the previous discussion. For comparison purposes, we have also included similar values from prior studies.

[23] In preparing our June 30, 2017 economic assumptions report, NEPC returns were assumed to be gross of active management fees.

CALCULATION OF INVESTMENT RETURN ASSUMPTION

Assumption Component	June 30, 2018 Recommended Value	June 30, 2017 Adopted Value	June 30, 2014 Adopted Value With Restated Expense Adjustment	June 30, 2014 Adopted Value
Inflation	2.75%	3.00%	3.25%	3.25%
Plus Portfolio Real Rate of Return	5.37%	5.47%	5.59%	5.59%
Minus Expense Adjustment	(0.40%)	(0.60%)	(0.60%)	(0.40%)
Minus Risk Adjustment	(0.72%)	(0.62%)	(0.74%)	(0.94%)
Total	**7.00%**	**7.25%**	**7.50%**	**7.50%**
Confidence Level	**58%**	**57%**	**59%**	**61%**

Based on this analysis, we recommend that the investment return assumption be decreased from 7.25% to 7.00% per annum.

We also recommend that the same investment return assumption that is adopted by the Board for funding purposes be used for GASB financial reporting purposes. For GASB financial reporting purposes, the investment return assumption would be considered net of investment expenses only, which would increase the risk adjustment.

Comparing with Other Public Retirement Systems

One final test of the recommended investment return assumption is to compare it against those used by other public retirement systems, both in California and nationwide.

We note that a 7.00% investment return assumption is becoming more common among California public sector retirement systems. In particular, seven County employees' retirement systems (Contra Costa, Fresno, Marin, Mendocino, Orange, Sacramento, and Santa Barbara) use a 7.00% earnings assumption. Furthermore, the CalPERS Board has approved a reduction in the earnings assumption to 7.00%. In addition, CalSTRS recently adopted a 7.00% earnings assumption for the 2017 valuation. With the exception of the retirement systems stated above, most of the public sector retirement systems in California are using a 7.25% earnings assumption. Both LADWP and LAFPP have adopted a 7.25% assumption.

The following table compares LACERS' recommended net investment return assumption against those of the nationwide public retirement systems that participated in the National Association of State Retirement Administrators (NASRA) 2017 Public Fund Survey for 168 large public retirement funds[24] in their 2016 fiscal year valuations:

[24] Among 168 large public retirement funds, the investment return assumption was not available for 12 of the public retirement funds in the survey data.

		NASRA 2016 Public Fund Survey[25]		
Assumption	LACERS	Low	Median	High
Net Investment Return	7.00%	6.50%	7.50%	8.50%

The detailed survey results show that more than one-half of the systems have an investment return assumption in the range of 6.75% to 7.50%, and over half of those systems have used an assumption of 7.50%. The survey also notes that several plans have reduced their investment return assumption during the last year. State systems outside of California tend to change their economic assumptions less frequently and so may lag behind emerging practices in this area.

In summary, we believe that both the risk adjustment model and other considerations indicate a lower earnings assumption. The recommended assumption of 7.00% is consistent with the System's current practice.

[25] Public Plans Data website – Produced in partnership with the National Association of State Retirement Administrators (NASRA)

C. Salary Increase

Salary increases impact plan costs in two ways: (i) by increasing members' benefits (since benefits are a function of the members' highest average pay) and future normal cost collections; and (ii) by increasing total active member payroll which in turn generates lower UAAL contribution rates. The components of the salary increase assumptions are discussed below:

As an employee progresses through his or her career, increases in pay are expected to come from three sources:

1. **Inflation:** Unless pay grows at least as fast as consumer prices grow, employees will experience a reduction in their standard of living. There may be times when pay increases lag or exceed inflation, but over the long term, labor market forces may require an employer to maintain its employees' standards of living.

   As discussed earlier in this report, we are recommending that the assumed rate of inflation be reduced from 3.00% to 2.75% per annum. This inflation component is used as part of the salary increase assumption.

2. **Real "Across the Board" Pay Increases:** These increases are typically termed productivity increases since they are considered to be derived from the ability of an organization or an economy to produce goods and services in a more efficient manner. As that occurs, at least some portion of the value of these improvements can provide a source for pay increases. These increases are typically assumed to extend to all employees "across the board". The State and Local Government Workers Employment Cost Index produced by the Department of Labor provides evidence that real "across the board" pay increases have averaged about 0.6% - 0.8% annually during the last ten to twenty years.

   We also referred to the annual report on the financial status of the Social Security program published in July 2017. In that report, real "across the board" pay increases are forecast to be 1.2% per year under the intermediate assumptions.

   The real pay increase assumption is generally considered a more "macroeconomic" assumption that is not necessarily based on individual plan experience. However, recent salary experience with public systems in California as well as anecdotal discussions with plans and plan sponsors indicate lower future real wage growth expectations for public sector employees. We note that for LACERS' active members, the actual average inflation plus "across the board" increase (i.e., wage inflation) over the six-year period ending June 30, 2017 was 1.99%.

Valuation Date	Actual Average Increase[26]	Actual Change in CPI[27]
June 30, 2012	1.35%	2.67%
June 30, 2013	3.50%	2.04%
June 30, 2014	4.61%[28]	1.08%
Three-Year Average	**3.15%**	**1.93%**
June 30, 2015	0.99%	1.35%
June 30, 2016	0.87%	0.91%
June 30, 2017	0.59%	1.89%
Three-Year Average	**0.82%**	**1.38%**
Six-Year Average	**1.99%**	**1.66%**

Considering these factors, we recommend maintaining the real "across the board" salary increase assumption at 0.50%. This means that the combined inflation and "across the board" salary increase assumption will decrease from 3.50% to 3.25%.

3. **Promotional and Merit Increases:** As the name implies, these increases come from an employee's career advances. This form of pay increase differs from the previous two, since it is specific to the individual. For LACERS, there are service-specific promotional and merit increases.

   The annual promotional and merit increases are determined by measuring the actual increases received by members over the experience period, net of the inflationary and real "across the board" pay increases. This is accomplished by:

   a. Measuring each continuing member's actual salary increase over each year of the experience period;

   b. Excluding any members with increases of more than 50% or decreases of more than 10% during any particular year;

   c. Categorizing these increases according to member demographics;

   d. Removing the wage inflation component from these increases (assumed to be equal to the increase in the members' average salary during the year);

   e. Averaging these annual increases over the experience period; and

   f. Modifying current assumptions to reflect some portion of these measured increases reflective of their "credibility."

26 Reflects the increase in average salary for members at the beginning of the year versus those at the end of the year. It does not reflect the average salary increases received by members who worked the full year.

27 Based on the change in the annual average CPI for the Los Angeles-Riverside-Orange County Area compared to the prior year. Note that in January 2018, the Bureau of Labor Statistics introduced a new geographic area sample for the CPI, and as part of the new sample, Los Angeles (Los Angeles-Long Beach-Anaheim Area) and Riverside have separate indexes.

28 Restated after the June 30, 2014 valuation data was finalized.

To be consistent with the other economic assumptions, these promotional and merit assumptions should be used in combination with the 3.25% assumed inflation and 0.50% real “across the board” increases.

The following table shows the actual average promotional and merit increases by years of service over the three-year period from July 1, 2014 through June 30, 2017 along with the actual average increases based on combining the current three-year period with the three years from the prior experience study covering July 1, 2011 through June 30, 2014. The current and proposed assumptions are also shown. The actual increases for the most recent three-year period were reduced by the actual average inflation plus “across the board” increase (i.e., wage inflation, estimated as the increase in average salaries) for each year over the current three-year experience period (0.82% on average).[29]

PROMOTIONAL AND MERIT INCREASES

	Rate (%)			
Years of Service	**Current Assumption**	**Actual Average Increase (Last 3 Years)**	**Actual Average Increase from Current and Prior Study**	**Proposed Assumption**
Less than 1	6.50	7.69	6.09	6.50
1	6.20	8.15	7.28	6.40
2	5.10	7.22	6.05	5.50
3	3.10	4.74	3.70	3.30
4	2.10	3.75	2.82	2.40
5	1.10	2.97	2.08	1.50
6	1.00	2.52	1.73	1.30
7	0.90	2.18	1.56	1.20
8	0.70	2.16	1.41	1.00
9	0.60	2.15	1.34	0.90
10 & Over	0.40	1.71	0.98	0.60

Chart 1 provides a graphical comparison of the actual promotional and merit increases, compared to the proposed and current assumptions. The chart also show the actual promotional and merit increases based on an average of both the current and previous three-year experience periods. This is discussed below.

We realize that the most recent three-year experience period may not be typically indicative of future long-term promotional and merit salary increases. Therefore, we also examined the promotional and merit salary experience from the prior experience study. We believe that when the experience from the last two studies are combined into an average result, it provides a more reasonable representation of potential future promotional and merit salary increases over the long term. Nevertheless, in our proposed changes to promotional and merit salary increases, we have still given relatively less weight, roughly one-third, to the actual average increases during the last two studies.

29 The actual increases for the prior three-year period were reduced by 3.15% each year, on average.

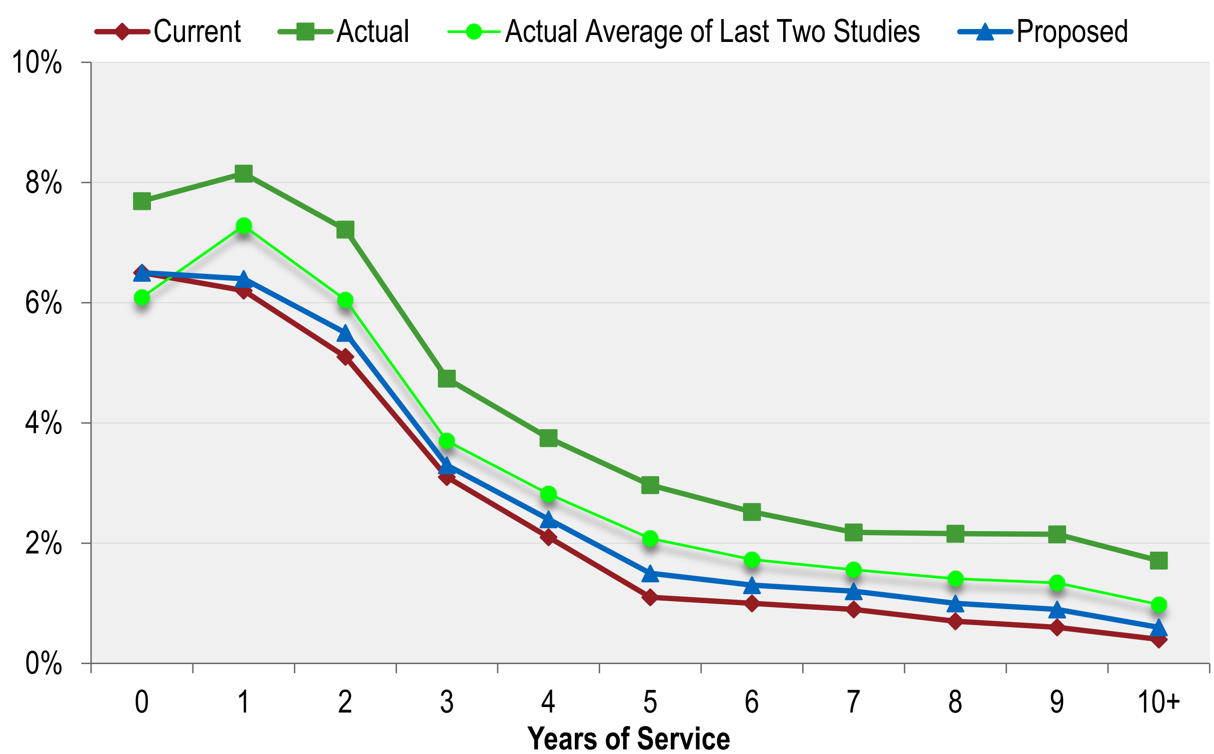
Based on this experience, we are proposing increases overall in the promotional and merit salary increases. The recommended promotional and merit salary increases range from 6.50% to 0.60%. When combined with the recommended inflation and real "across the board" pay increase assumptions herein, the recommended promotional and merit salary increases result in a slight reduction in the total salary increases, based on the demographics of active members as of June 30, 2017.

Active Member Payroll

Projected active member payrolls are used to develop the UAAL contribution rate. Future values are determined as a product of the number of employees in the workforce and the average pay for all employees. The average pay for all employees increases only by inflation and real "across the board" pay increases. The merit and promotional increases are not an influence, because this average pay is not specific to an individual.

We recommend that the active member payroll increase assumption be decreased from 3.50% to 3.25% annually, consistent with the recommended inflation plus real "across the board" salary increase assumptions.

CHART 1: PROMOTIONAL AND MERIT SALARY INCREASE RATES



IV. Demographic Assumptions

A. Retirement Rates

The age at which a member retires from service (i.e., who did not retire on a disability pension) will affect both the amount of the benefits that will be paid to that member as well as the period over which funding must take place.

Tier 1

The following table shows the observed retirement rates based on the actual experience during Fiscal Years 2014/2015, 2015/2016 and 2016/2017, for Tier 1 only. Also shown are the current assumed rates, plus the rates we propose to the Board.

Based on the observed experience, the proposed retirement rates for Tier 1 have been increased from the current rates to reflect earlier retirements.

	Rate of Retirement (%)					
	Current Rate of Retirement		Actual Rate of Retirement		Proposed Rate of Retirement	
Age	Non-55/30	55/30	Non-55/30	55/30	Non-55/30	55/30
50	6.0	0.0	6.4	0.0	6.0	0.0
51	3.0	0.0	1.5	0.0	3.0	0.0
52	3.0	0.0	2.2	0.0	3.0	0.0
53	3.0	0.0	2.8	0.0	3.0	0.0
54	16.0	0.0	18.8	0.0	17.0	0.0
55	6.0	20.0	6.1	28.2	6.0	24.0
56	6.0	14.0	5.5	17.7	6.0	16.0
57	6.0	14.0	5.6	16.9	6.0	16.0
58	6.0	14.0	4.9	18.5	6.0	16.0
59	6.0	14.0	5.5	20.3	6.0	16.0
60	6.0	14.0	7.6	16.1	7.0	16.0
61	6.0	14.0	6.7	10.0	7.0	16.0
62	7.0	15.0	9.4	15.8	7.0	16.0
63	7.0	15.0	8.1	17.0	7.0	16.0
64	7.0	16.0	5.5	18.5	7.0	16.0
65	12.0	17.0	12.9	31.3	13.0	20.0
+66	12.0	17.0	12.6	23.8	13.0	20.0
67	12.0	17.0	14.3	20.8	13.0	20.0
68	12.0	17.0	16.0	11.6	13.0	20.0
69	12.0	17.0	18.7	19.6	13.0	20.0
70	100.0	100.0	12.5	16.9	100.0	100.0

Tier 3

Adjustments have been made to the rates for Tier 3 even though there have been no retirements from Tier 3. The rates for this tier were initially developed based, in part, on the benefit level comparisons to Tier 1, and the Tier 1 retirement rates have been changed significantly enough in this report to warrant a change to the Tier 3 rates. The proposed rates are as follows:

	Rate of Retirement (%)			
	Current Rate of Retirement		Proposed Rate of Retirement	
Age	Non-55/30	55/30	Non-55/30	55/30
50	6.0	0.0	6.0	0.0
51	3.0	0.0	3.0	0.0
52	3.0	0.0	3.0	0.0
53	3.0	0.0	3.0	0.0
54	15.0	0.0	16.0	0.0
55	0.0(1)	19.0	0.0(1)	23.0
56	0.0(1)	13.0	0.0(1)	15.0
57	0.0(1)	13.0	0.0(1)	15.0
58	0.0(1)	13.0	0.0(1)	15.0
59	0.0(1)	13.0	0.0(1)	15.0
60	5.0	13.0	6.0	15.0
61	5.0	13.0	6.0	15.0
62	6.0	14.0	6.0	15.0
63	6.0	14.0	6.0	15.0
64	6.0	15.0	6.0	15.0
65	11.0	16.0	12.0	19.0
66	11.0	16.0	12.0	19.0
67	11.0	16.0	12.0	19.0
68	11.0	16.0	12.0	19.0
69	11.0	16.0	12.0	19.0
70	100.0	100.0	100.0	100.0

(1) *Not eligible to retire under the provisions of the Tier 3 plan.*

Chart 2 compares actual experience with the current and proposed rates of retirement, for Tier 1 members with less than 30 years of service or less than age 55.

Chart 3 compares actual experience with the current and proposed rates of retirement for Tier 1 members with at least 30 years of service and at least age 55.

Deferred Vested Members

In prior valuations, inactive vested members were assumed to retire at age 58. The average age at retirement over the current three-year experience study period was 59.0, while the average age for the prior three-year experience study period was 59.5. We recommend increasing the assumed retirement age for inactive vested participants from 58 to 59.

Reciprocity

Based on data available from current inactive vested participants, there is a much lower incidence of members who went to work for a reciprocal system when compared to that observed at our other California public retirement systems. We have observed that, at the end of the experience study period as of June 30, 2017, about 4% of the inactive vested membership has worked for a reciprocal system. Therefore, we recommend maintaining the reciprocity assumption of 5% for the June 30, 2018 valuation. We will continue to monitor this assumption in future valuations.

For reciprocal members, we recommend lowering the compensation increase assumption slightly from 3.90% to 3.85% per annum, consistent with the recommended salary increase assumptions for active members discussed earlier, and reflecting the recommended promotional and merit increase assumption for members with 10 or more years of service.

Survivor Continuance under the Unmodified Option

In prior Retirement Plan valuations, it was assumed that 76% of all active male members and 50% of all active female members would be married or have a domestic partner eligible for the 50% automatic retirement continuance benefit when they retired from Tier 1. According to the experience of members who retired during the last three years, about 77% of all male members and 51% of all female members were married at retirement. We recommend maintaining the current marriage/domestic partner assumptions for Tier 1 and using the same assumption for Tier 3.

Observed experience for members who retired during the last three years indicates that female spouses were about two years younger than their male-member spouses, and male spouses were about three years older than their female-member spouses, on average. On this basis, we recommend maintaining the current assumption that female spouses are two years younger than their male-member spouses and decreasing the current assumption that male spouses are four years older than their female-member spouses to a three-year age difference. Spouses are assumed to be of the opposite sex to the member.

CHART 2: RETIREMENT RATES – TIER 1
"NON-55/30"

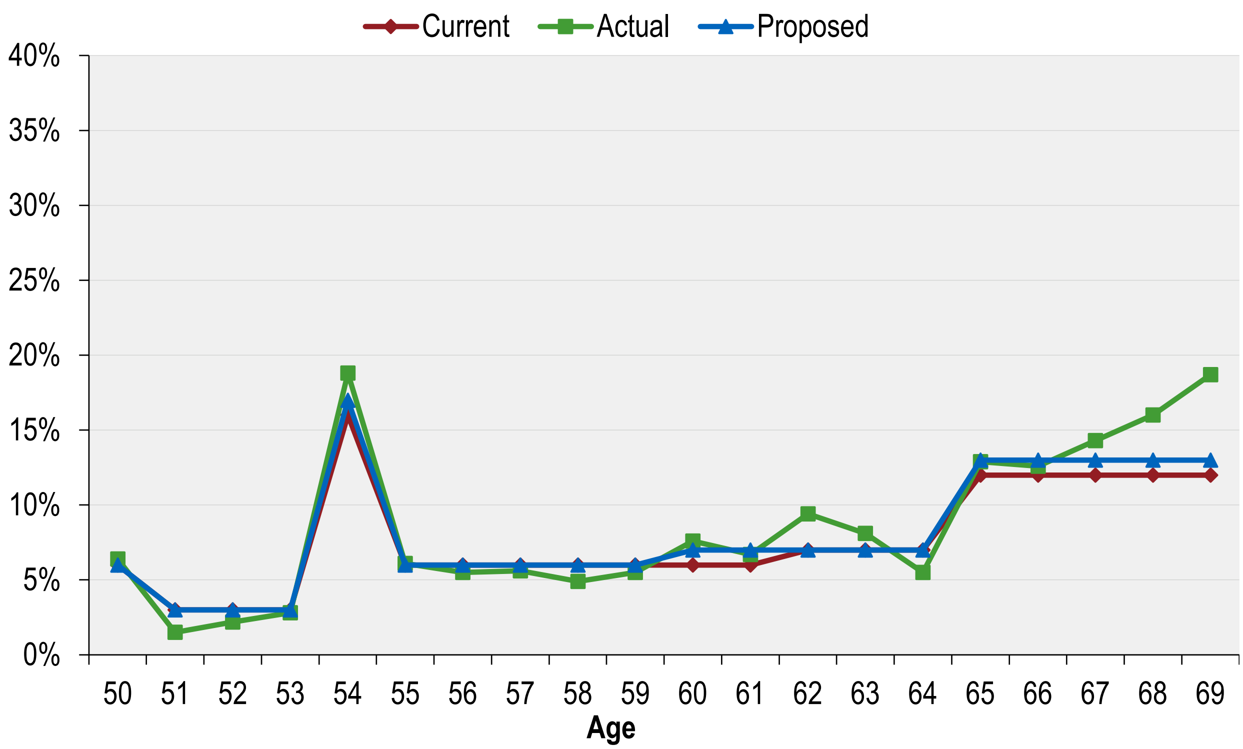
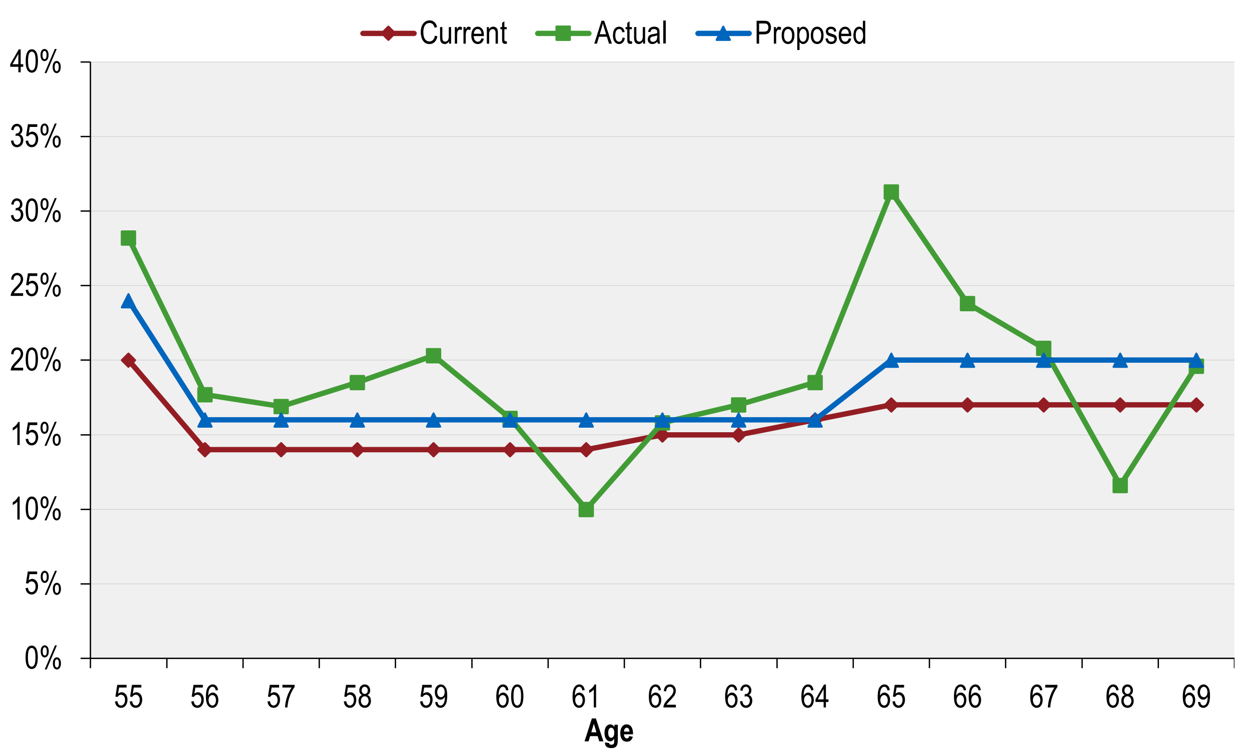


CHART 3: RETIREMENT RATES – TIER 1
"55/30"



B. Mortality Rates - Healthy

The “healthy” mortality rates project the life expectancy of a member who retires from service (i.e., who did not retire on a disability pension). Also, the “healthy” pre-retirement mortality rates project what proportion of members will die before retirement. The table currently being used for post-service retirement mortality rates is the RP-2000 Combined Healthy Mortality Table projected statically with Scale BB to 2020, set back one year for males and with no setback for females. Beneficiaries are assumed to have the same mortality of a member of the opposite sex who has taken a service (non-disabled) retirement.

The Society of Actuaries (SOA) has published the RP-2014 family of mortality tables and associated mortality improvement scales. Within that family of mortality tables, there are mortality rates developed for annuitants on a “headcount” weighted basis that weight all retirees at the same age the same way without regard to the level of benefits those annuitants are receiving from a retirement plan. Mortality rates are also developed for annuitants on a “benefit” weighted basis, with higher credibility assigned to experience from annuitants receiving larger benefits. However, we note that the RP-2014 benefit-weighted mortality table was prepared without any data from public and multi-employer pension plans. As a result, the headcount-weighted basis is the approach currently used by Segal for its California public system clients (including LACERS).

The SOA is in the process of collecting data from public sector plans so that they can develop mortality tables based on public sector experience comparable to the RP-2014 mortality tables developed using data collected from private and multi-employer plans. It is our understanding that those mortality tables will be available in 2018/2019. We will include a discussion with the Board on whether to consider the benefit-weighted mortality rates in the next experience study after those public sector experience mortality tables become available.

As for the mortality improvement scales, they can be applied in one of two ways. Historically, the more common application has been to use a “static” approach to anticipate a fixed level of mortality improvement for all annuitants receiving benefits from a retirement plan. This is in contrast to a “generational” approach where each future year has its own mortality table that reflects the forecasted improvements, using the published improvement scales. While the static approach is still used by some of Segal’s California public system clients, as well as CalPERS, the “generational” approach is the emerging practice within the actuarial profession.

A generational mortality table provides dynamic projections of mortality experience for each cohort of retirees. For example, the mortality rate for someone who is 65 next year will be slightly less than for someone who is 65 this year. In general, using generational mortality anticipates increases in the cost of the Plan over time as participants’ life expectancies are projected to increase. This is in contrast to updating a static mortality assumption with each experience study as we have proposed in prior experience studies.

We understand that the Retirement Plans Experience Committee of the Society of Actuaries (RPEC) intends to publish annual updates to their mortality improvement scales. Improvement scale MP-2017 is the latest improvement scale available. We recommend that given the trend in the retirement industry to move towards generational mortality, it would be reasonable for the Board to adopt the Headcount-Weighted RP-2014 mortality table (adjusted for LACERS’ experience), and project the mortality improvement generationally using the MP-2017 mortality improvement scale.

As an illustration of the relative impact of these approaches, we have provided in the table below the approximate change in the total employer contribution rate for the Retirement Plan only based on the different approaches to build in margin for future mortality improvements.

	Employer Contribution Rate Impact
Headcount Weighted RP-2014 Family of Tables – Static Approach With Increased Margin[30]	1.70% of payroll
Benefit Weighted RP-2014 Family of Tables – Static Approach Without Increased Margin	1.80% of payroll
Headcount Weighted RP-2014 Family of Tables – Generational Approach	**1.76% of payroll**
Benefit Weighted RP-2014 Family of Tables – Generational Approach	3.12% of payroll

In order to provide more credibility to our analysis, we have used experience for a six-year period by using data from the current (from July 1, 2014 to June 30, 2017) and the last demographic experience study (from July 1, 2011 to June 30, 2014) to analyze this assumption.

Pre-Retirement Mortality

In prior experience studies, the pre-retirement mortality rates for active members were set equal to the post-retirement mortality rates for retirees since the actual number of deaths among active members was generally not large enough to provide a statistically creditable analysis. However, this approach is not compatible with our current proposal because the post-retirement RP-2014 Healthy Annuitant tables do not include rates for ages below 50.

From the RP-2014 family of tables, we recommend that pre-retirement mortality follow the Headcount-Weighted RP-2014 Employee Mortality Table (separate tables for males and females) times 90%, projected generationally with the two-dimensional improvement scale MP-2017. The 90% scaling factor is to account for the lower incidences of observed pre-retirement death on the workforce relative to the standard table.

Post-Retirement Mortality (Service Retirements)

Our analysis starts with a table that shows, among all retired members, the actual deaths compared to the expected deaths under the current assumptions for the last six years. We also show the deaths under proposed assumptions. In prior years we have generally set the mortality assumption using a static mortality improvement projection so that actual deaths will be at least 10% greater than those assumed. As noted above, we are recommending the use of a generational mortality table rather than static approach. A generational mortality table incorporates a more explicit assumption for future mortality improvement. Accordingly, the goal is to start with a mortality table that closely matches the current experience (without a margin for

30 Includes an increased margin of 20% instead of a margin of 10% that we have used in our experience studies in the past.

future mortality improvement), and then reflect mortality improvement by projecting lower mortality rates in future years. That is why the current actual to expected ratio shown in the table below for healthy pensioners and all beneficiaries is 101%. In future years, these ratios would remain around 101%, as long as actual mortality improves at the same rate as anticipated in the generational mortality improvement scale. The actual deaths compared to the expected deaths under the current and proposed assumptions for the last six years are as follows:

	Healthy Pensioners		
	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths
Male	1,673	1,929	1,931
Female	590	575	624
Total	**2,263**	**2,504**	**2,555**
Actual / Expected	111%		98%

The experience from the last six years including healthy retirees and all beneficiaries is as follows:

	Healthy Pensioners and All Beneficiaries		
	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths
Male	1,742	2,020	2,011
Female	1,581	1,672	1,657
Total	**3,323**	**3,692**	**3,668**
Actual / Expected	111%		101%

The ratio of actual to current expected deaths was 111%. We recommend updating the current table to the Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females) projected generationally with the two-dimensional mortality improvement scale MP-2017. These changes will bring the actual to expected ratio to 101%.

All of this is consistent with ASOP 35 as we anticipate expected future improvement in life expectancy using the generational approach.

Chart 4 compares actual to expected deaths under the current and proposed assumptions over the past six years. Experience shows that there were more deaths than predicted by the current table.

Chart 5 shows the life expectancies (i.e., expected future lifetime) under the current and the proposed tables.

The expected deaths and life expectancies under the proposed generational mortality table are based on mortality rates from 2014, which is the base year of the table. In practice, life expectancies will be increased after applying the mortality improvement scale.

CHART 4: POST-RETIREMENT DEATHS
HEALTHY PENSIONERS AND ALL BENEFICIARIES
(JULY 1, 2011 THROUGH JUNE 30, 2017)

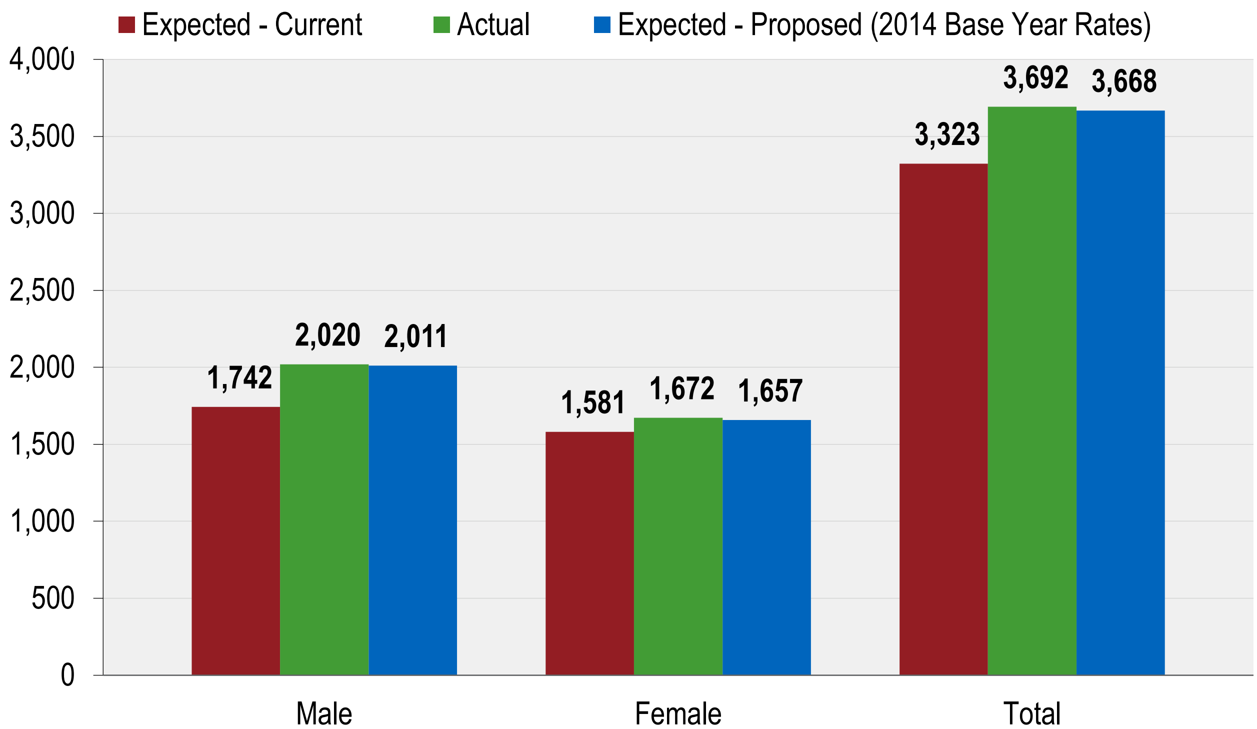
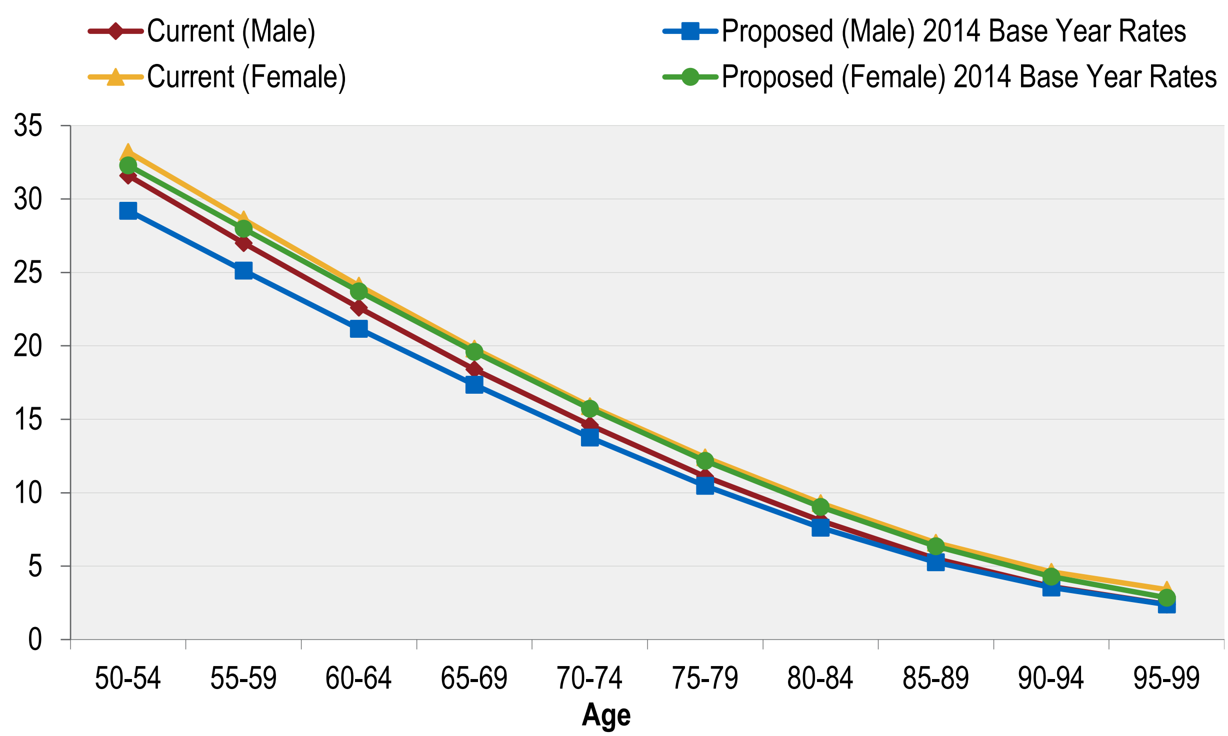


CHART 5: LIFE EXPECTANCIES
HEALTHY PENSIONERS AND ALL BENEFICIARIES



Post-Service Retirement Mortality for Determining Actuarial Equivalences

For purposes of determining actuarial equivalences, such as for determining optional forms of benefits, the System is currently using the following mortality tables:

Service Retirement

- Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females, weighted 60% male and 40% female

- Beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females, weighted 40% male and 60% female

Disability Retirement

- Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward seven years for males and set forward eight years for females, weighted 60% male and 40% female

- Beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females, weighted 40% male and 60% female

In prior experience studies, for determining actuarial equivalences, our recommendation for mortality tables was based on the post-retirement mortality we recommended for service retirement and disability retirement with a static scale to anticipate future mortality improvement. However, given that our current recommendation for post-retirement mortality now includes a generational mortality improvement scale, there are some administrative issues that we may need to resolve with LACERS and its vendor maintaining the pension administration software before we would recommend a comparable generational scale to anticipate future mortality improvement. We will provide a recommendation to LACERS for use in reflecting mortality improvement for determining actuarial equivalences after we have those discussions with LACERS and its vendor.

Recommended Introduction of an Assumption to Reflect COLA Benefits when a Member Elects an Optional Form of Benefit

Based on current practice, the investment return and mortality assumptions approved for this experience study will be used effective July 1, 2019 to determine the benefits payable under an optional form of benefit. For instance, a married member may choose an actuarially reduced benefit so that he/she can provide a larger continuance (such as 100%) instead of the 50% continuance payable by LACERS under the unmodified option.

Under current practice, we understand that the benefits calculated under an optional form do not include an assumption to reflect the plan's provision that provides a cost-of-living adjustment benefit. This means that the unmodified retirement allowance and the optional form of benefit are only actuarially equivalent assuming no COLA benefits are paid under either form. As far as we know, this has always been the practice for LACERS. We understand that it is the current practice for most of the retirement systems covered under California's 1937 Act County Employees Retirement Law.[31]

The current practice of excluding the COLA assumption in calculating benefit amounts under optional forms of payment results in higher benefit amounts payable under an optional retirement allowance as compared to the benefit amount that would result if the COLA assumption were included. This is because the value of the future COLAs expected to be paid over both the lives of the member and the beneficiary are proportionately greater than the value of the future COLAs expected to be paid over just the member's life. Since members (and their survivors) actually do receive COLAs, this policy results in a slight subsidy to members whenever they elect an optional retirement allowance.

For the annual actuarial valuation, the current practice of excluding the COLA assumption in the optional forms of benefit calculations means that there would be a small actuarial loss when a member retires and elects one of the optional forms and starts collecting COLA benefits. For the valuation, these actuarial losses are currently being recognized as they occur.

It should be noted that absent any contrary legal guidance based on the length of time the current practice has been in place, if the Board wants to eliminate these specific losses related to COLAs and optional forms of payment, then the most direct way would be to include a COLA assumption in the optional form calculations that matches the COLA assumption used in the actuarial valuation.

[31] It is our general observation that there are far fewer participants in the 1937 Act counties electing an optional form of benefit. This is because those participants would generally have to forfeit the value of the 60% automatic continuance provided to their spouse/domestic partner.

C. Mortality Rates - Disabled

Since mortality rates for disabled members can vary from those of healthy members, a different mortality assumption is often used. The table currently being used is the RP-2000 Combined Healthy Mortality Table (separate tables for males and females) projected statically with Scale BB to 2020, set forward seven years for males and set forward eight years for females.

The number of actual deaths compared to the number expected under the current and proposed assumption for the last six years are as provided in the table below.

	Disabled Pensioners		
	Current Expected Deaths	**Actual Deaths**	**Proposed Expected Deaths**
Male	136	142	150
Female	46	52	47
Total	**182**	**194**	**197**
Actual / Expected	107%		98%

Based on the actual experience, we recommend changing the mortality table for disabled members to the Headcount-Weighted RP-2014 Disabled Retiree Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2017. This will bring the actual to expected ratio to 98%.

Chart 6 compares actual to expected deaths under both the current and proposed assumptions for disabled members over the last six years. Experience shows that there were more deaths than predicted by the current table.

Chart 7 shows the life expectancies under both the current and proposed tables for disabled members.

CHART 6: POST-RETIREMENT DEATHS
DISABLED MEMBERS
(JULY 1, 2011 THROUGH JUNE 30, 2017)

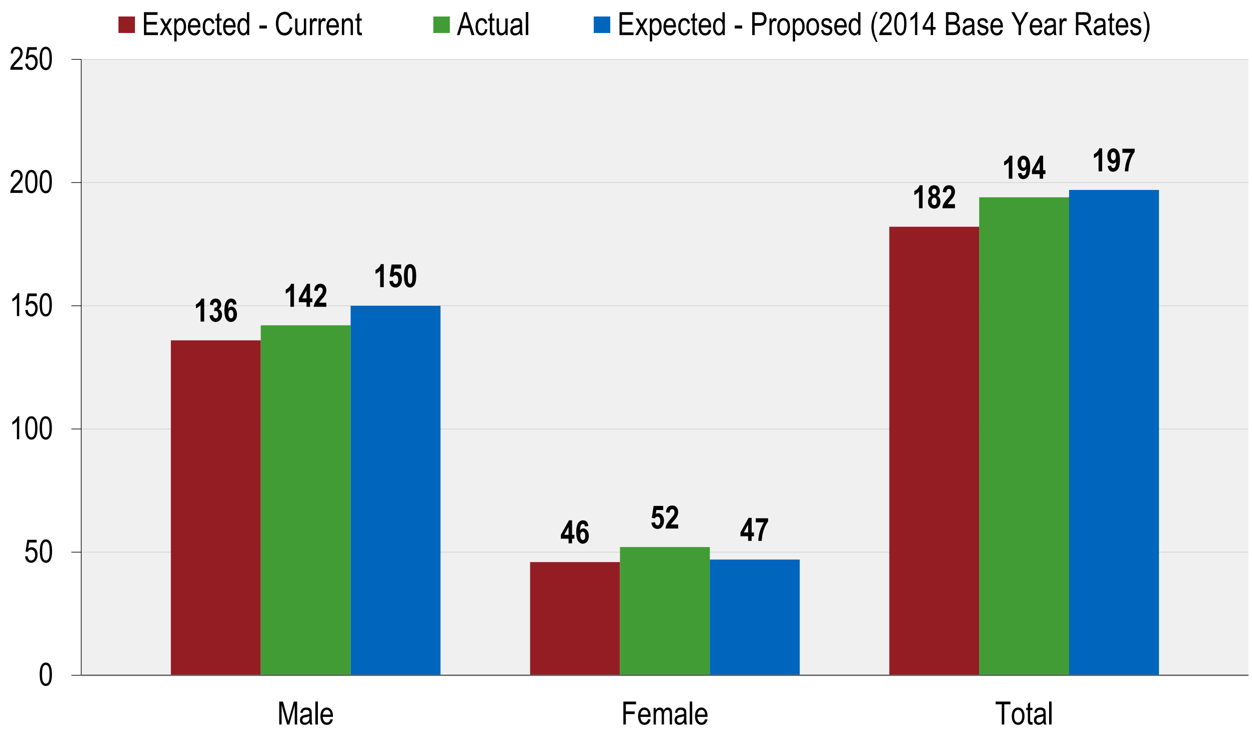
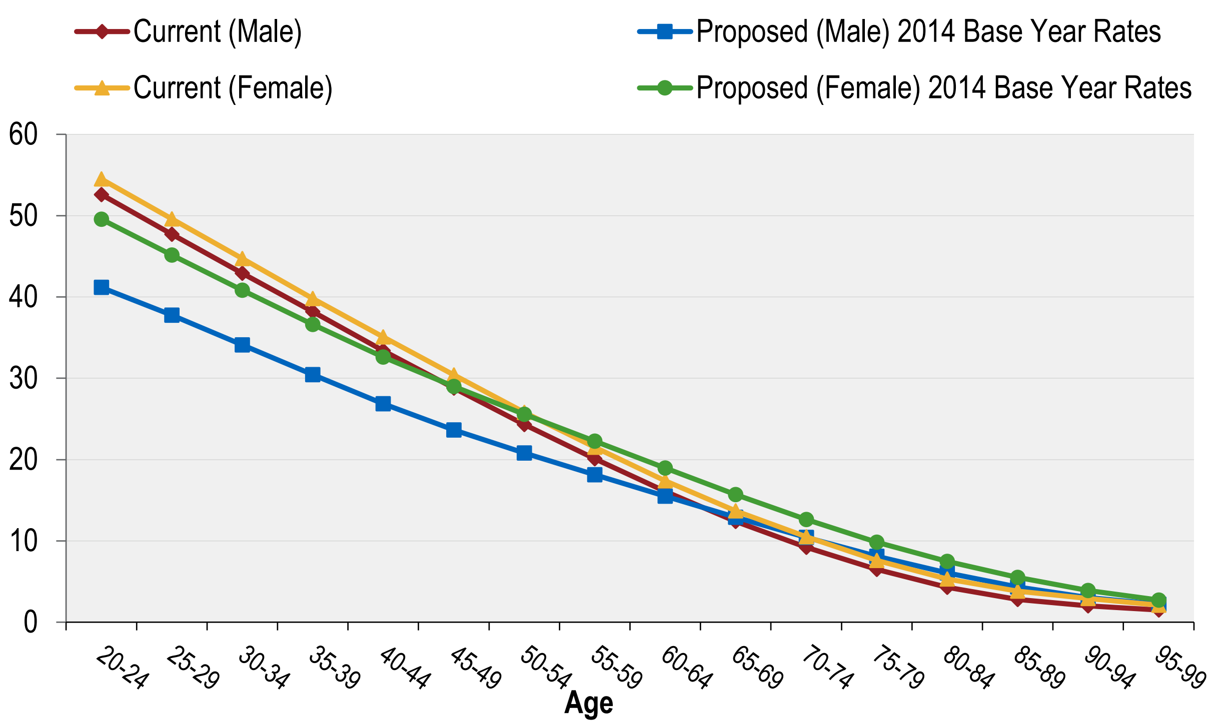


CHART 7: LIFE EXPECTANCIES
DISABLED MEMBERS



D. Termination Rates

Termination rates include all terminations for reasons other than death, disability, or retirement. Under the current assumptions all members who terminate with less the five years of service are assumed to receive a refund of contributions. For members who terminate with over five years of service, the member is assumed to choose between a refund of contributions or a deferred vested benefit, whichever option is more valuable.

The termination experience over Fiscal Years 2014/2015, 2015/2016, and 2016/2017 between those members with under five years of service and those with five or more years of service is shown below:

Rates of Termination – Under Five Years of Service

	Termination Rate (%)		
Years of Service	**Current Rate**	**Actual Rate**	**Proposed Rate**
Less than 1	13.25	10.84	12.00
1	11.00	9.28	10.00
2	8.75	9.43	9.00
3	7.25	9.35	8.25
4	5.75	9.99	7.75

Rates of Termination – Five or More Years of Service

	Termination Rate (%)*		
Age	**Current Rate**	**Actual Rate**	**Proposed Rate**
20 – 24	5.75	0.00	7.00
25 – 29	5.75	10.92	7.00
30 – 34	5.75	7.55	7.00
35 – 39	4.25	5.02	4.50
40 – 44	3.00	3.76	3.50
45 – 49	2.50	2.70	3.00
50 – 54	2.50	2.29	2.50
55 – 59	2.25	10.87	2.50
60 – 64	2.25	10.20	2.50

** At central age in age range shown.*

Chart 8 compares actual to expected terminations of the past three years for both the current and proposed assumptions.

Chart 9 shows the current and proposed termination rates for members with less than five years of service. Chart 10 shows the current and proposed termination rates for members with five or more years of service.

Based upon the recent experience, the proposed termination rates have been increased at most service and age categories.

Note that we have also studied termination rates based on service only rather than the current structure of age-based rates after five years of service (and service-based rates before then), and we have determined that either basis is reasonable. We propose that the current structure of age-based rates after five years of service be retained for the June 30, 2018 valuation, but we will continue to monitor this assumption in the future.

We continue to assume that members who terminate with over five years of service will choose between a refund of contributions and a deferred vested benefit, whichever is more valuable. We also continue to assume that all termination rates are zero for all members eligible and assumed to retire, that is, members eligible to retire at termination will retire rather than defer their benefit.

As we note in the next Subsection E regarding disability incidence rates, the observed disability experience includes members who went from inactive (i.e., terminated) status to disability status. In order to remove the effect of double counting members as both terminations one year and disabilities a subsequent year, we have removed an equal number of inactive to disability records over the experience study period from the active to termination experience herein.

CHART 8: ACTUAL NUMBER OF TERMINATIONS COMPARED TO EXPECTED

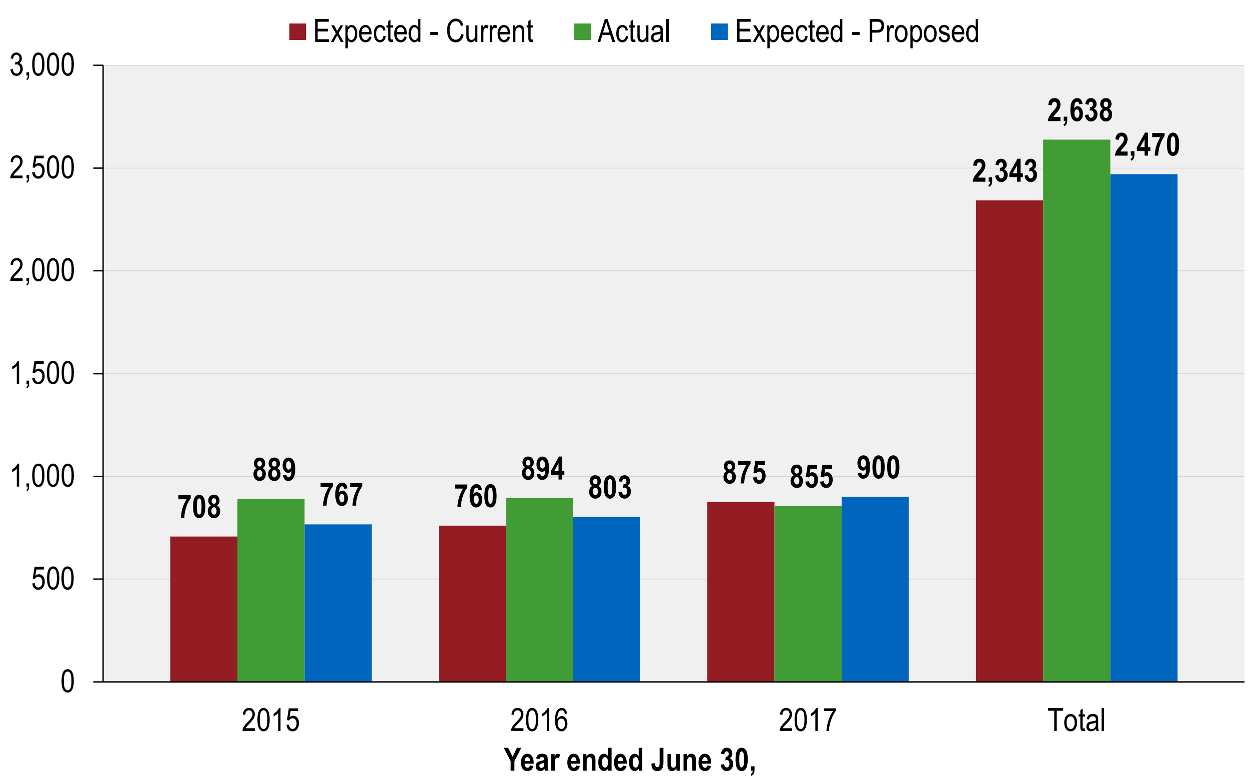


CHART 9: TERMINATION RATES
(UNDER FIVE YEARS OF SERVICE)

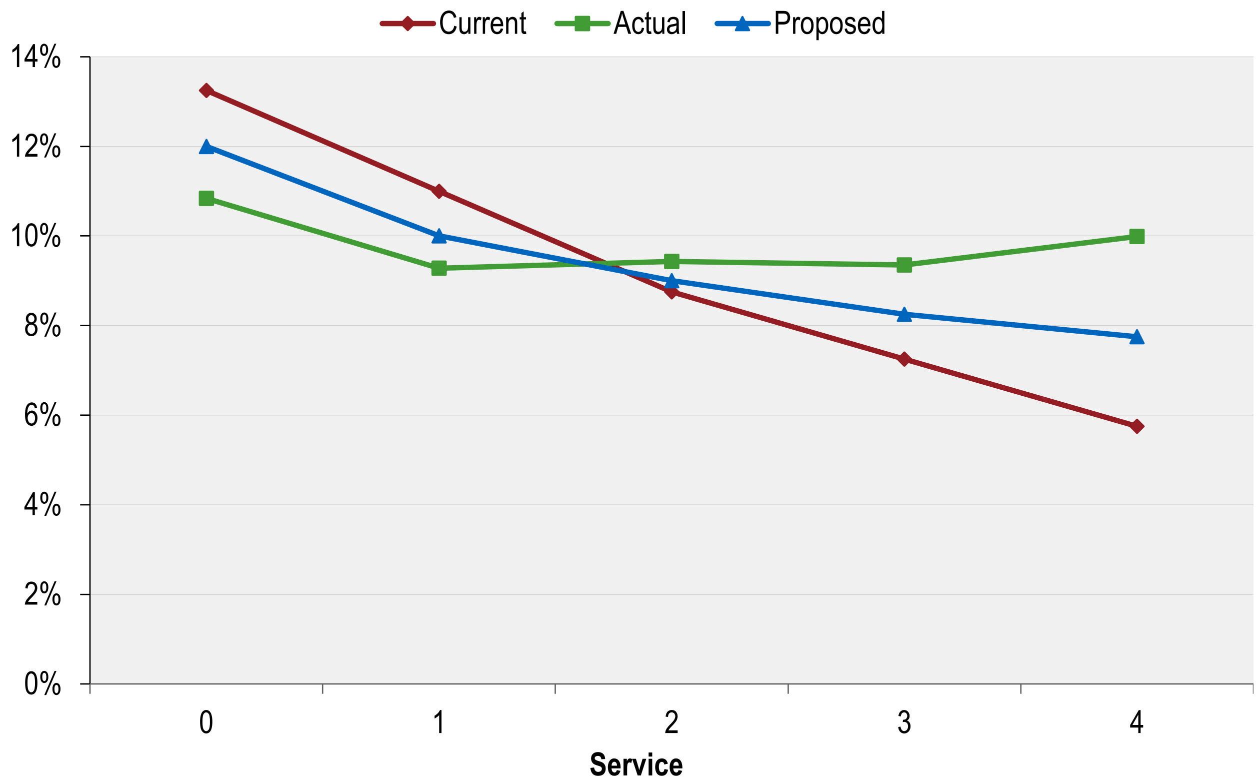
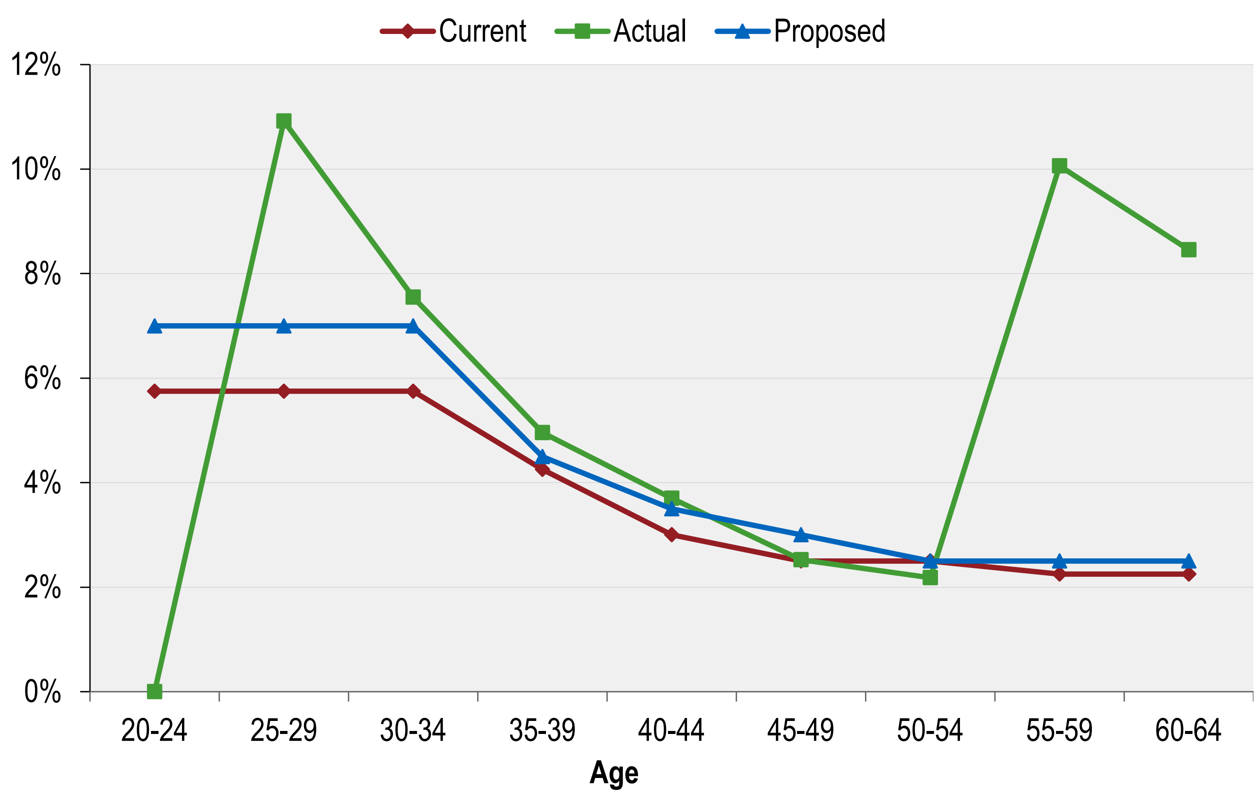


CHART 10: TERMINATION RATES
(FIVE OR MORE YEARS OF SERVICE)



E. Disability Incidence Rates

When a member becomes disabled, he or she is generally entitled to a monthly benefit equal to 1/3 of their final average monthly compensation. The following summarizes the actual incidence of Tier 1 disabilities over the past three years compared to the current and proposed assumptions:[32]

Rates of Disability Incidence

	Disability Incidence Rate* (%)		
Age	**Current Rate**	**Observed Rate**	**Proposed Rate**
20 – 24	0.00	0.00	0.00
25 – 29	0.01	0.00	0.01
30 – 34	0.04	0.00	0.03
35 – 39	0.06	0.06	0.06
40 – 44	0.11	0.05	0.08
45 – 49	0.17	0.18	0.17
50 – 54	0.20	0.10	0.20
55 – 59	0.20	0.15	0.20
60 – 64	0.20	0.32	0.20
65 – 69	0.20	0.43	0.20

* *At central age in age range shown.*

Proposed rates for age ranges after 45-49 have been developed, in part, by aggregating experience for ages 50-69.

Chart 11 compares the actual number of disabilities over the past three years to that expected under both the current and proposed assumptions. The proposed disability rates were lowered slightly, since the observed experience over the past three years was lower than the expected experience.

Chart 12 shows actual disablement rates, compared to the assumed and proposed rates for all members.

32 The Tier 1 experience shown above reflects actual disabilities from the prior years' status of mostly inactive membership. Note that there was no disability experience for Tier 3 members over the experience study period.

CHART 11: ACTUAL NUMBER OF DISABILITIES COMPARED TO EXPECTED

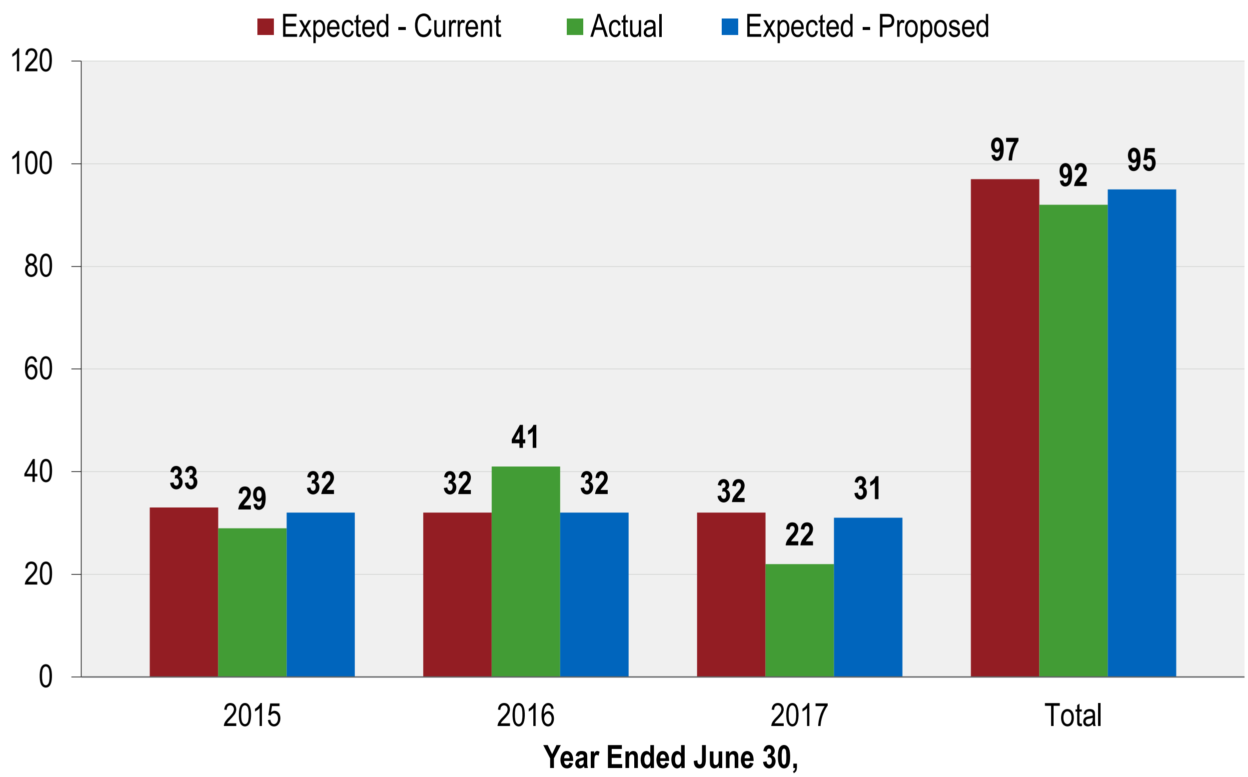
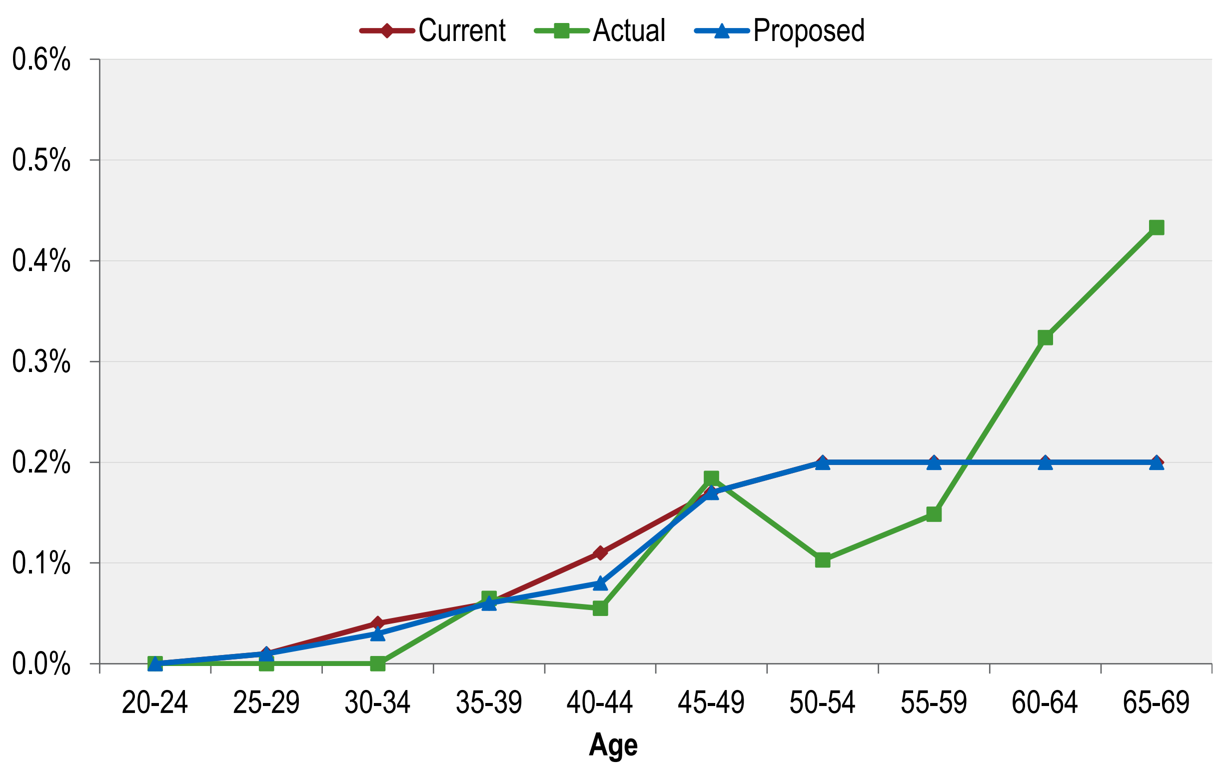


CHART 12: DISABILITY INCIDENCE RATES



V. Cost Impact

Retirement Plan

The table below shows the changes in the total normal cost and actuarial accrued liability for the Retirement Plan due to the proposed assumption changes, as if they were applied in the June 30, 2017 actuarial valuation. If all of the proposed assumption changes were implemented, the total normal cost for the Retirement Plan would have increased by about $13.8 million and the actuarial accrued liability would have increased by about $513.5 million. The funded percentage would have decreased from 71.40% to 69.46%.

	Change in Plan Liabilities as of June 30, 2017		
	Current Assumptions	Recommended Assumptions	Increase / (Decrease)
Total Normal Cost	$352,282,612	$366,080,573	$13,797,961
Actuarial Accrued Liability	$18,458,187,953	$18,971,707,930	$513,519,977

If all of the proposed assumption changes were implemented, the aggregate beginning-of-the year employer contribution rate would have increased by 2.42% of payroll under the recommended assumptions.

	Employer Contribution Rate Impact (% of Payroll at Beginning of the Year)
Contributions	Recommended Assumptions
Normal Cost	0.68%
UAAL	1.74%
Total	**2.42%**

Health Plan

The table below shows the changes in the total normal cost and actuarial accrued liability for the Health Plan due to the proposed assumption changes, as if they were applied in the June 30, 2017 actuarial valuation. If all of the proposed assumption changes were implemented, the total normal cost for the Health Plan would have increased by about $8.6 million and the actuarial accrued liability would have increased by about $188.8 million. The funded percentage would have decreased from 81.12% to 76.33%.

	Change in Plan Liabilities as of June 30, 2017		
	Current Assumptions	Recommended Assumptions	Increase / (Decrease)
Total Normal Cost	$74,610,881	$83,240,895	$8,630,014
Actuarial Accrued Liability	$3,005,806,234	$3,194,589,163	$188,782,929

If all of the proposed assumption changes were implemented, the aggregate beginning-of-the year employer contribution rate would have increased by 0.98% of payroll under the recommended assumptions.

	Employer Contribution Rate Impact (% of Payroll at Beginning of the Year)
Contributions	**Recommended Assumptions**
Normal Cost	0.43%
UAAL	0.55%
Total	**0.98%**

Appendix A: Current Actuarial Assumptions

Economic Assumptions

Net Investment Return:	7.25%, net of investment and administrative expenses.
Consumer Price Index:	Increase of 3.00% per year; benefit increases due to CPI subject to 3.00% maximum for Tier 1 and 2.00% maximum for Tier 3.
Employee Contribution Crediting Rate:	Based on average of 5-year Treasury note rate. An assumption of 3.00% is used to approximate that crediting rate.
Payroll Growth:	Inflation of 3.00% per year plus "across the board" real salary increases of 0.50% per year.
Increases in Internal Revenue Code Section 401(a)(17) Compensation Limit:	Increase of 3.00% per year from the valuation date.

Individual Salary Increases

Annual Rate of Compensation Increase (%) **Inflation:** 3.00% per year; plus "across the board" real salary increases of 0.50% per year; plus the following promotional and merit increases:	
Years of Service	**Percentage Increase**
Less than 1	6.50
1	6.20
2	5.10
3	3.10
4	2.10
5	1.10
6	1.00
7	0.90
8	0.70
9	0.60
10 and Over	0.40

Appendix A: Current Actuarial Assumptions

Demographic Assumptions

Mortality Rates – Healthy

- RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.

Mortality Rates – Disabled

- RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward seven years for males and set forward eight years for females.

Mortality Rates – Beneficiaries

- RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.

Mortality Rates Before Retirement

- RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.

The above mortality tables contain about a 10% margin, based on actual to expected deaths, as a provision to reflect future mortality improvement, based on a review of mortality experience as of the measurement date.

Disability Incidence Rates

	Rate (%)
Age	**Disability Rate**
25	0.01
30	0.03
35	0.05
40	0.09
45	0.15
50	0.19
55	0.20
60	0.20

Appendix A: Current Actuarial Assumptions

Termination Rates

	Rate (%)
Years of Service	**Less than 5 Years of Service**
Less than 1	13.25
1	11.00
2	8.75
3	7.25
4	5.75

	Rate (%)
Age	**5 of More Years of Service***
25	5.75
30	5.75
35	4.85
40	3.50
45	2.70
50	2.50
55	2.35
60	2.25

* *Termination rates are zero for members eligible and assumed to retire.*

Appendix A: Current Actuarial Assumptions

Retirement Rates

	Rate (%)			
	Tier 1		Tier 3	
Age	Non-55/30	55/30	Non-55/30	55/30
50	6.0	0.0	6.0	0.0
51	3.0	0.0	3.0	0.0
52	3.0	0.0	3.0	0.0
53	3.0	0.0	3.0	0.0
54	16.0	0.0	15.0	0.0
55	6.0	20.0	0.0(1)	19.0
56	6.0	14.0	0.0(1)	13.0
57	6.0	14.0	0.0(1)	13.0
58	6.0	14.0	0.0(1)	13.0
59	6.0	14.0	0.0(1)	13.0
60	6.0	14.0	5.0	13.0
61	6.0	14.0	5.0	13.0
62	7.0	15.0	6.0	14.0
63	7.0	15.0	6.0	14.0
64	7.0	16.0	6.0	15.0
65	12.0	17.0	11.0	16.0
66	12.0	17.0	11.0	16.0
67	12.0	17.0	11.0	16.0
68	12.0	17.0	11.0	16.0
69	12.0	17.0	11.0	16.0
70	100.0	100.0	100.0	100.0

(1) *Not eligible to retire under the provisions of the Tier 3 plan.*

Retirement Age and Benefit for Inactive Vested Participants:	Pension benefit paid at the later of age 58 or the current attained age. For reciprocals, 3.90% compensation increases per annum.
Exclusion of Inactive Members:	All inactive participants are included in the valuation.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Percent Married/Domestic Partner:	76% of male members; 50% of female members.

Appendix A: Current Actuarial Assumptions

Age of Spouse:	Male retirees are assumed to be 4 years older than their female spouses. Female retirees are assumed to be 2 years younger than their male spouses.
Benefit Election:	Married participants are assumed to elect the 50% Joint and Survivor Cash Refund Annuity and non-married participants are assumed to elect the Single Life Cash Refund Annuity.
Service:	Employment service is used for eligibility determination purposes. Benefit service is used for benefit calculation purposes.
Future Benefit Accruals:	1.0 year of service per year.
Other Reciprocal Service:	5% of future inactive vested members are assumed to work at a reciprocal system.

Appendix B: Proposed Actuarial Assumptions

Economic Assumptions

Net Investment Return:	7.00%, net of investment and administrative expenses.
Consumer Price Index:	Increase of 2.75% per year; benefit increases due to CPI subject to 3.00% maximum for Tier 1 and 2.00% maximum for Tier 3.
Employee Contribution Crediting Rate:	Based on average of 5-year Treasury note rate. An assumption of 2.75% is used to approximate that crediting rate.
Payroll Growth:	Inflation of 2.75% per year plus "across the board" real salary increases of 0.50% per year.
Increases in Internal Revenue Code Section 401(a)(17) Compensation Limit:	Increase of 2.75% per year from the valuation date.

Individual Salary Increases

Annual Rate of Compensation Increase (%) **Inflation:** 2.75% per year; plus "across the board" real salary increases of 0.50% per year; plus the following promotional and merit increases:	
Years of Service	**Percentage Increase**
Less than 1	6.50
1	6.40
2	5.50
3	3.30
4	2.40
5	1.50
6	1.30
7	1.20
8	1.00
9	0.90
10 and Over	0.60

Appendix B: Proposed Actuarial Assumptions

Demographic Assumptions

Mortality Rates – Healthy

- Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females) projected generationally with the two-dimensional mortality improvement scale MP-2017.

Mortality Rates – Disabled

- Headcount-Weighted RP-2014 Disabled Retiree Mortality Table (separate tables for males and females) projected generationally with two-dimensional mortality improvement scale MP-2017.

Mortality Rates – Beneficiaries

- Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females) projected generationally with the two-dimensional mortality improvement scale MP-2017.

Mortality Rates Before Retirement

- Headcount-Weighted RP-2014 Employee Mortality Table (separate tables for males and females) times 90%, projected generationally with the two-dimensional improvement scale MP-2017.

The RP-2014 mortality tables and adjustments as shown above reflect the mortality experience as of the measurement date. The generational projection is a provision for future mortality improvement.

Appendix B: Proposed Actuarial Assumptions

Disability Incidence Rates

	Rate (%)
Age	Disability Rate
25	0.01
30	0.02
35	0.05
40	0.07
45	0.13
50	0.19
55	0.20
60	0.20

Termination Rates

	Rate (%)
Years of Service	Less than 5 Years of Service
Less than 1	12.00
1	10.00
2	9.00
3	8.25
4	7.75

	Rate (%)
Age	5 of More Years of Service*
25	7.00
30	7.00
35	5.50
40	3.90
45	3.20
50	2.70
55	2.50
60	2.50

** Termination rates are zero for members eligible and assumed to retire.*

Appendix B: Proposed Actuarial Assumptions

Retirement Rates

	Rate (%)			
	Tier 1		Tier 3	
Age	Non-55/30	55/30	Non-55/30	55/30
50	6.0	0.0	6.0	0.0
51	3.0	0.0	3.0	0.0
52	3.0	0.0	3.0	0.0
53	3.0	0.0	3.0	0.0
54	17.0	0.0	16.0	0.0
55	6.0	24.0	0.0(1)	23.0
56	6.0	16.0	0.0(1)	15.0
57	6.0	16.0	0.0(1)	15.0
58	6.0	16.0	0.0(1)	15.0
59	6.0	16.0	0.0(1)	15.0
60	7.0	16.0	6.0	15.0
61	7.0	16.0	6.0	15.0
62	7.0	16.0	6.0	15.0
63	7.0	16.0	6.0	15.0
64	7.0	16.0	6.0	15.0
65	13.0	20.0	12.0	19.0
66	13.0	20.0	12.0	19.0
67	13.0	20.0	12.0	19.0
68	13.0	20.0	12.0	19.0
69	13.0	20.0	12.0	19.0
70	100.0	100.0	100.0	100.0

(1) *Not eligible to retire under the provisions of the Tier 3 plan.*

Retirement Age and Benefit for Inactive Vested Participants:	Pension benefit paid at the later of age 59 or the current attained age. For reciprocals, 3.85% compensation increases per annum.
Exclusion of Inactive Members:	All inactive participants are included in the valuation.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Percent Married/Domestic Partner:	76% of male members; 50% of female members.

Appendix B: Proposed Actuarial Assumptions

Age of Spouse:	Male retirees are assumed to be 3 years older than their female spouses. Female retirees are assumed to be 2 years younger than their male spouses.
Benefit Election:	For married participants, 50% are assumed to elect the 50% Joint and Survivor Cash Refund Annuity and the other 50% are assumed to elect an 85% Joint and Survivor Cash Refund Annuity. For non-married participants, 100% are assumed to elect the Single Life Cash Refund Annuity.
Service:	Employment service is used for eligibility determination purposes. Benefit service is used for benefit calculation purposes.
Future Benefit Accruals:	1.0 year of service per year.
Other Reciprocal Service:	5% of future inactive vested members are assumed to work at a reciprocal system.

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ATTACHMENT 3

Segal Consulting

Los Angeles City Employees' Retirement System

2nd Discussion of 2018 Actuarial Experience Study

July 24, 2018

Paul Angelo, FSA

Andy Yeung, ASA

Segal Consulting, San Francisco

5545356v2

Selection of Actuarial Assumptions Discussed on July 10, 2018

- Objective, long term
- Recent experience or future expectations
  - Demographic: recent experience
  - Economic: not necessarily!
- Client specific or not
- Consistency among assumptions
- Desired pattern of cost incidence
  - Good assumptions produce level cost
  - Beware "<u>results based</u>" assumptions!

- Full July 10 presentation included as an Appendix

Always remember

$$C + I = B + E$$

Contributions + Investment Income

equals

Benefit Payments + Expenses

- Actuarial valuation determines the current or "measured" cost, not the ultimate cost
- Assumptions and funding methods affect only the timing of costs

Demographic Assumptions - Recommended

- Retirement rates:
  - More retirements than expected
- Termination rates:
  - Slight overall reduction in current rates for members with fewer than 5 years of service
  - Increase in current rates for members with 5 or more years of service
- Disability incidence:
  - Slight reduction in current rates

Demographic Assumptions - Recommended

- Other Retirement related assumptions:
  - Reduce spouse age difference from 4 years to 3 years for male members
  - Increase the assumed retirement age for current inactive vested members from 58 to 59
- Merit and promotional salary increases:
  - Individual salary increases above growth in average salaries
  - Based on years of service
  - Currently 6.50% (0-1 years) to 0.40% (10+ years)
    - Recommend small increase at most years of service categories

Demographic Assumptions – Recommended

- Recommend generational mortality
  - Small difference in cost between current static and recommended generational approach to reflect mortality improvement
  - Each future year has its own mortality table that reflects forecasted mortality improvements at every age
    - Probability of dying depends not only on age and sex but also what year it is
    - Younger participants have more future mortality improvement built in than older participants
    - Current year table reflects recent actual experience, with no margin
  - Recommendation: Headcount Weighted RP-2014, projected generationally using Scale MP-2017

Economic Assumptions - Recommended

- Price inflation (CPI)
  - Decrease from 3.00% to 2.75%
- Salary increases
  - Decrease price inflation from 3.00% to 2.75%
  - Maintain “Across the Board” real wage growth at 0.50%
  - Total wage inflation reduced from 3.50% to 3.25%
  - Merit and Promotional: small increase in rates
  - Net impact on assumed future salary increases: slight decrease
- Investment return: Decrease from 7.25% to 7.00%
  - Reflects lower inflation component
  - No change in net real return component

Economic Assumptions - Recommended

	Recommended		6/30/17 Valuation		6/30/14 Valuation	
	Return	Pay	Return	Pay	Return	Pay
Price Inflation	2.75%	2.75%	3.00%	3.00%	3.25%	3.25%
Real Wages	n/a	0.50%	n/a	0.50%	n/a	0.75%
Merit (10+ years)	n/a	0.60%	n/a	0.40%	n/a	0.40%
Net Real Return	4.25%	n/a	4.25%	n/a	4.25%	n/a
Total	7.00%	3.85%	7.25%	3.90%	7.50%	4.40%

Comparison of Economic Assumptions with Other CA Public Retirement Plans as of June 2018

Plan	Inflation Assumption	Net Real Rate of Return	Investment Return Assumption
LACERS (Recommended)	2.75%	4.25%	7.00%
Los Angeles Police & Fire	3.00%	4.25%	7.25%
Los Angeles DWP	3.00%	4.25%	7.25%
Alameda County	3.00%	4.25%	7.25%
Imperial County	3.00%	4.25%	7.25%
Kern County	3.00%	4.25%	7.25%
San Bernardino County	3.00%	4.25%	7.25%
San Diego County	3.00%	4.25%	7.25%
Sonoma County	3.00%	4.25%	7.25%
Stanislaus County	3.00%	4.25%	7.25%
Tulare County	3.00%	4.25%	7.25%
San Joaquin County	2.90%	4.35%	7.25%
Los Angeles County	2.75%	4.50%	7.25%
Ventura County	2.75%	4.50%	7.25%
Merced County	2.50%	4.75%	7.25%
Fresno County	3.00%	4.00%	7.00%
Mendocino County	3.00%	4.00%	7.00%
Sacramento County	3.00%	4.00%	7.00%
Contra Costa County	2.75%	4.25%	7.00%
Marin County	2.75%	4.25%	7.00%
Orange County	2.75%	4.25%	7.00%
Santa Barbara County	2.75%	4.25%	7.00%
San Mateo County	2.50%	4.25%	6.75%

Anticipated Cost Impact
Modeled as of June 30, 2017 for illustration

- Increase in aggregate employer contribution rate = 3.40% of pay
  - Increase in aggregate employer Normal Cost = 1.11% of pay
  - Increase in aggregate employer UAAL rate = 2.29% of pay
- Economic assumptions cost impact
  - Interest Rate: 7.25% to 7.00% = 3.14% of pay
  - Discount Rate: 3.00% to 2.75% = (1.51)% of pay
- Demographic assumptions (non-economic) cost impact
  - Mortality:
    - Generational (recommended) = 2.12% of pay
    - Static with increased margin = 2.05% of pay
  - Other: (0.35)% of pay

Anticipated Cost Impact – Further Breakdown

Modeled as of June 30, 2017 for illustration

	Cost Impact		
	Retirement	Health	Total
Economic			
Interest (7.25% to 7.00%)	2.60%	0.54%	3.14%
Inflation (3.00% to 2.75%)	(1.56)%	0.05%	(1.51)%
Subtotal	1.04%	0.59%	1.63%
Non-Economic			
Mortality - Generational	1.76%	0.36%	2.12%
Other	(0.38)%	0.03%	(0.35)%
Subtotal	1.38%	0.39%	1.77%
Grand Total	2.42%	0.98%	3.40%

Phase-In Cost Impact: Two, Three, or Five Years

- Based on recommended assumptions
- Phase-in period no longer than time until next regular experience study (three years for LACERS)
  - Avoids overlapping phase-in periods
- Contribution rate impact for retirement and health plans combined

		Phase-In Period		
Fiscal Year	No Phase-In	Two-Year	Three-Year	Five-Year
2019/20	3.40%	1.70%	1.14%	0.68%
2020/21	3.40%	3.55%	2.46%	1.60%
2021/22	3.40%	3.55%	3.70%	2.46%
2022/23	3.40%	3.55%	3.70%	3.26%
2023/24	**3.40%**	**3.55%**	**3.70%**	**4.00%**

Introduce COLA Assumption for Calculating Optional Retirement Allowances

- Recommend introducing assumption to reflect COLA benefits in determining actuarially equivalent optional benefit amounts
  - Starting in 2019/2020 Plan Year, subject to legal review
  - Admin. Code requirement for no change in "liability of the system"
- Hypothetical Tier 1 examples based on current actuarial assumptions (i.e., before reflecting recommended assumption changes from the triennial experience study)

	Sample #1			**Sample #2**	
	Without COLA Assumption	With COLA Assumption		Without COLA Assumption	With COLA Assumption
Ages at Retirement	Member: 60; Spouse: 60			Member: 60; Spouse: 50	
Unmodified Benefit	$1,000	$1,000		$1,000	$1,000
100% Continuance	$951	$936		$930	$900

DISCUSSION

Appendix:

July 10, 2018 Presentation on Actuarial Experience Study, including “Actuarial 101”

Segal Consulting

Los Angeles City Employees' Retirement System

Actuarial 101 & Actuarial Experience Study

July 10, 2018

Paul Angelo, FSA

Andy Yeung, ASA

Segal Consulting, San Francisco

5543382v4

What goes into an Actuarial Valuation?

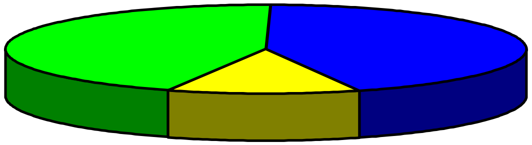
Member Data

Financial Data

Actuarial Valuation

Plan Provisions

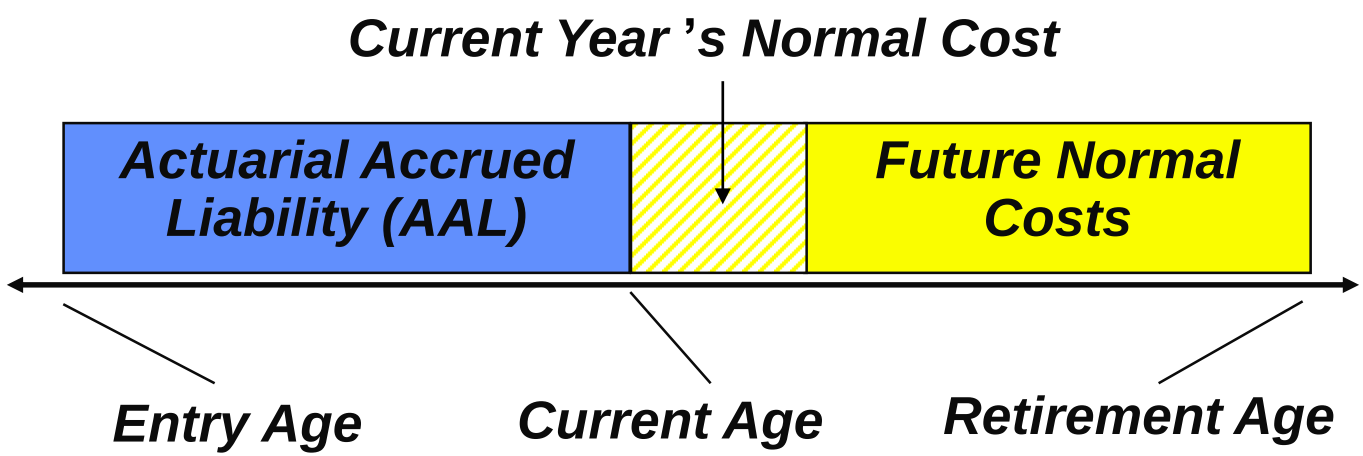
Funding Policies



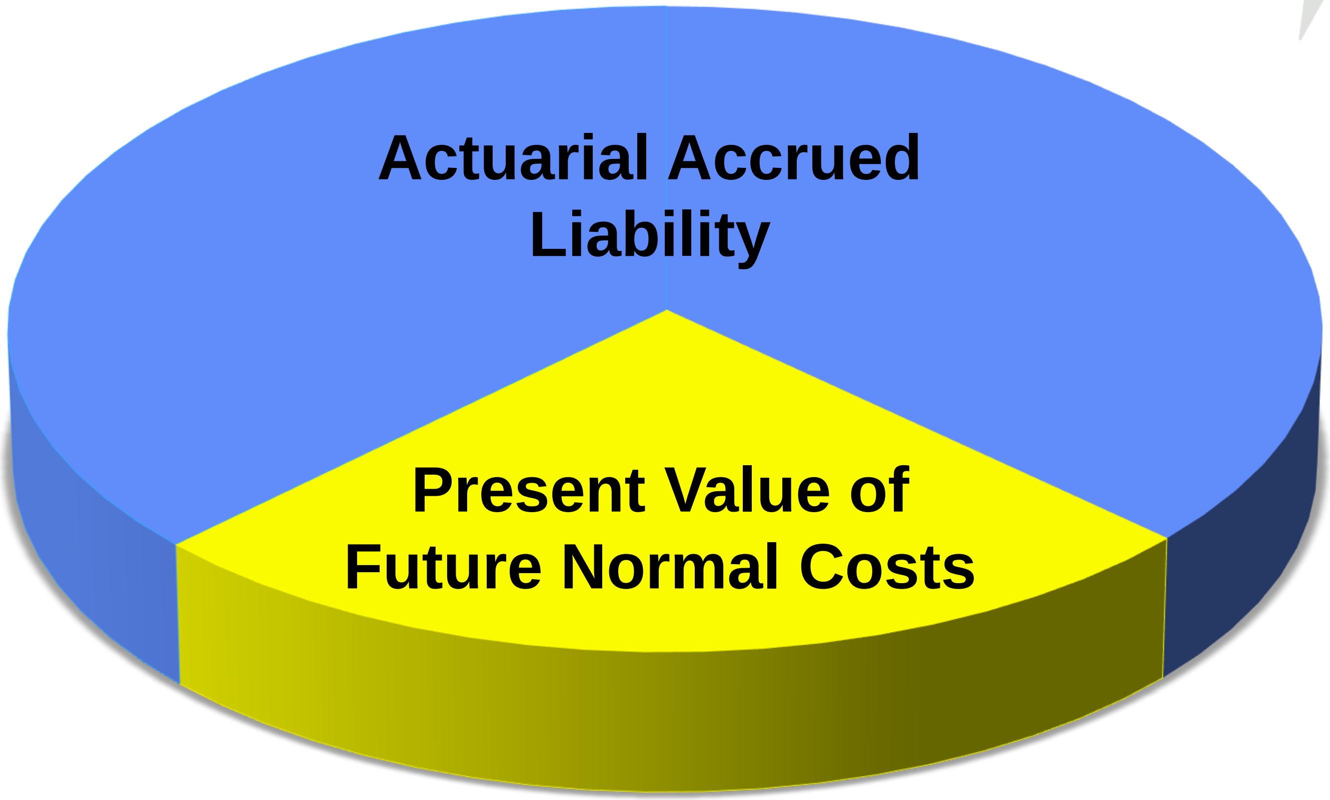
Actuarial Assumptions

Funding Retirement Benefits – Actuarial Terminology

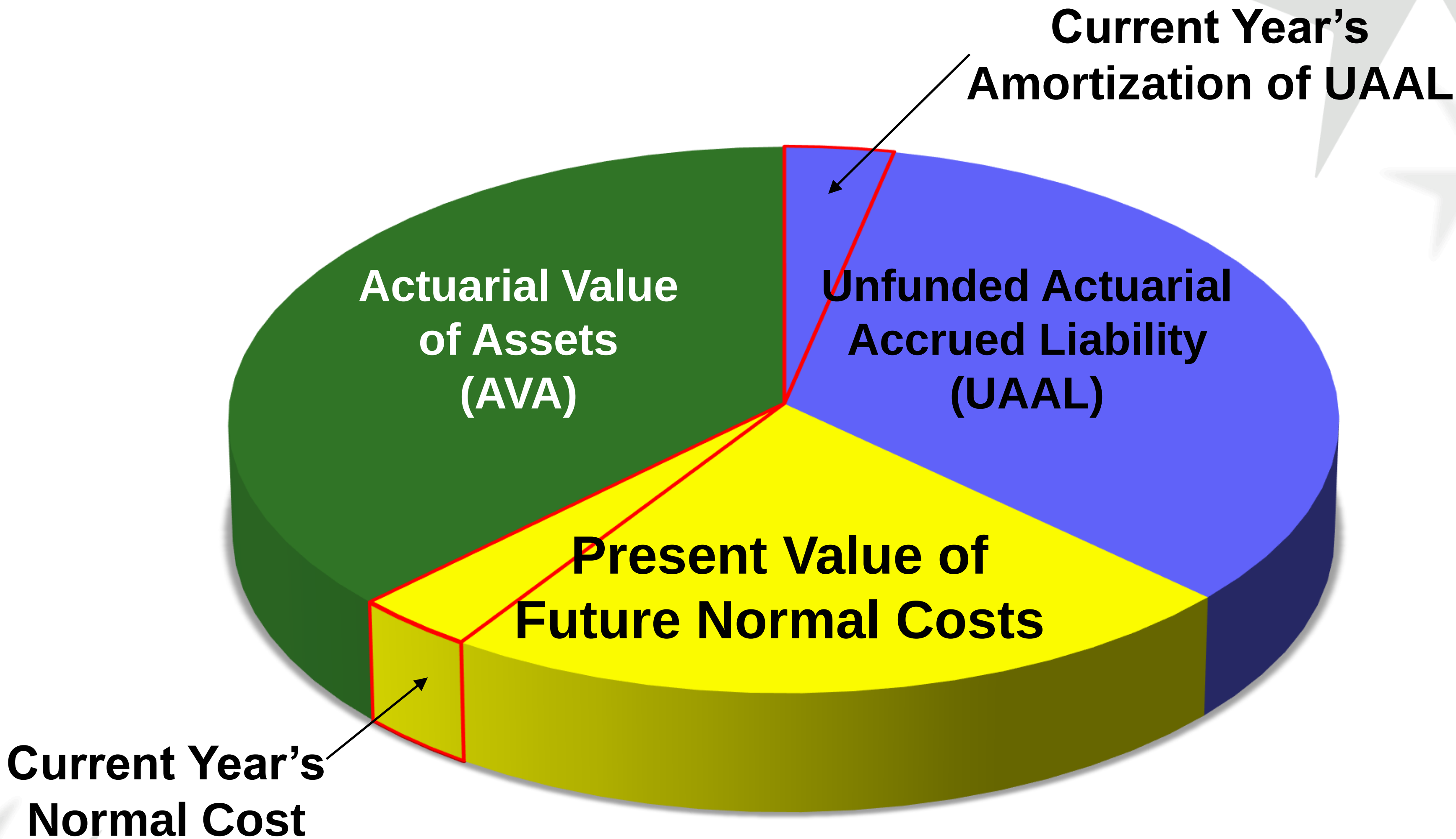
- **The Normal Cost is the portion of the long term cost allocated to a year of service**—only active members have a current Normal Cost
- **The Actuarial Accrued Liability (AAL) measures the Normal Costs from past years**—for retired members, the AAL is the entire value of their benefit



Present Value of Future Benefits – Entire Plan



Funding Retirement Benefits – Contribution Elements



Actuarial Assumptions

- Actuarial assumptions – two kinds
  - Demographic
    - When benefits will be payable
    - Amount of benefits
  - Economic
    - How assets grow
    - How salaries increase

Demographic Assumptions

- Rates of “decrement”
  - Termination, mortality, disability, retirement
  - Mortality
    - Before and after retirement
    - Service, disability, beneficiary
- Percent married
- Member/spouse age difference

Economic Assumptions

- Inflation - component, plus COLA
- Investment return
  - Real return
- Salary increases
  - Real wage increases (“across the board”)
  - Merit and promotion

Selection of Actuarial Assumptions

- Objective, long term
- Recent experience or future expectations
  - Demographic: recent experience
  - Economic: not necessarily!
- Client specific or not
- Consistency among assumptions
- Desired pattern of cost incidence
  - Good assumptions produce level cost
  - Beware “results based” assumptions!

Always remember

C + I = B + E

<u>C</u>ontributions + <u>I</u>nvestment Income

equals

<u>B</u>enefit Payments + <u>E</u>xpenses

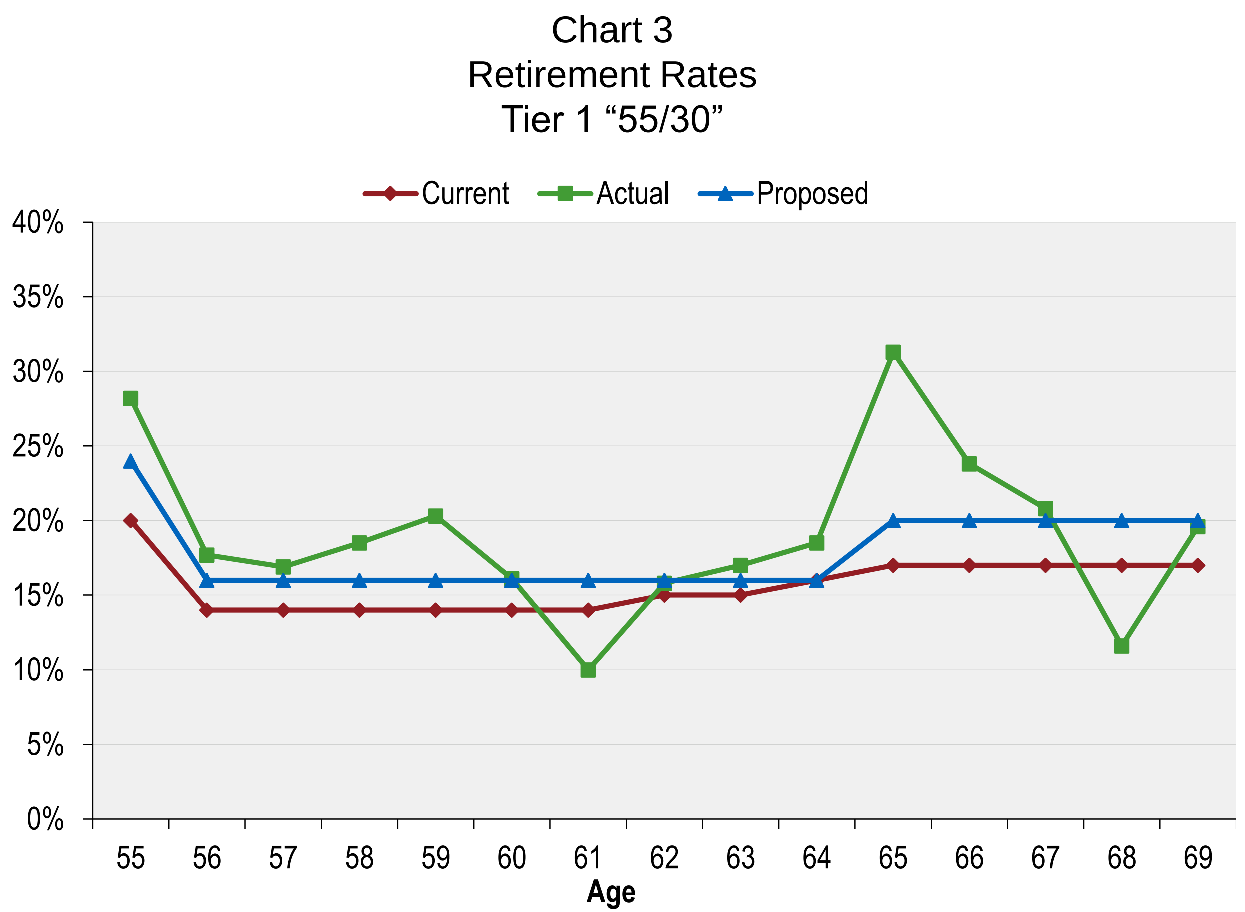
- Actuarial valuation determines the current or “measured” cost, not the ultimate cost
- Assumptions and funding methods affect only the timing of costs

Setting Demographic Assumptions

- To determine rates for each assumption we count the "decrements" and "exposures" for that event
  - Exposures = Number of employees who could have terminated, retired, etc.
  - Decrements = Number of employees who actually terminated, retired, etc.
  - This gives the "actual" decrement rates during the period
- Compare to the "current" assumed rates (or to expected number of decrements based on those current rates)
- Develop "proposed" new assumption based on both "current" assumption and recent "actual" experience
  - Weight the "actual" based on "credibility"

Setting Demographic Assumption – Retirement Rates

- Retirement Rates from Experience Study



Recommendations – Demographic Assumptions

- Retirement rates:
  - More retirements than expected
- Termination rates:
  - Slight overall reduction in current rates for members with fewer than 5 years of service
  - Increase in current rates for members with 5 or more years of service
- Disability incidence:
  - Slight reduction in current rates

Recommendations – Demographic Assumptions

- Other Retirement related assumptions:
  - Reduce spouse age difference from 4 years to 3 years for male members
  - Increase the assumed retirement age for current inactive vested members from 58 to 59
- Merit and promotional salary increases:
  - Individual salary increases above growth in average salaries
  - Based on years of service
  - Currently 6.50% (0-1 years) to 0.40% (10+ years)
    - Recommend small increase at most years of service categories
  - Note growth in average salaries is an economic assumption, discussed later

Setting Demographic Assumptions – Mortality

- Mortality Rates
  - Longer life expectancies
  - Mortality table
    - RP-2014: Headcount Weighted vs. Benefit Weighted
  - The Society of Actuaries has published scales to estimate future mortality improvements:
    - Scale AA - Has been standard since around 2000
      - Does not accurately reflect recent improvements in mortality
    - Scale BB - Interim standard scale issued in 2012
    - Scale MP-2014 – Issued in October 2014
    - Scale MP-2015 – Issued in October 2015
    - Scale MP-2016 – Issued in October 2016
    - Scale MP-2017 – Issued in October 2017

Setting Demographic Assumptions – Mortality

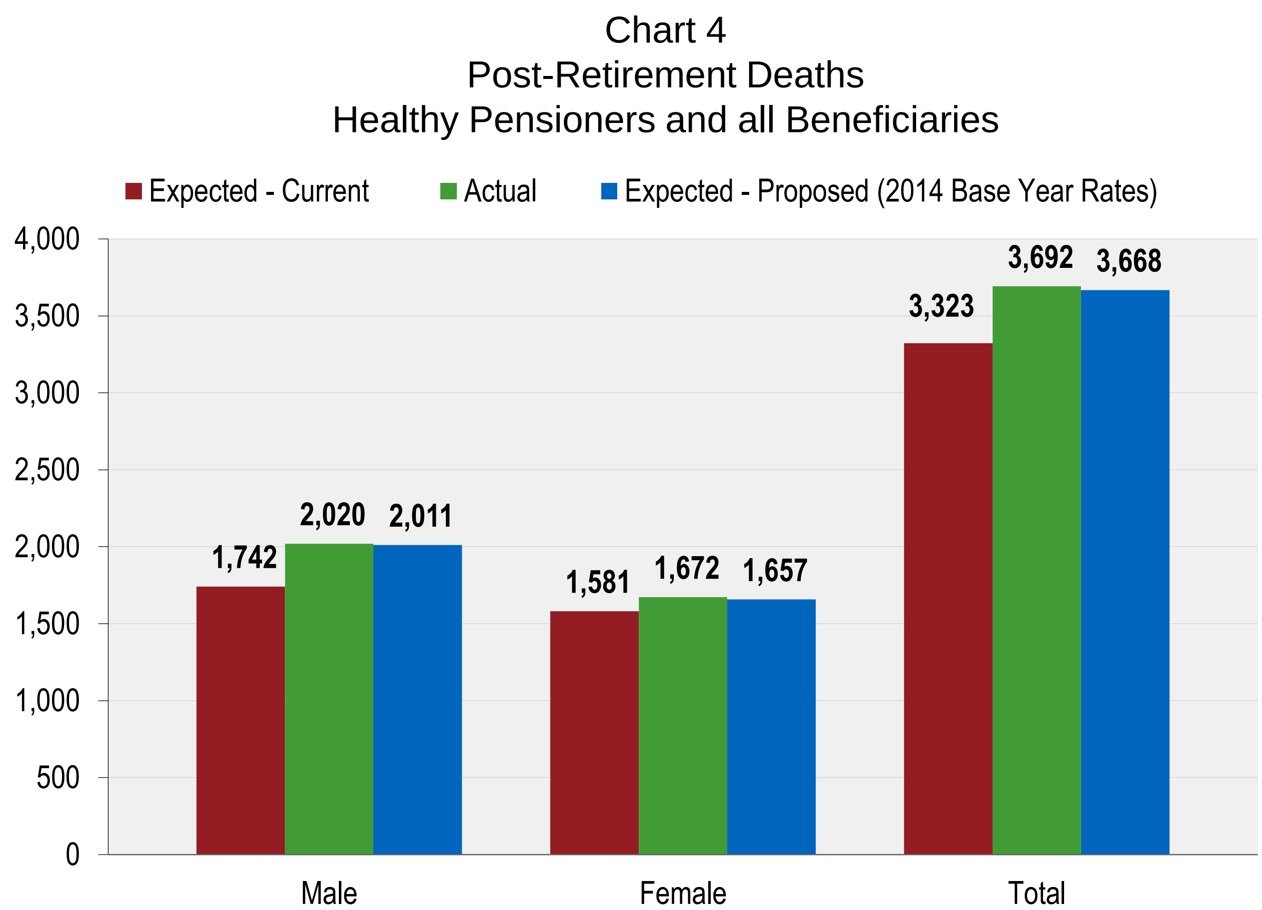
- Two ways to use mortality improvement scales to project future mortality improvements: Static or Generational
- Static projection to a future year - reflect mortality at a future date, not as of today
  - Preferable to have a margin of around 20%
    - Actual deaths during the study period should be around 20% greater than the expected deaths
  - Current healthy assumption
    - RP-2000 Combined Healthy projected to 2020 with Scale BB set back one year for males, no set back for females

Recommended Demographic Assumptions – Mortality

- Recommend generational mortality
  - Each future year has its own mortality table that reflects forecasted mortality improvements at every age
    - Probability of dying depends not only on age and sex but also what year it is
    - Younger participants have more future mortality improvement built in than older participants
    - Current year table reflects recent actual experience, with no margin
  - Recommendation: Headcount Weighted RP-2014, projected generationally using Scale MP-2017
- Administrative issues to be discussed with LACERS and its pension administration software vendor before recommending assumptions for determining optional benefits
- Other consideration: SOA experience studies using Public Plan experience

Setting Demographic Assumptions – Mortality Rates

- Mortality Experience from Experience Study



QUESTIONS

Economic Assumptions

- Price Inflation (CPI):
  - Investment Return, Salary Increases, COLA
- Salary Increases
  - “Across the board” increases (wage inflation)
    - Includes price inflation plus real wage growth
  - Merit & Promotional: based on LACERS experience
- Investment Return (Investment Earnings)
  - Components include price inflation, real return and investment expenses
  - Generally based on passive returns

Current Economic Assumptions

- Last full review was for 6/30/2017 valuation
  - Price inflation (CPI): 3.00%
  - Wage inflation: 3.50%
    - So real wage growth is 0.50%
  - Investment return: 7.25%
    - So net real return is 4.25%
    - Assumed return is net of investment and administrative expenses

Economic Assumptions - Recommended

- Price inflation (CPI)
  - Decrease from 3.00% to 2.75%
- Salary increases
  - Decrease price inflation from 3.00% to 2.75%
  - Maintain "Across the Board" real wage at 0.50%
  - Total wage inflation reduced from 3.50% to 3.25%
  - Merit and Promotional: increase rates at most years of service categories
  - Net impact on assumed future salary increases: slight decrease
- Investment return: Decrease from 7.25% to 7.00%
  - Reflects lower inflation component

Economic Assumptions - Recommended

	Recommended		6/30/17 Valuation		6/30/14 Valuation	
	Return	Pay	Return	Pay	Return	Pay
Price Inflation	2.75%	2.75%	3.00%	3.00%	3.25%	3.25%
Real Wages	n/a	0.50%	n/a	0.50%	n/a	0.75%
Merit (10+ years)	n/a	0.60%	n/a	0.40%	n/a	0.40%
Net Real Return	4.25%	n/a	4.25%	n/a	4.25%	n/a
Total	7.00%	3.85%	7.25%	3.90%	7.50%	4.40%

Price Inflation (CPI)

- Historical Consumer Price Index
  - Median 15-year moving average = 3.4%
  - Median 30-year moving average = 3.8%
- 15-year averages have been declining due to relatively low inflation over the past 2 decades
- NASRA Survey
  - Median inflation assumption is 3.00%
- Social Security Forecast = 2.60%
- Recommend reducing current 3.00% annual inflation assumption to 2.75%
  - Assumed COLAs for Tier 1 decreased from 3.00% to 2.75%
  - No change for Tier 3 at 2.00%

Salary Increase Assumption - Recommended

- Three components
- Price inflation: decrease from 3.00% to 2.75%
- Real increases: maintain at 0.50%
  - Department of Labor: Annual State and Local Government real productivity increase: 0.6% - 0.8% over 10 - 20 years
  - LACERS experience 2015 – 2017
    - Actual Average Increase in Salary: 0.8% average (2.0% six-year)
    - Actual Change in CPI: 1.4% average (1.7% six-year)
- Merit & Promotional: demographic assumption
  - Small increases at most years of service categories
- Net reduction in total assumed future salary increases

Payroll Growth Assumption

- Active member payroll based on wage inflation
- Includes price inflation and real wage increases
  - Price inflation: reduce from 3.00% to 2.75%
  - Real increases: maintain at 0.50%
  - Total is reduced from 3.50% to 3.25%
- Used to project total payroll for UAAL amortization

Investment Earnings Assumption

- Also called the discount rate
- Used for contribution requirements and GASB reporting
- Affects timing of Plan cost
  - Lower assumed rate means higher current cost
  - Ultimately, actual earnings determine cost
    C + I = B + E
  - "Can't pay benefits with assumed earnings!"

Setting the Earnings Assumption

- Four components
  - Inflation: consistent with assumed salary increases and COLAs
  - Real returns by asset class
    - Weighted by asset allocation
  - Reduced by assumed investment and administrative expenses
  - Reduced by "risk adjustment"
    - Margin for adverse deviation
    - Expressed as confidence level above 50%

LACERS Earnings Assumption

Preview:

Components of Investment Return Assumption

	Recommended	Current
Assumed Inflation	2.75%	3.00%
Portfolio Real Rate of Return	5.37%	5.47%
Assumed Expenses	(0.40%)	(0.60%)
Risk Adjustment	(0.72%)	(0.62%)
Assumed Investment Return	7.00%	7.25%
Confidence Level	58%	57%

Real Returns by Asset Class

- Segal uses an average of 7 investment advisory firms retained by Segal public clients
  - Used results from NEPC for asset categories unique to LACERS
- Small decrease in real return is primarily due to changes in the target asset allocation

LACERS Real Rate of Return

Asset Class	Target Allocation	Real Return	Weighted Return
U.S. Large Cap Equity	14%	5.32%	0.74%
U.S. Small Cap Equity	5%	6.07%	0.30%
Developed Int'l Large Cap Equity	17%	6.67%	1.13%
Developed Int'l Small Cap Equity	3%	7.14%	0.21%
Emerging Market Equity	7%	8.87%	0.62%
Core Bond	14%	1.04%	0.14%
High Yield Bond	2%	3.09%	0.06%
Bank Loan	2%	3.00%	0.06%
TIPS	4%	0.97%	0.03%
Emerging Market Debt (External)	5%	3.44%	0.15%
Real Estate	7%	4.68%	0.33%
Cash	1%	0.01%	0.00%
Commodities	1%	3.36%	0.03%
Additional Public Real Assets	1%	4.76%	0.05%
Real Estate Investment Trust (REIT)	1%	5.91%	0.06%
Private Debt	4%	5.50%	0.21%
Private Equity	14%	8.97%	1.26%
Total*	100%		5.37%

* Results may not add due to rounding

Administrative and Investment Expenses
(Gross of Private Equity Management Fees)

Administrative and Investment Expenses as a Percentage of Actuarial Value of Assets Including Active Management Fees for Private Equity (Dollars in 000's)

Year Ending June 30	Actuarial Value of Assets	Administrative Expenses	Investment Expenses	% of Assets
2014	$12,935,503	$15,765	$56,189	0.55%
2015	13,895,589	19,878	62,595	0.59
2016	14,752,103	19,727	66,540	0.58
2017	15,686,973	20,244	71,844	0.59
			Four-Year Average:	0.58%

Administrative and Investment Expenses
(Net of Private Equity Management Fees)

Administrative and Investment Expenses as a Percentage of Actuarial Value of Assets Excluding Active Management Fees for Private Equity (Dollars in 000's)

Year Ending June 30	Actuarial Value of Assets	Administrative Expenses	Investment Expenses	% of Assets
2014	$12,935,503	$15,765	$36,045	0.40%
2015	13,895,589	19,878	42,278	0.44
2016	14,752,103	19,727	39,926	0.40
2017	15,686,973	20,244	40,006	0.39
			Four-Year Average:	0.41%

- Based on this experience, we have decreased the future investment expense component from 0.60% to 0.40%.

Risk Adjustment Model and Confidence Level

- Compares the Plan's risk position over time
- Confidence level is a relative, not absolute measure
  - Can be reevaluated and reset for future comparisons
- Confidence level is based on standard deviation
  - Measure of volatility based on portfolio assumptions
- Results should be evaluated for reasonableness

Risk Adjustment Model and Confidence Level

➢ Confidence that actual earnings over 15 years will exceed expected earnings

Valuation	Investment Return Assumption	Confidence Level
6/30/2005-2007	8.00%	65%
6/30/2008-2010	8.00%	66%
6/30/2011-2013	7.75%	57%
6/30/2014-2016	7.50%	59%
6/30/2017	7.25%	57%
6/30/2018	7.00%	58%

- Report shows history of confidence levels (pages 17 and 19)
- Recommended 7.00% assumption gives 58% confidence level
  - Inflation decreased from 3.00% to 2.75%
  - Portfolio real return decreased from 5.47% to 5.37%
  - Investment expense decreased from 0.60% to 0.40%

LACERS Earnings Assumption

Components of Investment Return Assumption

	Recommended	Current
Assumed Inflation	2.75%	3.00%
Portfolio Real Rate of Return	5.37%	5.47%
Assumed Expenses	(0.40%)	(0.60%)
Risk Adjustment	(0.72%)	(0.62%)
Assumed Investment Return	7.00%	7.25%
Confidence Level	58%	57%

Investment Earnings Assumption - 2017

- Comparison with other systems
  - National median is 7.50% but continues to trend down nationwide
  - Seven California county employees retirement system have adopted 7.00% (Contra Costa, Fresno, Marin, Mendocino, Orange, Sacramento, and Santa Barbara)
  - CalPERS approved reduction from 7.50% to 7.00% over three years
  - CalSTRS approved reduction from 7.50% to 7.00% over two years
  - LADWP and LAFPP currently assume 7.25%
    - With 3.00% inflation component

Anticipated Cost Impact – Retirement Plan
Modeled as of June 30, 2017 for illustration

- Increase in Actuarial Accrued Liability = $514 million
- Increase in aggregate employer contribution rate = 2.42% of pay
  - Increase in aggregate employer Normal Cost = 0.68% of pay
  - Increase in aggregate employer UAAL rate = 1.74% of pay

Economic	**1.04%**
Non-Economic	
Mortality	**1.76%**
Other	**(0.38)%**
Total	**2.42%**

Anticipated Cost Impact – Health Plan
Modeled as of June 30, 2017 for illustration

- Increase in Actuarial Accrued Liability = $189 million
- Increase in aggregate employer contribution rate = 0.98% of pay
  - Increase in aggregate employer Normal Cost = 0.43% of pay
  - Increase in aggregate employer UAAL rate = 0.55% of pay

Economic	**0.59%**
Non-Economic	
Mortality	**0.36%**
Other	**0.03%**
Total	**0.98%**

Always remember

$$C + I = B + E$$

Contributions + Investment Income

equals

Benefit Payments + Expenses

- Actuarial valuation determines the current or “measured” cost, not the ultimate cost
- Assumptions and funding methods affect only the timing of costs

ATTACHMENT 3

Segal Consulting

Los Angeles City Employees' Retirement System

2nd Discussion of 2018 Actuarial Experience Study

July 24, 2018

Paul Angelo, FSA

Andy Yeung, ASA

Segal Consulting, San Francisco

Selection of Actuarial Assumptions Discussed on July 10, 2018

- Objective, long term
- Recent experience or future expectations
  - Demographic: recent experience
  - Economic: not necessarily!
- Client specific or not
- Consistency among assumptions
- Desired pattern of cost incidence
  - Good assumptions produce level cost
  - Beware "results based" assumptions!

- Full July 10 presentation included as an Appendix

Always remember

$$C + I = B + E$$

<u>C</u>ontributions + <u>I</u>nvestment Income

equals

<u>B</u>enefit Payments + <u>E</u>xpenses

- Actuarial valuation determines the current or "measured" cost, not the ultimate cost
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Demographic Assumptions - Recommended

- Retirement rates:
  - More retirements than expected
- Termination rates:
  - Slight overall reduction in current rates for members with fewer than 5 years of service
  - Increase in current rates for members with 5 or more years of service
- Disability incidence:
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- Other Retirement related assumptions:
  - Reduce spouse age difference from 4 years to 3 years for male members
  - Increase the assumed retirement age for current inactive vested members from 58 to 59
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  - Individual salary increases above growth in average salaries
  - Based on years of service
  - Currently 6.50% (0-1 years) to 0.40% (10+ years)
    - Recommend small increase at most years of service categories

Demographic Assumptions – Recommended

- Recommend generational mortality
  - Small difference in cost between current static and recommended generational approach to reflect mortality improvement
  - Each future year has its own mortality table that reflects forecasted mortality improvements at every age
    - Probability of dying depends not only on age and sex but also what year it is
    - Younger participants have more future mortality improvement built in than older participants
    - Current year table reflects recent actual experience, with no margin
  - Recommendation: Headcount Weighted RP-2014, projected generationally using Scale MP-2017

Economic Assumptions - Recommended

- Price inflation (CPI)
  - Decrease from 3.00% to 2.75%
- Salary increases
  - Decrease price inflation from 3.00% to 2.75%
  - Maintain “Across the Board” real wage growth at 0.50%
  - Total wage inflation reduced from 3.50% to 3.25%
  - Merit and Promotional: small increase in rates
  - Net impact on assumed future salary increases: slight decrease
- Investment return: Decrease from 7.25% to 7.00%
  - Reflects lower inflation component
  - No change in net real return component

Economic Assumptions - Recommended

	Recommended		6/30/17 Valuation		6/30/14 Valuation	
	Return	Pay	Return	Pay	Return	Pay
Price Inflation	2.75%	2.75%	3.00%	3.00%	3.25%	3.25%
Real Wages	n/a	0.50%	n/a	0.50%	n/a	0.75%
Merit (10+ years)	n/a	0.60%	n/a	0.40%	n/a	0.40%
Net Real Return	4.25%	n/a	4.25%	n/a	4.25%	n/a
Total	7.00%	3.85%	7.25%	3.90%	7.50%	4.40%

Comparison of Economic Assumptions with Other CA Public Retirement Plans as of June 2018

Plan	Inflation Assumption	Net Real Rate of Return	Investment Return Assumption
LACERS (Recommended)	2.75%	4.25%	7.00%
Los Angeles Police & Fire	3.00%	4.25%	7.25%
Los Angeles DWP	3.00%	4.25%	7.25%
Alameda County	3.00%	4.25%	7.25%
Imperial County	3.00%	4.25%	7.25%
Kern County	3.00%	4.25%	7.25%
San Bernardino County	3.00%	4.25%	7.25%
San Diego County	3.00%	4.25%	7.25%
Sonoma County	3.00%	4.25%	7.25%
Stanislaus County	3.00%	4.25%	7.25%
Tulare County	3.00%	4.25%	7.25%
San Joaquin County	2.90%	4.35%	7.25%
Los Angeles County	2.75%	4.50%	7.25%
Ventura County	2.75%	4.50%	7.25%
Merced County	2.50%	4.75%	7.25%
Fresno County	3.00%	4.00%	7.00%
Mendocino County	3.00%	4.00%	7.00%
Sacramento County	3.00%	4.00%	7.00%
Contra Costa County	2.75%	4.25%	7.00%
Marin County	2.75%	4.25%	7.00%
Orange County	2.75%	4.25%	7.00%
Santa Barbara County	2.75%	4.25%	7.00%
San Mateo County	2.50%	4.25%	6.75%

Anticipated Cost Impact
Modeled as of June 30, 2017 for illustration

- Increase in aggregate employer contribution rate = 3.40% of pay
  - Increase in aggregate employer Normal Cost = 1.11% of pay
  - Increase in aggregate employer UAAL rate = 2.29% of pay
- Economic assumptions cost impact
  - Interest Rate: 7.25% to 7.00% = 3.14% of pay
  - Discount Rate: 3.00% to 2.75% = (1.51)% of pay
- Demographic assumptions (non-economic) cost impact
  - Mortality:
    - Generational (recommended) = 2.12% of pay
    - Static with increased margin = 2.05% of pay
  - Other: (0.35)% of pay

Anticipated Cost Impact – Further Breakdown
Modeled as of June 30, 2017 for illustration

	Cost Impact		
	Retirement	Health	Total
Economic			
Interest (7.25% to 7.00%)	2.60%	0.54%	3.14%
Inflation (3.00% to 2.75%)	(1.56)%	0.05%	(1.51)%
Subtotal	1.04%	0.59%	1.63%
Non-Economic			
Mortality - Generational	1.76%	0.36%	2.12%
Other	(0.38)%	0.03%	(0.35)%
Subtotal	1.38%	0.39%	1.77%
Grand Total	2.42%	0.98%	3.40%

Phase-In Cost Impact: Two, Three, or Five Years

- Based on recommended assumptions
- Phase-in period no longer than time until next regular experience study (three years for LACERS)
  - Avoids overlapping phase-in periods
- Contribution rate impact for retirement and health plans combined

		Phase-In Period		
Fiscal Year	No Phase-In	Two-Year	Three-Year	Five-Year
2019/20	3.40%	1.70%	1.14%	0.68%
2020/21	3.40%	3.55%	2.46%	1.60%
2021/22	3.40%	3.55%	3.70%	2.46%
2022/23	3.40%	3.55%	3.70%	3.26%
2023/24	**3.40%**	**3.55%**	**3.70%**	**4.00%**

Introduce COLA Assumption for Calculating Optional Retirement Allowances

- Recommend introducing assumption to reflect COLA benefits in determining actuarially equivalent optional benefit amounts
  - Starting in 2019/2020 Plan Year, subject to legal review
  - Admin. Code requirement for no change in "liability of the system"
- Hypothetical Tier 1 examples based on current actuarial assumptions (i.e., before reflecting recommended assumption changes from the triennial experience study)

	Sample #1			**Sample #2**	
	Without COLA Assumption	With COLA Assumption		Without COLA Assumption	With COLA Assumption
Ages at Retirement	Member: 60; Spouse: 60			Member: 60; Spouse: 50	
Unmodified Benefit	$1,000	$1,000		$1,000	$1,000
100% Continuance	$951	$936		$930	$900

DISCUSSION

Appendix:

July 10, 2018 Presentation on Actuarial Experience Study, including “Actuarial 101”

Segal Consulting

Los Angeles City Employees' Retirement System

Actuarial 101 & Actuarial Experience Study

July 10, 2018

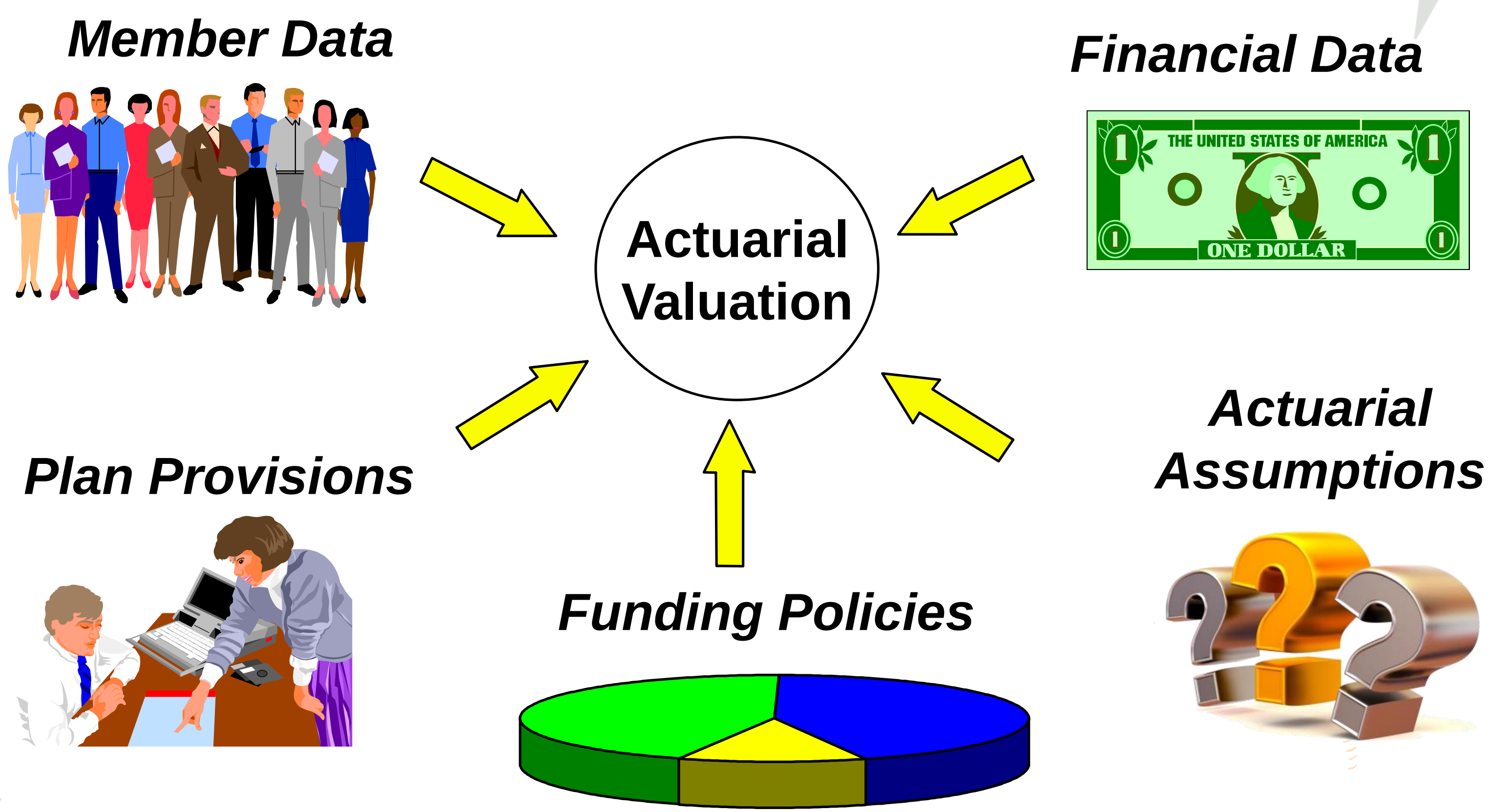
Paul Angelo, FSA

Andy Yeung, ASA

Segal Consulting, San Francisco

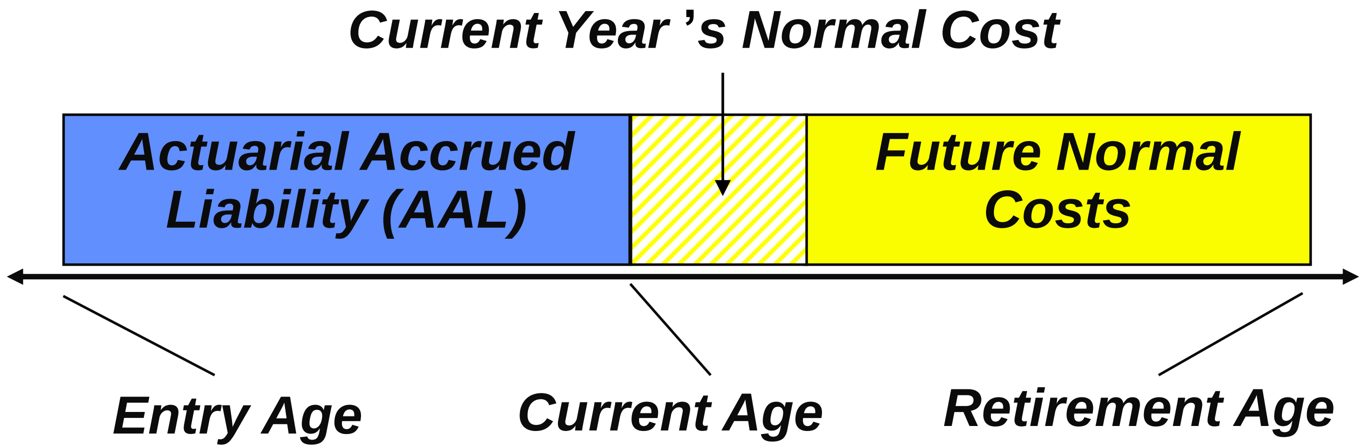
5543382v4

What goes into an Actuarial Valuation?

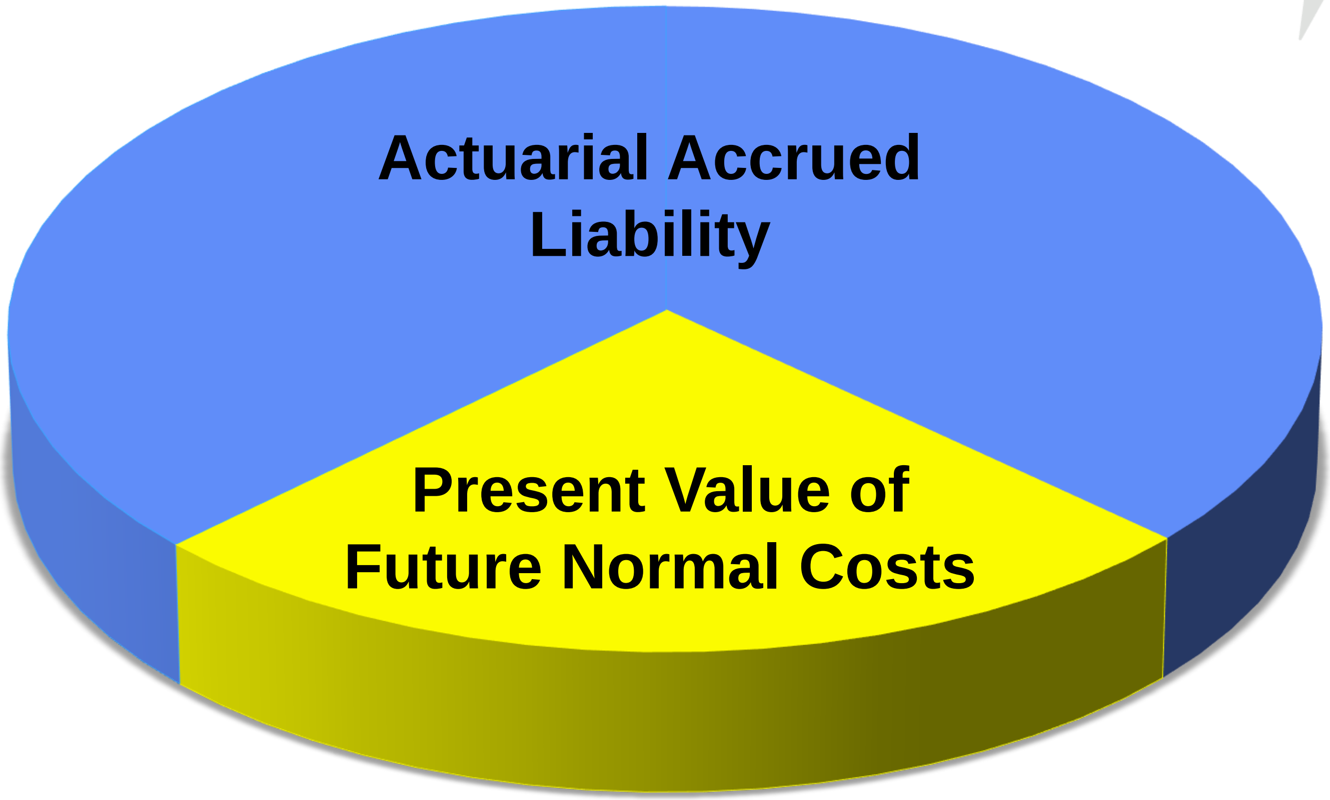


Funding Retirement Benefits – Actuarial Terminology

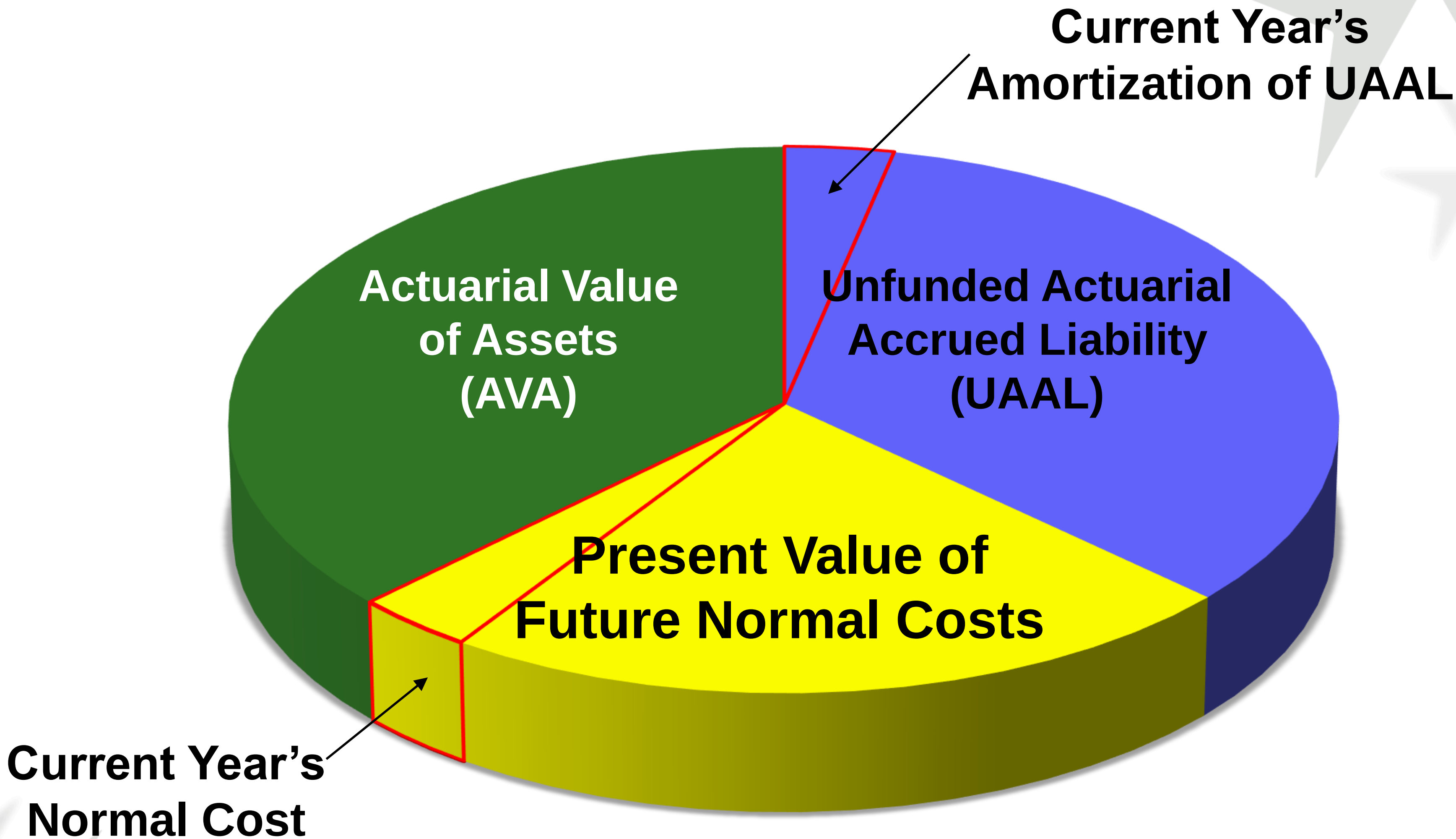
- **The Normal Cost is the portion of the long term cost allocated to a year of service**—only active members have a current Normal Cost
- **The Actuarial Accrued Liability (AAL) measures the Normal Costs from past years**—for retired members, the AAL is the entire value of their benefit



Present Value of Future Benefits – Entire Plan



Funding Retirement Benefits – Contribution Elements



Actuarial Assumptions

- Actuarial assumptions – two kinds
  - Demographic
    - When benefits will be payable
    - Amount of benefits
  - Economic
    - How assets grow
    - How salaries increase

Demographic Assumptions

- Rates of “decrement”
  - Termination, mortality, disability, retirement
  - Mortality
    - Before and after retirement
    - Service, disability, beneficiary
- Percent married
- Member/spouse age difference

Economic Assumptions

- Inflation - component, plus COLA
- Investment return
  - Real return
- Salary increases
  - Real wage increases ("across the board")
  - Merit and promotion

Selection of Actuarial Assumptions

- Objective, long term
- Recent experience or future expectations
  - Demographic: recent experience
  - Economic: not necessarily!
- Client specific or not
- Consistency among assumptions
- Desired pattern of cost incidence
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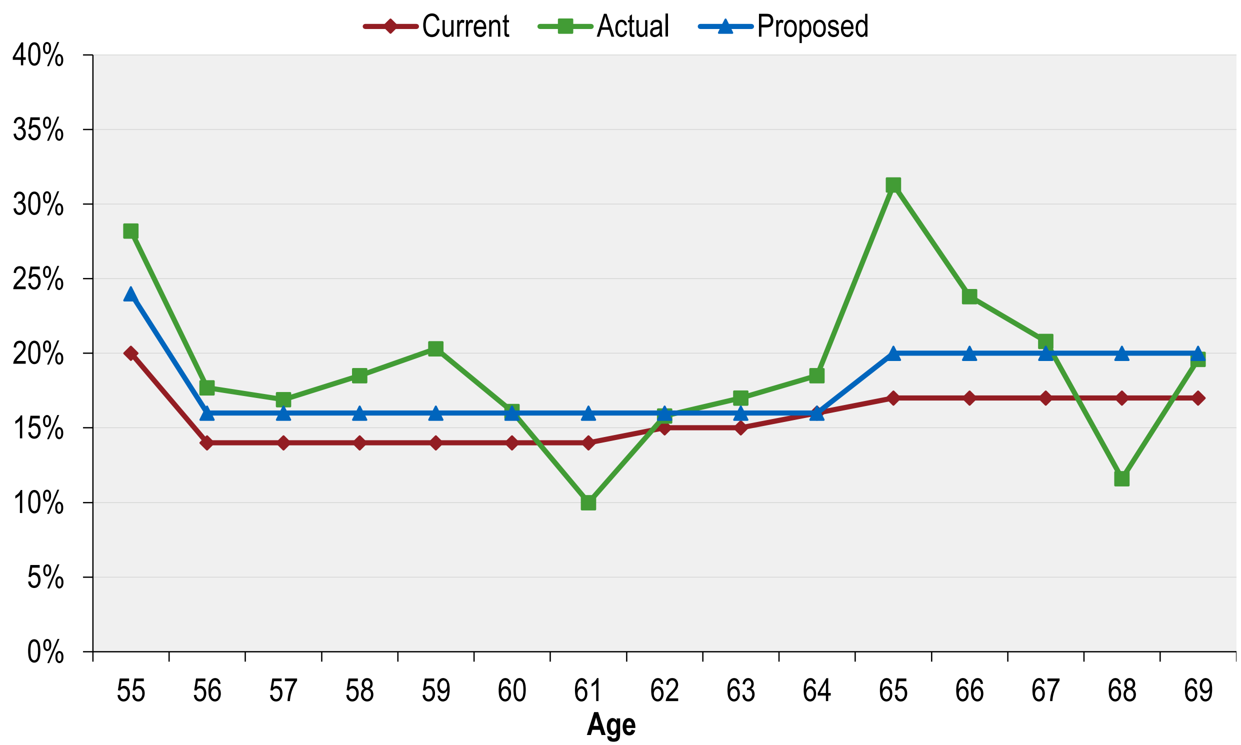
Setting Demographic Assumptions

- To determine rates for each assumption we count the "decrements" and "exposures" for that event
  - Exposures = Number of employees who could have terminated, retired, etc.
  - Decrements = Number of employees who actually terminated, retired, etc.
  - This gives the "actual" decrement rates during the period
- Compare to the "current" assumed rates (or to expected number of decrements based on those current rates)
- Develop "proposed" new assumption based on both "current" assumption and recent "actual" experience
  - Weight the "actual" based on "credibility"

Setting Demographic Assumption – Retirement Rates

- Retirement Rates from Experience Study

Chart 3
Retirement Rates
Tier 1 "55/30"



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    - RP-2014: Headcount Weighted vs. Benefit Weighted
  - The Society of Actuaries has published scales to estimate future mortality improvements:
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  - Current healthy assumption
    - RP-2000 Combined Healthy projected to 2020 with Scale BB set back one year for males, no set back for females

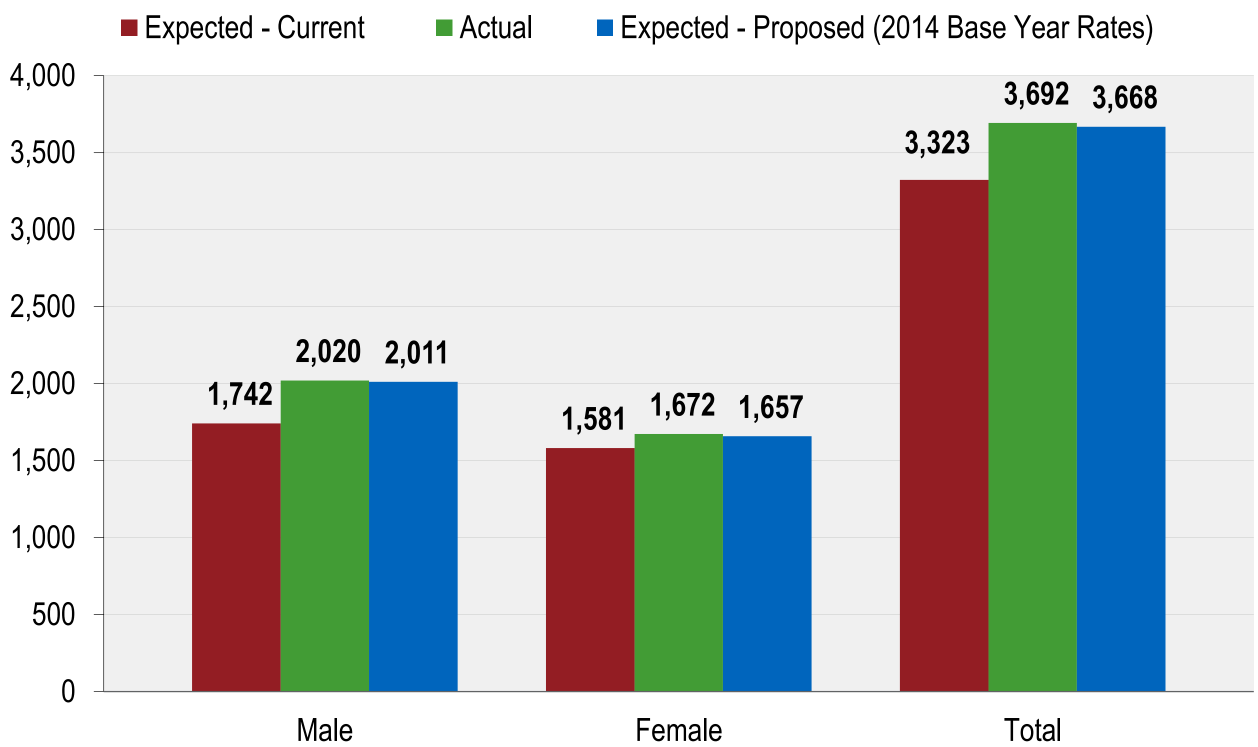
Recommended Demographic Assumptions – Mortality

- Recommend generational mortality
  - Each future year has its own mortality table that reflects forecasted mortality improvements at every age
    - Probability of dying depends not only on age and sex but also what year it is
    - Younger participants have more future mortality improvement built in than older participants
    - Current year table reflects recent actual experience, with no margin
  - Recommendation: Headcount Weighted RP-2014, projected generationally using Scale MP-2017
- Administrative issues to be discussed with LACERS and its pension administration software vendor before recommending assumptions for determining optional benefits
- Other consideration: SOA experience studies using Public Plan experience

Setting Demographic Assumptions – Mortality Rates

- Mortality Experience from Experience Study

Chart 4
Post-Retirement Deaths
Healthy Pensioners and all Beneficiaries



QUESTIONS

Economic Assumptions

- Price Inflation (CPI):
  - Investment Return, Salary Increases, COLA
- Salary Increases
  - "Across the board" increases (wage inflation)
    - Includes price inflation plus real wage growth
  - Merit & Promotional: based on LACERS experience
- Investment Return (Investment Earnings)
  - Components include price inflation, real return and investment expenses
  - Generally based on passive returns

Current Economic Assumptions

- Last full review was for 6/30/2017 valuation
  - Price inflation (CPI): 3.00%
  - Wage inflation: 3.50%
    - So real wage growth is 0.50%
  - Investment return: 7.25%
    - So net real return is 4.25%
    - Assumed return is net of investment and administrative expenses

Economic Assumptions - Recommended

- Price inflation (CPI)
  - Decrease from 3.00% to 2.75%
- Salary increases
  - Decrease price inflation from 3.00% to 2.75%
  - Maintain "Across the Board" real wage at 0.50%
  - Total wage inflation reduced from 3.50% to 3.25%
  - Merit and Promotional: increase rates at most years of service categories
  - Net impact on assumed future salary increases: slight decrease
- Investment return: Decrease from 7.25% to 7.00%
  - Reflects lower inflation component

Economic Assumptions - Recommended

	Recommended		6/30/17 Valuation		6/30/14 Valuation	
	Return	Pay	Return	Pay	Return	Pay
Price Inflation	2.75%	2.75%	3.00%	3.00%	3.25%	3.25%
Real Wages	n/a	0.50%	n/a	0.50%	n/a	0.75%
Merit (10+ years)	n/a	0.60%	n/a	0.40%	n/a	0.40%
Net Real Return	4.25%	n/a	4.25%	n/a	4.25%	n/a
Total	7.00%	3.85%	7.25%	3.90%	7.50%	4.40%

Price Inflation (CPI)

- Historical Consumer Price Index
  - Median 15-year moving average = 3.4%
  - Median 30-year moving average = 3.8%
- 15-year averages have been declining due to relatively low inflation over the past 2 decades
- NASRA Survey
  - Median inflation assumption is 3.00%
- Social Security Forecast = 2.60%
- Recommend reducing current 3.00% annual inflation assumption to 2.75%
  - Assumed COLAs for Tier 1 decreased from 3.00% to 2.75%
  - No change for Tier 3 at 2.00%

Salary Increase Assumption - Recommended

- Three components
- Price inflation: decrease from 3.00% to 2.75%
- Real increases: maintain at 0.50%
  - Department of Labor: Annual State and Local Government real productivity increase: 0.6% - 0.8% over 10 - 20 years
  - LACERS experience 2015 – 2017
    - Actual Average Increase in Salary: 0.8% average (2.0% six-year)
    - Actual Change in CPI: 1.4% average (1.7% six-year)
- Merit & Promotional: demographic assumption
  - Small increases at most years of service categories
- Net reduction in total assumed future salary increases

Payroll Growth Assumption

- Active member payroll based on wage inflation
- Includes price inflation and real wage increases
  - Price inflation: reduce from 3.00% to 2.75%
  - Real increases: maintain at 0.50%
  - Total is reduced from 3.50% to 3.25%
- Used to project total payroll for UAAL amortization

Investment Earnings Assumption

- Also called the discount rate
- Used for contribution requirements and GASB reporting
- Affects timing of Plan cost
  - Lower assumed rate means higher current cost
  - Ultimately, actual earnings determine cost
    C + I = B + E
  - "Can't pay benefits with assumed earnings!"

Setting the Earnings Assumption

- Four components
  - Inflation: consistent with assumed salary increases and COLAs
  - Real returns by asset class
    - Weighted by asset allocation
  - Reduced by assumed investment and administrative expenses
  - Reduced by "risk adjustment"
    - Margin for adverse deviation
    - Expressed as confidence level above 50%

LACERS Earnings Assumption

Preview:

Components of Investment Return Assumption

	Recommended	Current
Assumed Inflation	2.75%	3.00%
Portfolio Real Rate of Return	5.37%	5.47%
Assumed Expenses	(0.40%)	(0.60%)
Risk Adjustment	(0.72%)	(0.62%)
Assumed Investment Return	7.00%	7.25%
Confidence Level	58%	57%

Real Returns by Asset Class

- Segal uses an average of 7 investment advisory firms retained by Segal public clients
  - Used results from NEPC for asset categories unique to LACERS
- Small decrease in real return is primarily due to changes in the target asset allocation

LACERS Real Rate of Return

Asset Class	Target Allocation	Real Return	Weighted Return
U.S. Large Cap Equity	14%	5.32%	0.74%
U.S. Small Cap Equity	5%	6.07%	0.30%
Developed Int'l Large Cap Equity	17%	6.67%	1.13%
Developed Int'l Small Cap Equity	3%	7.14%	0.21%
Emerging Market Equity	7%	8.87%	0.62%
Core Bond	14%	1.04%	0.14%
High Yield Bond	2%	3.09%	0.06%
Bank Loan	2%	3.00%	0.06%
TIPS	4%	0.97%	0.03%
Emerging Market Debt (External)	5%	3.44%	0.15%
Real Estate	7%	4.68%	0.33%
Cash	1%	0.01%	0.00%
Commodities	1%	3.36%	0.03%
Additional Public Real Assets	1%	4.76%	0.05%
Real Estate Investment Trust (REIT)	1%	5.91%	0.06%
Private Debt	4%	5.50%	0.21%
Private Equity	14%	8.97%	1.26%
Total*	100%		5.37%

* Results may not add due to rounding

Administrative and Investment Expenses
(Gross of Private Equity Management Fees)

Administrative and Investment Expenses as a Percentage of Actuarial Value of Assets Including Active Management Fees for Private Equity (Dollars in 000's)

Year Ending June 30	Actuarial Value of Assets	Administrative Expenses	Investment Expenses	% of Assets
2014	$12,935,503	$15,765	$56,189	0.55%
2015	13,895,589	19,878	62,595	0.59
2016	14,752,103	19,727	66,540	0.58
2017	15,686,973	20,244	71,844	0.59
			Four-Year Average:	0.58%

Administrative and Investment Expenses
(Net of Private Equity Management Fees)

Administrative and Investment Expenses as a Percentage of Actuarial Value of Assets Excluding Active Management Fees for Private Equity (Dollars in 000's)

Year Ending June 30	Actuarial Value of Assets	Administrative Expenses	Investment Expenses	% of Assets
2014	$12,935,503	$15,765	$36,045	0.40%
2015	13,895,589	19,878	42,278	0.44
2016	14,752,103	19,727	39,926	0.40
2017	15,686,973	20,244	40,006	0.39
			Four-Year Average:	0.41%

- Based on this experience, we have decreased the future investment expense component from 0.60% to 0.40%.

Risk Adjustment Model and Confidence Level

- Compares the Plan’s risk position over time
- Confidence level is a relative, not absolute measure
  - Can be reevaluated and reset for future comparisons
- Confidence level is based on standard deviation
  - Measure of volatility based on portfolio assumptions
- Results should be evaluated for reasonableness

Risk Adjustment Model and Confidence Level

- Confidence that actual earnings over 15 years will exceed expected earnings

Valuation	Investment Return Assumption	Confidence Level
6/30/2005-2007	8.00%	65%
6/30/2008-2010	8.00%	66%
6/30/2011-2013	7.75%	57%
6/30/2014-2016	7.50%	59%
6/30/2017	7.25%	57%
6/30/2018	7.00%	58%

- Report shows history of confidence levels (pages 17 and 19)
- Recommended 7.00% assumption gives 58% confidence level
  - Inflation decreased from 3.00% to 2.75%
  - Portfolio real return decreased from 5.47% to 5.37%
  - Investment expense decreased from 0.60% to 0.40%

LACERS Earnings Assumption

Components of Investment Return Assumption

	Recommended	Current
Assumed Inflation	2.75%	3.00%
Portfolio Real Rate of Return	5.37%	5.47%
Assumed Expenses	(0.40%)	(0.60%)
Risk Adjustment	(0.72%)	(0.62%)
Assumed Investment Return	7.00%	7.25%
Confidence Level	58%	57%

Investment Earnings Assumption - 2017

- Comparison with other systems
  - National median is 7.50% but continues to trend down nationwide
  - Seven California county employees retirement system have adopted 7.00% (Contra Costa, Fresno, Marin, Mendocino, Orange, Sacramento, and Santa Barbara)
  - CalPERS approved reduction from 7.50% to 7.00% over three years
  - CalSTRS approved reduction from 7.50% to 7.00% over two years
  - LADWP and LAFPP currently assume 7.25%
    - With 3.00% inflation component

Anticipated Cost Impact – Retirement Plan
Modeled as of June 30, 2017 for illustration

- Increase in Actuarial Accrued Liability = $514 million
- Increase in aggregate employer contribution rate = 2.42% of pay
  - Increase in aggregate employer Normal Cost = 0.68% of pay
  - Increase in aggregate employer UAAL rate = 1.74% of pay

Economic	**1.04%**
Non-Economic	
Mortality	**1.76%**
Other	**(0.38)%**
Total	**2.42%**

Anticipated Cost Impact – Health Plan
Modeled as of June 30, 2017 for illustration

- Increase in Actuarial Accrued Liability = $189 million
- Increase in aggregate employer contribution rate = 0.98% of pay
  - Increase in aggregate employer Normal Cost = 0.43% of pay
  - Increase in aggregate employer UAAL rate = 0.55% of pay

Economic	**0.59%**
Non-Economic	
Mortality	**0.36%**
Other	**0.03%**
Total	**0.98%**

Always remember

$$C + I = B + E$$

Contributions + Investment Income

equals

Benefit Payments + Expenses

- Actuarial valuation determines the current or “measured” cost, not the ultimate cost
- Assumptions and funding methods affect only the timing of costs

PORTFOLIO PERFORMANCE REVIEW SUMMARY

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Quarter Ending March 31, 2018

~~July 10, 2018~~ July 24, 2018

NEPC

BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

PERFORMANCE OVERVIEW

Q1 Market Summary

Macro			Equity			Credit			Real Assets		
US Dollar	VIX	US 10-Yr	S&P 500	MSCI EAFE	MSCI EM	US Agg.	High Yield	Dollar EMD	Oil	Gold	REITS
-2.3%	8.9	33 bps	-0.8%	-1.5%	1.4%	-1.5%	-0.9%	-1.8%	7.5%	1.7%	-6.5%

May 2018 Update

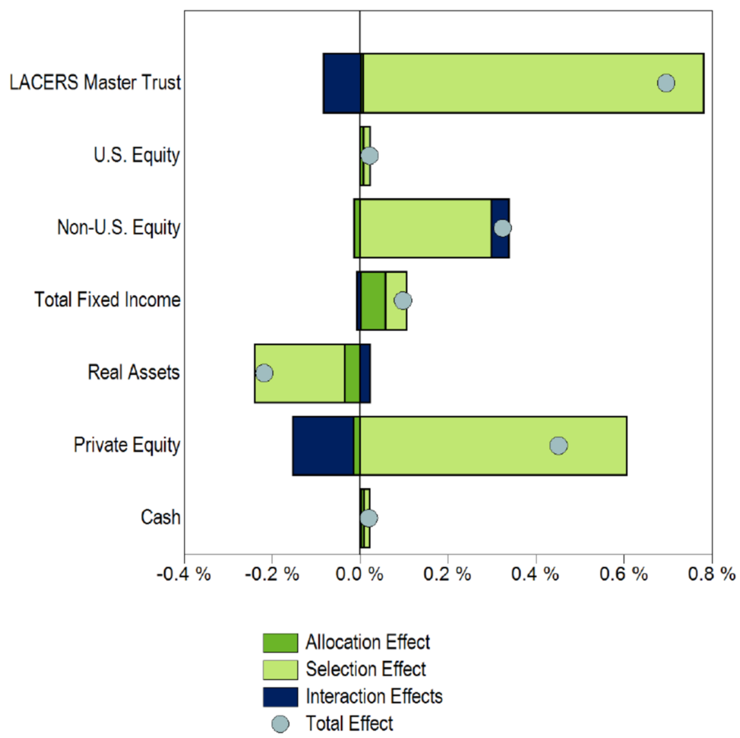
	2010	2011	2012	2013	2014	2015	2016	2017	Q1	April	May	YTD
US Large Cap	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	21.8%	-0.8%	0.4%	2.4%	2.0%
US Small/Mid Cap	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	16.8%	-0.2%	0.2%	4.7%	4.7%
Int'l Developed Equity	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	25.0%	-1.5%	2.3%	-2.2%	-1.5%
Emerging Market Equity	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	37.3%	1.4%	-0.4%	-3.5%	-2.6%
US Aggregate	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	3.5%	-1.5%	-0.7%	0.7%	-1.5%
US High Yield	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	7.5%	-0.9%	0.7%	0.0%	-0.2%
US Long Treasuries	9.4%	29.9%	3.6%	-12.7%	25.1%	-1.2%	1.3%	8.5%	-3.3%	-1.9%	2.1%	-3.2%
EM Local Credit	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	15.2%	4.4%	-3.0%	-5.0%	-3.7%
Global Credit	-5.3%	-5.3%	-4.1%	2.7%	-0.6%	3.3%	2.1%	7.4%	1.4%	-1.6%	-0.8%	-1.0%
Commodities	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	1.7%	-0.4%	2.6%	1.4%	3.6%

Source: Bloomberg, Barclays, S&P, Russell, MSCI, JP Morgan, Credit Suisse

TOTAL FUND PERFORMANCE SUMMARY

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank	15 Yrs	Rank	Inception	Inception Date
LACERS Master Trust	**$17,015,563,141**	**0.22%**	**40**	**8.41%**	**14**	**12.58%**	**14**	**7.51%**	**29**	**8.65%**	**24**	**6.73%**	**40**	**8.90%**	**17**	**8.37%**	**Oct-94**
Policy Index		-0.52%	82	7.63%	52	11.29%	48	7.17%	51	8.17%	50	6.62%	43	8.57%	43	8.27%	Oct-94
InvestorForce Public DB $5-50B Gross Median		0.10%		7.67%		11.25%		7.17%		8.16%		6.51%		8.51%		8.26%	Oct-94

Attribution Effects
3 Months Ending March 31, 2018



Attribution Summary
3 Months Ending March 31, 2018

	Policy Weight	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
U.S. Equity	24.00%	-0.59%	-0.64%	0.06%	0.01%	0.01%	0.00%	0.02%
Non-U.S. Equity	29.00%	-0.16%	-1.18%	1.03%	0.30%	-0.01%	0.04%	0.32%
Total Fixed Income	24.00%	-1.20%	-1.40%	0.20%	0.05%	0.06%	-0.01%	0.10%
Real Assets	10.00%	0.43%	2.47%	-2.04%	-0.20%	-0.04%	0.02%	-0.22%
Private Equity	12.00%	5.19%	0.09%	5.10%	0.61%	-0.02%	-0.14%	0.45%
Cash	1.00%	1.45%	0.38%	1.06%	0.01%	0.01%	0.00%	0.02%
Total	**100.00%**	**0.18%**	**-0.52%**	**0.69%**	**0.77%**	**0.01%**	**-0.08%**	**0.69%**

5 Years Ending March 31, 2018

	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
LACERS Master Trust	8.65%	24	6.21%	73	1.34	41	2.55	27
Policy Index	8.17%	50	6.91%	96	1.13	82	1.96	70
InvestorForce Public DB $5-50B Gross Median	8.16%	--	5.85%	--	1.29	--	2.25	--

3 Years Ending March 31, 2018

	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
LACERS Master Trust	7.51%	29	6.32%	68	1.10	44	1.78	29
Policy Index	7.17%	51	7.24%	99	0.92	83	1.37	77
InvestorForce Public DB $5-50B Gross Median	7.17%	--	5.94%	--	1.05	--	1.59	--

Attribution is net of fees; all other data is gross of fees

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value ($)	% of Portfolio	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
LACERS Master Trust	**17,015,563,141**	**100.00**	**0.18**	**8.26**	**12.38**	**7.32**	**8.46**	**6.53**	**--**	**Oct-94**
Policy Index			-0.52	7.63	11.29	7.17	8.17	6.62	8.27	*Oct-94*
Over/Under			0.70	0.63	1.09	0.15	0.29	-0.09		
U.S. Equity	**4,407,968,889**	**25.91**	**-0.59**	**10.51**	**13.77**	**10.12**	**12.95**	**9.62**	**--**	**Oct-94**
U.S. Equity Blend			-0.64	10.48	13.81	10.22	13.03	9.62	9.36	*Oct-94*
Over/Under			0.05	0.03	-0.04	-0.10	-0.08	0.00		
Non-U.S. Equity	**5,481,335,376**	**32.21**	**-0.16**	**12.19**	**19.72**	**8.00**	**7.37**	**3.85**	**7.16**	**Aug-01**
MSCI ACWI ex USA			-1.18	10.16	16.53	6.18	5.89	2.70	6.58	*Aug-01*
Over/Under			1.02	2.03	3.19	1.82	1.48	1.15	0.58	
Core Fixed Income	**2,981,563,282**	**17.52**	**-1.32**	**-0.01**	**1.49**	**1.57**	**2.17**	**--**	**2.67**	**Jul-12**
Core Fixed Income Blend			-1.46	-0.24	1.20	1.20	1.82	3.82	2.04	*Jul-12*
Over/Under			0.14	0.23	0.29	0.37	0.35		0.63	
Credit Opportunities	**793,551,406**	**4.66**	**-0.86**	**2.43**	**4.60**	**4.66**	**--**	**--**	**5.31**	**Jun-13**
Credit Opportunities Blend			-1.17	1.74	3.97	5.41	--	--	5.84	*Jun-13*
Over/Under			0.31	0.69	0.63	-0.75			-0.53	
Real Assets	**1,565,247,855**	**9.20**	**0.43**	**3.74**	**5.15**	**5.73**	**8.03**	**-0.30**	**--**	**Nov-94**
CPI + 5% (Unadjusted)			2.47	5.67	7.47	6.95	6.47	6.64	7.32	*Nov-94*
Over/Under			-2.04	-1.93	-2.32	-1.22	1.56	-6.94		
Public Real Assets	**772,068,346**	**4.54**	**-1.43**	**2.10**	**1.40**	**1.16**	**--**	**--**	**0.59**	**Jun-14**
Public Real Assets Blend			-2.29	0.37	-0.89	-0.45	--	--	-2.12	*Jun-14*
Over/Under			0.86	1.73	2.29	1.61			2.71	
Private Real Estate	**772,766,844**	**4.54**	**2.24**	**5.46**	**8.68**	**9.61**	**10.74**	**0.94**	**--**	**Oct-94**
Real Estate Blend			2.39	6.89	8.92	10.86	11.76	7.03	9.99	*Oct-94*
Over/Under			-0.15	-1.43	-0.24	-1.25	-1.02	-6.09		
Private Equity	**1,708,829,656**	**10.04**	**5.19**	**10.73**	**16.20**	**10.63**	**12.26**	**8.90**	**--**	**Nov-95**
Private Equity Blend			0.09	12.93	17.19	13.50	16.39	13.35	12.99	*Nov-95*
Over/Under			5.10	-2.20	-0.99	-2.87	-4.13	-4.45		
Cash	**77,066,677**	**0.45**								

Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may be preliminary and subject to change.
- This report is provided as a management aid for the client's internal use only. Information contained in this report does not constitute a recommendation by NEPC.
- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.

PORTFOLIO PERFORMANCE REVIEW

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Quarter Ending March 31, 2018

~~July 10, 2018~~ July 24, 2018

BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

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MARKET ENVIRONMENT

PERFORMANCE OVERVIEW

Q1 Market Summary

Macro			Equity			Credit			Real Assets		
US Dollar	VIX	US 10-Yr	S&P 500	MSCI EAFE	MSCI EM	US Agg.	High Yield	Dollar EMD	Oil	Gold	REITS
-2.3%	8.9	33 bps	-0.8%	-1.5%	1.4%	-1.5%	-0.9%	-1.8%	7.5%	1.7%	-6.5%

- **After a strong year for equity markets in 2017, the first quarter of the year saw a spike in volatility – in part due to concerns over a potential trade war between the US and China**

- **After ending 2017 down over 10%, the US dollar continued to decline in Q1 relative to a basket of major currencies**
  - As a result, emerging market equities fared well throughout the quarter and are still supported by strong earnings and GDP growth

- **The US yield curve flattened as the Fed rate hike pushed short-term interest rates higher while long-term rates rose more modestly**

Market segment (index representation) as follows: US Dollar (DXY Index), VIX (CBOE Volatility Index), US 10-Year (US 10-Year Treasury Yield), S&P 500 (US Equity), MSCI EAFE Index (International Developed Equity), MSCI Emerging Markets (Emerging Markets Equity), US Agg (Barclays US Aggregate Bond Index), High Yield (Barclays US High Yield Index), Dollar EMD (JPM Emerging Market Bond Index), Crude Oil (WTI Crude Oil Spot), Gold (Gold Price Spot), and REITs (NAREIT Composite Index).

MACRO PERFORMANCE OVERVIEW

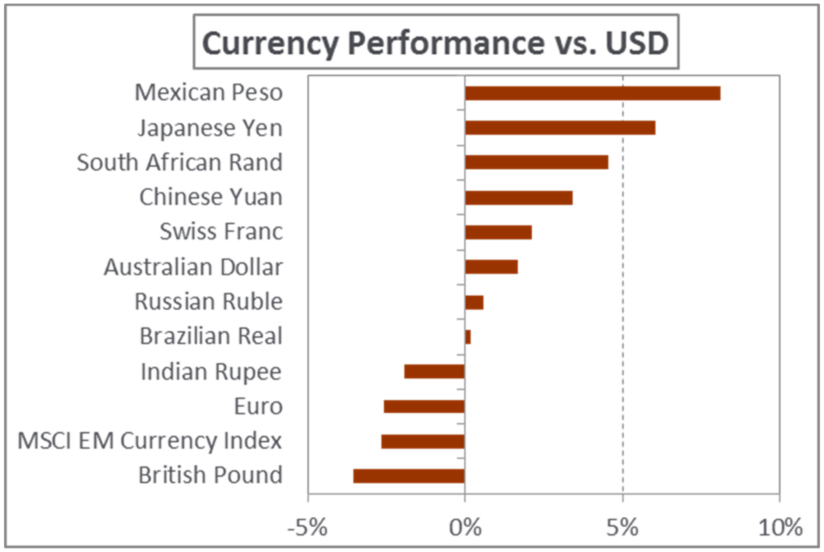
Q1 Macro Market Summary

- **The global growth outlook remains strong, particularly in the US with the tax reform tailwind**
- **Heightened trade tensions between the US and China caused global equity market volatility to increase**
- **The US Treasury curve shifted upward, but continued to flatten with short-term rates rising**

	Yield 12/31/17	Yield 03/31/18	|Δ|
US 10-Yr	2.41%	2.74%	0.41%
US 30-Yr	2.74%	2.97%	0.23%
US Real 10-Yr	0.43%	0.68%	0.26%
German 10-Yr	0.43%	0.50%	0.07%
Japan 10-Yr	0.05%	0.05%	-
China 10-Yr	3.90%	3.75%	-0.15%
EM Local Debt	6.14%	6.00%	-0.14%

Source: Bloomberg

Central Banks	Current Rate	CPI YOY	Notes from the Quarter
Federal Reserve	1.50% - 1.75%	2.1%	The Fed increased its benchmark interest rate a quarter point to 1.50%-1.75% in its first meeting under new chair, Jerome Powell.
European Central Bank	0.0%	1.3%	The ECB maintained its current benchmark interest rate, but has revised down inflation forecasts while increasing growth forecasts.
Bank of Japan	-0.10%	0.6%	The BoJ continued its ultra-easy QE program with inflation remaining well below the 2% target.



Source: Bloomberg

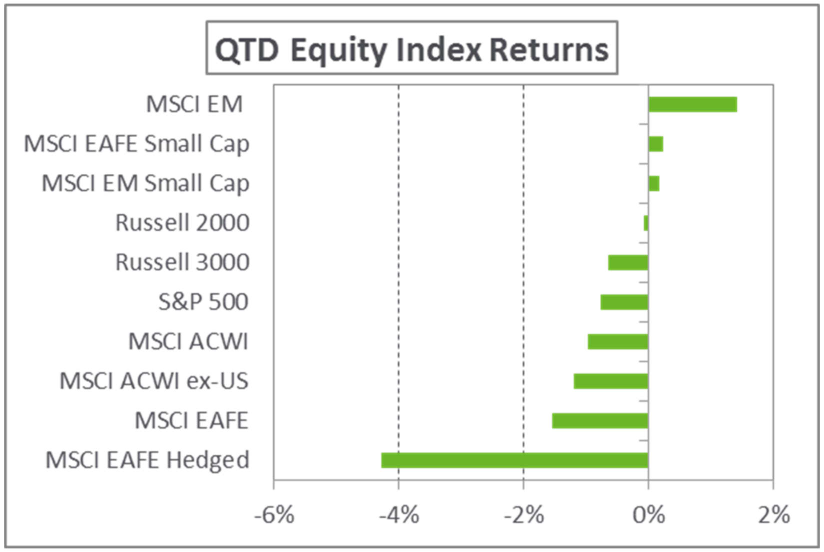
EQUITY PERFORMANCE OVERVIEW

Q1 Equity Market Summary

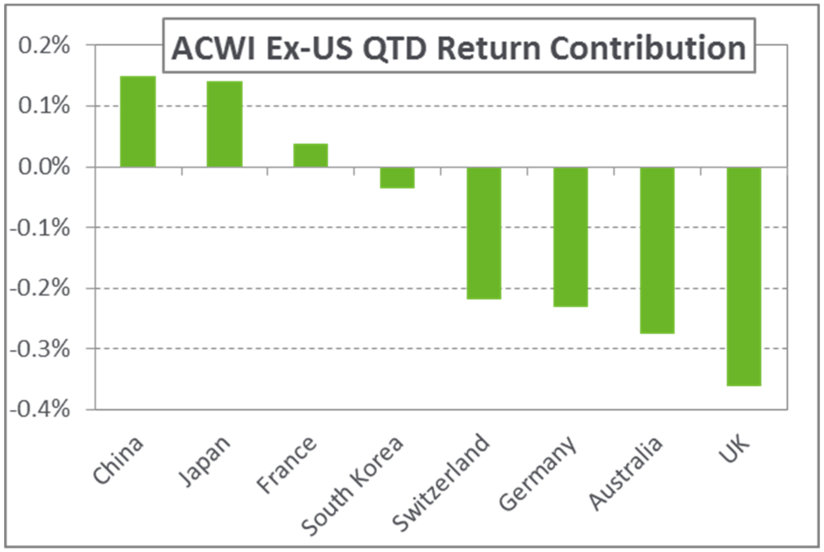
- **Dollar weakness continued to bolster emerging market and international developed equity returns**
- **US equity markets declined 0.8% on the quarter in part due to trade concerns – its first negative quarter in over two years**

Russell 3000 QTD Sector Return Contribution	
Information Technology	0.80%
Consumer Discretionary	-0.68%
Financials	-0.15%
Industrials	-0.07%
Consumer Staples	-0.45%
Energy	0.07%
Materials	-0.19%
Health Care	-0.77%
Real Estate	0.15%
Telecommunication	0.20%
Utilities	-0.23%

Source: Russell, Bloomberg



Source: MSCI, Russell, S&P, Bloomberg



Source: MSCI, Bloomberg. QTD top country contributors to index return

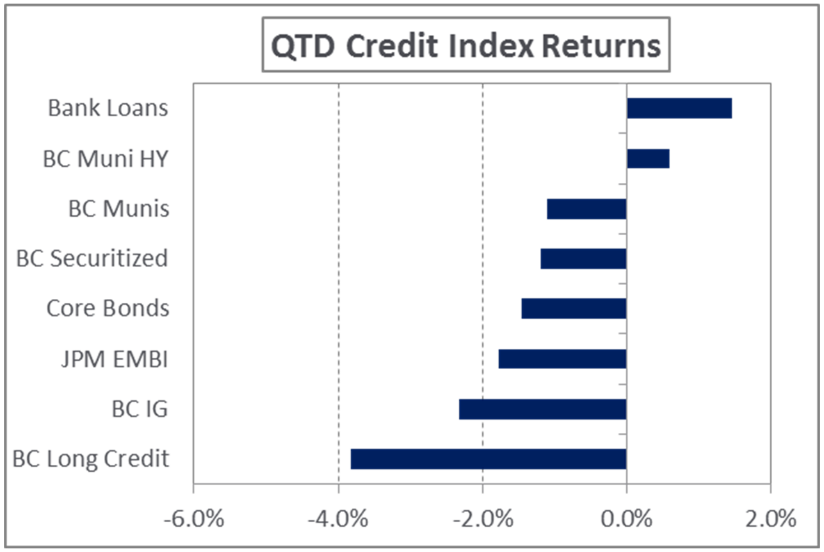
CREDIT PERFORMANCE OVERVIEW

Q1 Credit Market Summary

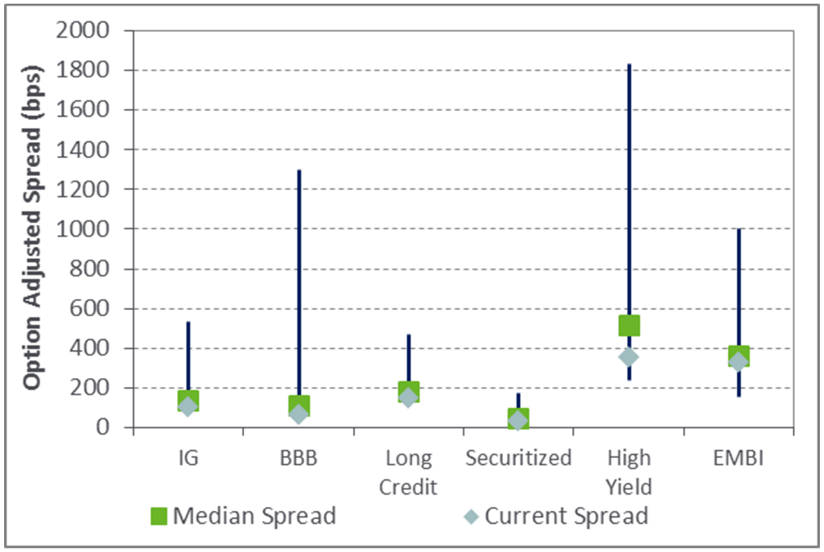
- **Credit spreads increased slightly, but remain below medians in most areas of the credit market**
- **In particular, current high yield spreads continue to support a broad reduction in exposure**
- **Long credit declined 3.3% for the quarter with the 30-year Treasury yield increasing 23 basis points**

Credit Spread (Basis Points)	12/29/17	03/31/18	|Δ|
BC IG Credit	93	109	16
BC Long Credit	139	148	9
BC Securitized	27	32	5
BC High Yield	343	354	11
Muni HY	275	253	-22
JPM EMBI	311	326	15
Bank Loans - Libor	336	257	-79

Source: Barclays, Merrill Lynch, JPM, Bloomberg, NEPC



Source: Barclays, JPM, S&P, Bloomberg

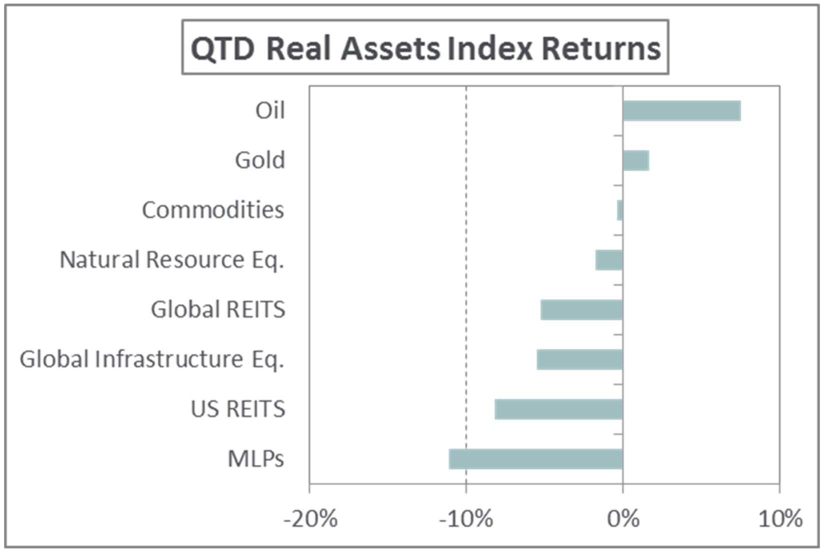


Source: Barclays, JPM, S&P, Bloomberg. As of 01/31/2000

REAL ASSETS PERFORMANCE OVERVIEW

Q1 Real Assets Market Summary

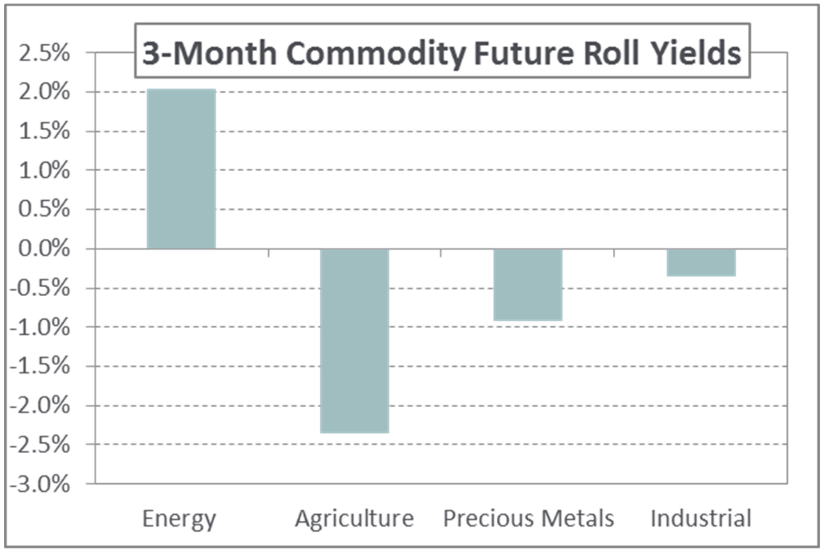
- **MLPs experienced a significant decline for the quarter as negative sentiment weighed on the market**
  - Despite the negative performance, fundamentals remain supportive with strong earnings and growth prospects
- **Commodity index roll yield is more negative than the previous quarter, despite the energy sector having a positive contribution**



Source: S&P, NAREIT, Alerian, Bloomberg

Real Asset Yields	12/29/17	03/31/18
MLPs	7.8%	8.9%
Core Real Estate	4.4%	4.5%
US REITs	4.1%	4.6%
Global REITs	3.6%	4.0%
Global Infrastructure Equities	3.9%	3.9%
Natural Resource Equities	3.1%	3.6%
US 10-Yr Breakeven Inflation	2.0%	2.1%
Commodity Index Roll Yield	-0.4%	-1.6%

Source: NCREIF, Alerian, NAREIT, S&P, Bloomberg



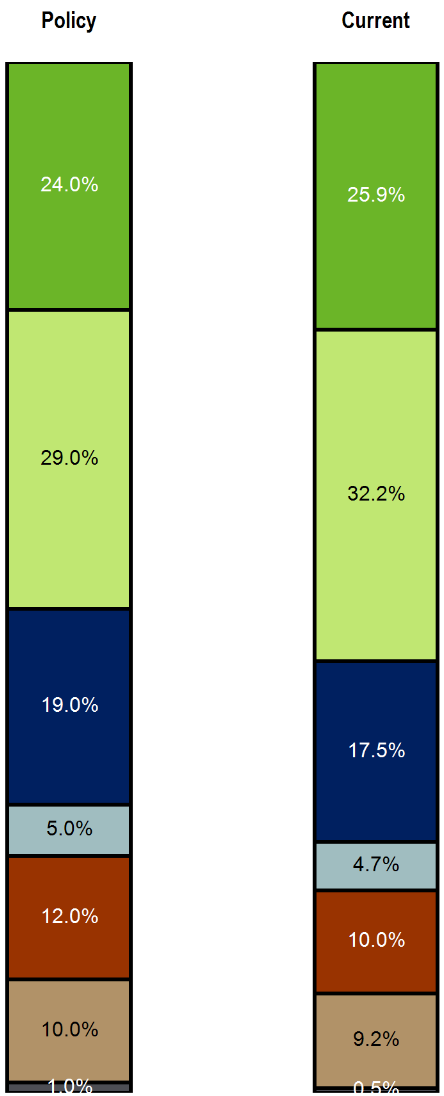
Source: Bloomberg, NEPC Calculated as of 04/09/2018

ASSET CLASS POLICY OVERVIEW

NEPC, LLC

Los Angeles City Employees' Retirement System

TOTAL FUND ASSET ALLOCATION VS. POLICY



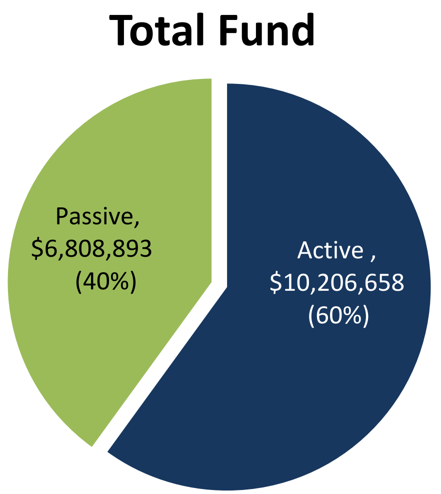
Asset Allocation vs. Target

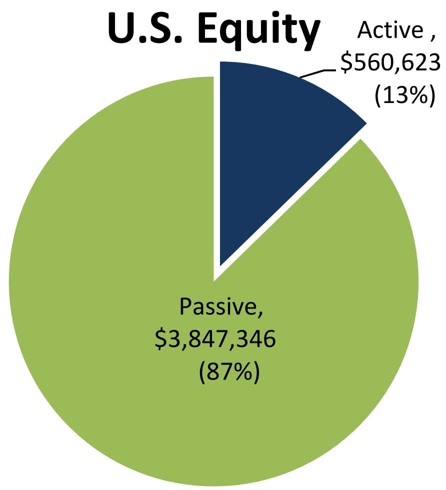
	Current	Policy	Current	Difference*	Policy Range	Within Range
U.S. Equity	$4,407,968,889	24.00%	25.91%	1.91%	19.00% - 29.00%	**Yes**
Non-US Equity	$5,481,335,376	29.00%	32.21%	3.21%	24.00% - 34.00%	**Yes**
Core Fixed Income	$2,981,563,282	19.00%	17.52%	-1.48%	15.00% - 22.00%	**Yes**
Credit Opportunities	$793,551,406	5.00%	4.66%	-0.34%	0.00% - 10.00%	**Yes**
Private Equity	$1,708,829,656	12.00%	10.04%	-1.96%		
Real Assets	$1,565,247,855	10.00%	9.20%	-0.80%	7.00% - 13.00%	**Yes**
Cash	$77,066,677	1.00%	0.45%	-0.55%	0.00% - 2.00%	**Yes**
Total	**$17,015,563,141**	**100.00%**	**100.00%**			

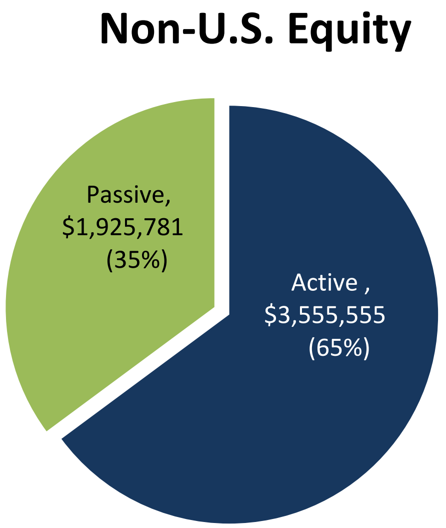
*Difference between Policy and Current Allocation

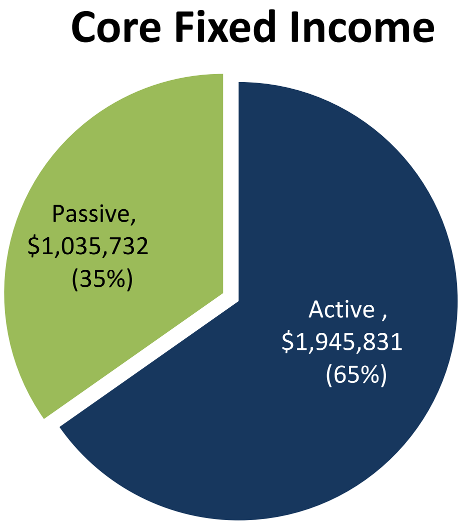
ACTIVE VS. PASSIVE MANAGER BREAKDOWN

Note: Market values shown in millions $(000).









- Of the Total Fund, LACERS allocated 60% to active managers and 40% to passive managers.
- Credit Opportunities, Private Equity, and Real Assets programs are active and therefore are not shown.

PERFORMANCE OVERVIEW

TOTAL FUND PERFORMANCE SUMMARY (GROSS OF FEES)

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank	15 Yrs	Rank	Inception	Inception Date
LACERS Master Trust	**$17,015,563,141**	**0.22%**	**40**	**8.41%**	**14**	**12.58%**	**14**	**7.51%**	**29**	**8.65%**	**24**	**6.73%**	**40**	**8.90%**	**17**	**8.37%**	**Oct-94**
Policy Index		-0.52%	82	7.63%	52	11.29%	48	7.17%	51	8.17%	50	6.62%	43	8.57%	43	8.27%	Oct-94
InvestorForce Public DB $5-50B Gross Median		0.10%		7.67%		11.25%		7.17%		8.16%		6.51%		8.51%		8.26%	Oct-94

Over the past five years, the Fund returned 8.65% per annum, outperforming the policy index by 0.48% and ranked in the 24th percentile of the InvestorForce Public Funds $5 Billion- $50 Billion universe. The Fund's volatility was 6.21% and ranks in the 73rd percentile of its peers over this period. The Fund's risk-adjusted performance, as measured by the Sharpe Ratio, ranks in the 41nd percentile of its peers.

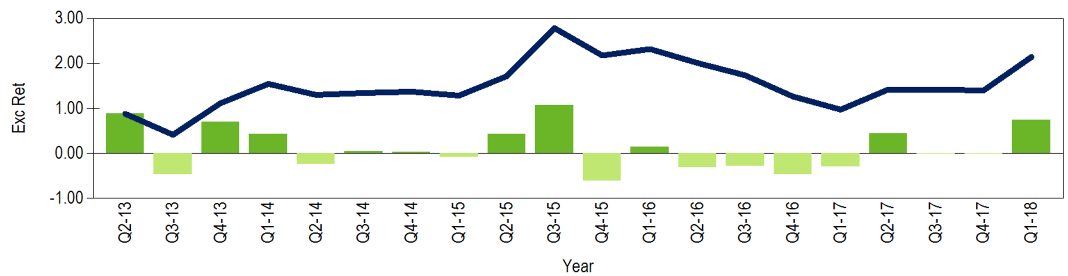
Over the past three years, the Fund returned 7.51% per annum, outperforming the policy index by 0.34% and ranked in the 29th percentile in its peer group. The Fund's volatility ranks in the 68th percentile resulting in a three-year Sharpe Ratio of 1.1 and ranking in the 44th percentile.

For the one year ended March 31, 2018, the Fund experienced a net investment gain of $1.94 billion, which includes a net investment gain of $40.52 million during the first calendar quarter. Assets increased from $15.3 billion twelve months ago to $17.02 billion on March 31, 2018. The Fund returned 12.58%, outperforming the policy index by 1.29% and ranked in the 14th percentile of its peers.

All asset classes were within policy range as of March 31, 2018.

The InvestorForce Public Funds $5 Billion- $50 Billion Universe contains 39 observations for the period ending March 31, 2018.

Quarterly and Cumulative Excess Performance



5 Years Ending March 31, 2018

	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
LACERS Master Trust	8.65%	24	6.21%	73	1.34	41	2.55	27
Policy Index	8.17%	50	6.91%	96	1.13	82	1.96	70
InvestorForce Public DB $5-50B Gross Median	8.16%	--	5.85%	--	1.29	--	2.25	--

3 Years Ending March 31, 2018

	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
LACERS Master Trust	7.51%	29	6.32%	68	1.10	44	1.78	29
Policy Index	7.17%	51	7.24%	99	0.92	83	1.37	77
InvestorForce Public DB $5-50B Gross Median	7.17%	--	5.94%	--	1.05	--	1.59	--

Los Angeles City Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (GROSS)

	Market Value ($)	% of Portfolio	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
LACERS Master Trust	**17,015,563,141**	**100.00**	**0.22**	**8.41**	**12.58**	**7.51**	**8.65**	**6.73**	**8.37**	**Oct-94**
Policy Index			-0.52	7.63	11.29	7.17	8.17	6.62	8.27	Oct-94
Over/Under			0.74	0.78	1.29	0.34	0.48	0.11	0.10	
U.S. Equity	**4,407,968,889**	**25.91**	**-0.57**	**10.56**	**13.84**	**10.21**	**13.08**	**9.80**	**10.50**	**Oct-94**
U.S. Equity Blend			-0.64	10.48	13.81	10.22	13.03	9.62	9.36	Oct-94
Over/Under			0.07	0.08	0.03	-0.01	0.05	0.18	1.14	
Non-U.S. Equity	**5,481,335,376**	**32.21**	**-0.06**	**12.49**	**20.15**	**8.38**	**7.71**	**4.21**	**7.52**	**Aug-01**
MSCI ACWI ex USA			-1.18	10.16	16.53	6.18	5.89	2.70	6.58	Aug-01
Over/Under			1.12	2.33	3.62	2.20	1.82	1.51	0.94	
Core Fixed Income	**2,981,563,282**	**17.52**	**-1.29**	**0.06**	**1.59**	**1.67**	**2.28**	**--**	**2.79**	**Jul-12**
Core Fixed Income Blend			-1.46	-0.24	1.20	1.20	1.82	3.82	2.04	Jul-12
Over/Under			0.17	0.30	0.39	0.47	0.46		0.75	
Credit Opportunities	**793,551,406**	**4.66**	**-0.77**	**2.70**	**4.96**	**5.04**	**--**	**--**	**5.66**	**Jun-13**
Credit Opportunities Blend			-1.17	1.74	3.97	5.41	--	--	5.84	Jun-13
Over/Under			0.40	0.96	0.99	-0.37			-0.18	
Real Assets	**1,565,247,855**	**9.20**	**0.46**	**3.86**	**5.31**	**5.89**	**8.18**	**-0.17**	**6.34**	**Nov-94**
CPI + 5% (Unadjusted)			2.47	5.67	7.47	6.95	6.47	6.64	7.32	Nov-94
Over/Under			-2.01	-1.81	-2.16	-1.06	1.71	-6.81	-0.98	
Public Real Assets	**772,068,346**	**4.54**	**-1.38**	**2.29**	**1.65**	**1.39**	**--**	**--**	**0.78**	**Jun-14**
Public Real Assets Blend			-2.29	0.37	-0.89	-0.45	--	--	-2.12	Jun-14
Over/Under			0.91	1.92	2.54	1.84			2.90	
Private Real Estate	**772,766,844**	**4.54**	**2.26**	**5.52**	**8.76**	**9.71**	**10.86**	**1.06**	**6.88**	**Oct-94**
Real Estate Blend			2.39	6.89	8.92	10.86	11.76	7.03	9.99	Oct-94
Over/Under			-0.13	-1.37	-0.16	-1.15	-0.90	-5.97	-3.11	
Private Equity	**1,708,829,656**	**10.04**	**5.19**	**10.73**	**16.19**	**10.61**	**12.25**	**8.90**	**10.39**	**Nov-95**
Private Equity Blend			0.09	12.93	17.19	13.50	16.39	13.35	12.99	Nov-95
Over/Under			5.10	-2.20	-1.00	-2.89	-4.14	-4.45	-2.60	
Cash	**77,066,677**	**0.45**								

Note - See appendix for blended benchmark definitions.

Los Angeles City Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value ($)	% of Portfolio	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
LACERS Master Trust	**17,015,563,141**	**100.00**	**0.18**	**8.26**	**12.38**	**7.32**	**8.46**	**6.53**	**--**	**Oct-94**
Policy Index			*-0.52*	*7.63*	*11.29*	*7.17*	*8.17*	*6.62*	*8.27*	*Oct-94*
Over/Under			0.70	0.63	1.09	0.15	0.29	-0.09		
U.S. Equity	**4,407,968,889**	**25.91**	**-0.59**	**10.51**	**13.77**	**10.12**	**12.95**	**9.62**	**--**	**Oct-94**
U.S. Equity Blend			*-0.64*	*10.48*	*13.81*	*10.22*	*13.03*	*9.62*	*9.36*	*Oct-94*
Over/Under			0.05	0.03	-0.04	-0.10	-0.08	0.00		
Non-U.S. Equity	**5,481,335,376**	**32.21**	**-0.16**	**12.19**	**19.72**	**8.00**	**7.37**	**3.85**	**7.16**	**Aug-01**
MSCI ACWI ex USA			*-1.18*	*10.16*	*16.53*	*6.18*	*5.89*	*2.70*	*6.58*	*Aug-01*
Over/Under			1.02	2.03	3.19	1.82	1.48	1.15	0.58	
Core Fixed Income	**2,981,563,282**	**17.52**	**-1.32**	**-0.01**	**1.49**	**1.57**	**2.17**	**--**	**2.67**	**Jul-12**
Core Fixed Income Blend			*-1.46*	*-0.24*	*1.20*	*1.20*	*1.82*	*3.82*	*2.04*	*Jul-12*
Over/Under			0.14	0.23	0.29	0.37	0.35		0.63	
Credit Opportunities	**793,551,406**	**4.66**	**-0.86**	**2.43**	**4.60**	**4.66**	**--**	**--**	**5.31**	**Jun-13**
Credit Opportunities Blend			*-1.17*	*1.74*	*3.97*	*5.41*	*--*	*--*	*5.84*	*Jun-13*
Over/Under			0.31	0.69	0.63	-0.75			-0.53	
Real Assets	**1,565,247,855**	**9.20**	**0.43**	**3.74**	**5.15**	**5.73**	**8.03**	**-0.30**	**--**	**Nov-94**
CPI + 5% (Unadjusted)			*2.47*	*5.67*	*7.47*	*6.95*	*6.47*	*6.64*	*7.32*	*Nov-94*
Over/Under			-2.04	-1.93	-2.32	-1.22	1.56	-6.94		
Public Real Assets	**772,068,346**	**4.54**	**-1.43**	**2.10**	**1.40**	**1.16**	**--**	**--**	**0.59**	**Jun-14**
Public Real Assets Blend			*-2.29*	*0.37*	*-0.89*	*-0.45*	*--*	*--*	*-2.12*	*Jun-14*
Over/Under			0.86	1.73	2.29	1.61			2.71	
Private Real Estate	**772,766,844**	**4.54**	**2.24**	**5.46**	**8.68**	**9.61**	**10.74**	**0.94**	**--**	**Oct-94**
Real Estate Blend			*2.39*	*6.89*	*8.92*	*10.86*	*11.76*	*7.03*	*9.99*	*Oct-94*
Over/Under			-0.15	-1.43	-0.24	-1.25	-1.02	-6.09		
Private Equity	**1,708,829,656**	**10.04**	**5.19**	**10.73**	**16.20**	**10.63**	**12.26**	**8.90**	**--**	**Nov-95**
Private Equity Blend			*0.09*	*12.93*	*17.19*	*13.50*	*16.39*	*13.35*	*12.99*	*Nov-95*
Over/Under			5.10	-2.20	-0.99	-2.87	-4.13	-4.45		
Cash	**77,066,677**	**0.45**								

Note - See appendix for blended benchmark definitions.

Los Angeles City Employees' Retirement System

TOTAL FUND RISK STATISTICS (NET)

3 Years Ending March 31, 2018	% of Total MV (%)	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank	Annualized Alpha Jensen (%)	Rank	Information Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
LACERS Master Trust	100.00%	7.32%	37	6.34%	68	1.00%	32	0.13	62	1.61	47	1.10%	41
U.S. Equity	25.91%	10.12%	24	10.39%	54	-0.11%	32	-0.16	--	1.32	35	0.66%	12
Non-U.S. Equity	32.21%	8.00%	31	12.08%	69	2.01%	28	1.60	1	1.05	24	1.13%	8
Developed ex-U.S.	24.75%	7.21%	31	11.63%	24	1.94%	16	1.21	1	0.91	24	1.37%	39
Emerging Markets	7.46%	9.17%	24	16.90%	97	0.15%	53	0.39	5	1.01	24	0.94%	1
Core Fixed Income	17.52%	1.57%	85	2.61%	34	0.40%	78	0.73	62	0.51	77	0.51%	19
Credit Opportunities	4.66%	4.66%	--	5.06%	--	-0.60%	--	-0.76	--	1.36	--	0.99%	--
Real Assets	9.20%	5.73%	--	2.17%	--	1.02%	--	-0.58	--	12.65	--	2.11%	--
Public Real Assets	4.54%	1.16%	--	4.14%	--	1.30%	--	0.63	--	0.33	--	2.57%	--
Private Real Estate	4.54%	9.61%	33	1.80%	19	11.27%	4	-0.23	--	--	--	5.39%	94
Private Equity	10.04%	10.63%	58	3.71%	13	10.98%	33	-0.25	--	11.31	52	11.66%	75

5 Years Ending March 31, 2018	% of Total MV (%)	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank	Annualized Alpha Jensen (%)	Rank	Information Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
LACERS Master Trust	100.00%	8.46%	40	6.21%	74	1.13%	46	0.27	57	2.38	33	1.07%	36
U.S. Equity	25.91%	12.95%	31	10.09%	48	-0.17%	36	-0.12	--	2.08	38	0.71%	15
Non-U.S. Equity	32.21%	7.37%	39	11.64%	72	1.62%	35	1.19	1	1.10	28	1.24%	14
Developed ex-U.S.	24.75%	7.38%	34	11.40%	46	1.18%	42	0.65	26	1.12	17	1.37%	34
Emerging Markets	7.46%	4.51%	36	15.52%	96	-0.61%	61	-0.25	--	0.46	51	1.87%	11
Core Fixed Income	17.52%	2.17%	73	3.00%	50	0.36%	74	0.58	53	0.83	74	0.61%	23
Real Assets	9.20%	8.03%	--	2.25%	--	6.43%	--	0.66	--	19.51	--	2.37%	--
Private Real Estate	4.54%	10.74%	50	1.86%	16	12.84%	6	-0.18	--	--	--	5.66%	88
Private Equity	10.04%	12.26%	54	4.04%	18	12.08%	29	-0.38	--	12.88	47	10.88%	72

Sortino Ratio RF = Sortino Ratio Risk Free. The risk free rate is the Citi 91 Day T-Bill Index.

PRIVATE MARKETS PERFORMANCE AS OF DECEMBER 31, 2017

Private Equity	10 Year IRR	Since Inception IRR	Since Inception Multiple
Aggregate Portfolio	8.82%	11.15%	1.53x
Core Portfolio	9.41%	11.73%	1.56x
Specialized Portfolio	1.89%	1.64%	1.10x
Russell 3000 + 300 bps	11.71%	10.80%	N/A

Real Estate	10 Year Return (Net)	Since Inception Return (Net)
Total Portfolio (TWR)[1]	0.51%	5.96%
NFI-ODCE + 80 basis points (TWR)	4.87%	7.12%

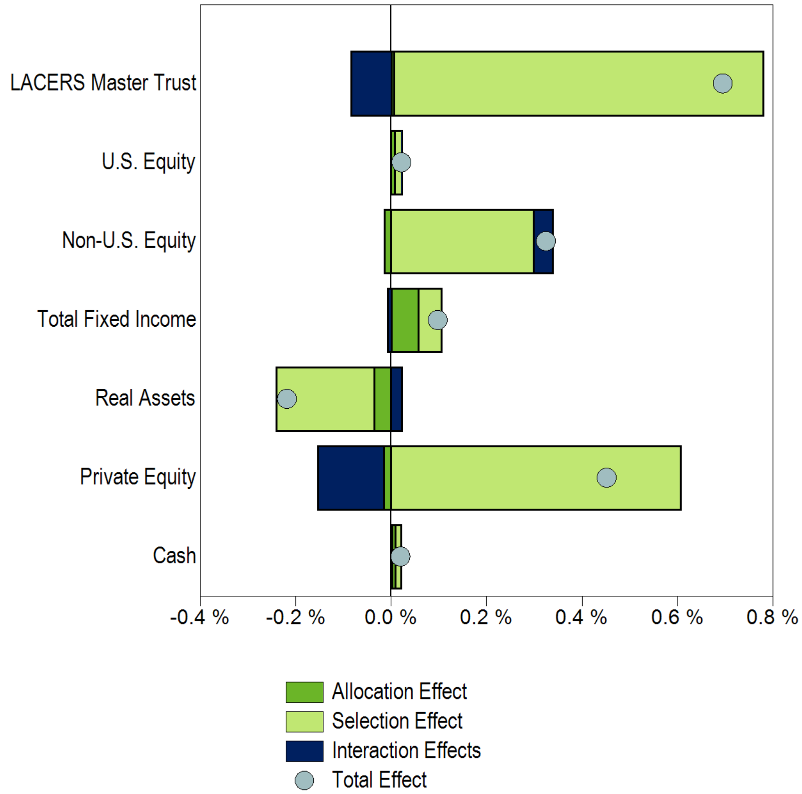
Note: The Total Value to Paid-In Ratio (TVPI) is a multiple that relates the current value of the private equity portfolio plus all distributions received to date with the total amount of capital contributed.

1 - IRR is not available for the Real Estate portfolio and therefore only time weighted returns (TWR) are reported.

Los Angeles City Employees' Retirement System

TOTAL FUND ATTRIBUTION ANALYSIS (NET)

Attribution Effects
3 Months Ending March 31, 2018



Attribution Summary
3 Months Ending March 31, 2018

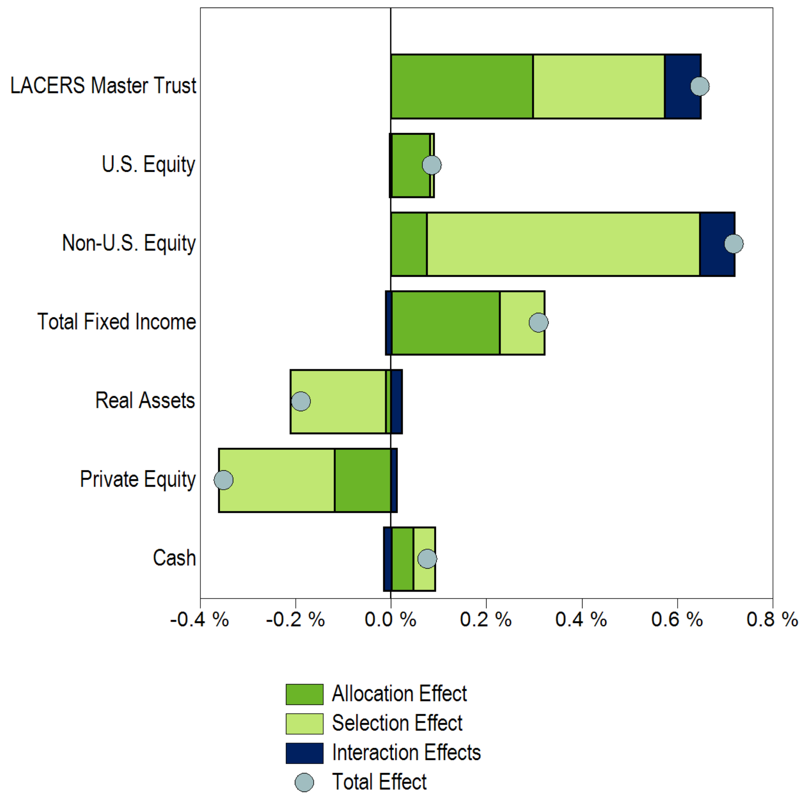
	Policy Weight	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
U.S. Equity	24.00%	-0.59%	-0.64%	0.06%	0.01%	0.01%	0.00%	0.02%
Non-U.S. Equity	29.00%	-0.16%	-1.18%	1.03%	0.30%	-0.01%	0.04%	0.32%
Total Fixed Income	24.00%	-1.20%	-1.40%	0.20%	0.05%	0.06%	-0.01%	0.10%
Real Assets	10.00%	0.43%	2.47%	-2.04%	-0.20%	-0.04%	0.02%	-0.22%
Private Equity	12.00%	5.19%	0.09%	5.10%	0.61%	-0.02%	-0.14%	0.45%
Cash	1.00%	1.45%	0.38%	1.06%	0.01%	0.01%	0.00%	0.02%
Total	**100.00%**	**0.18%**	**-0.52%**	**0.69%**	**0.77%**	**0.01%**	**-0.08%**	**0.69%**

Wtd. = Weighted

Los Angeles City Employees' Retirement System

TOTAL FUND ATTRIBUTION ANALYSIS (NET)

Attribution Effects
FYTD Ending March 31, 2018



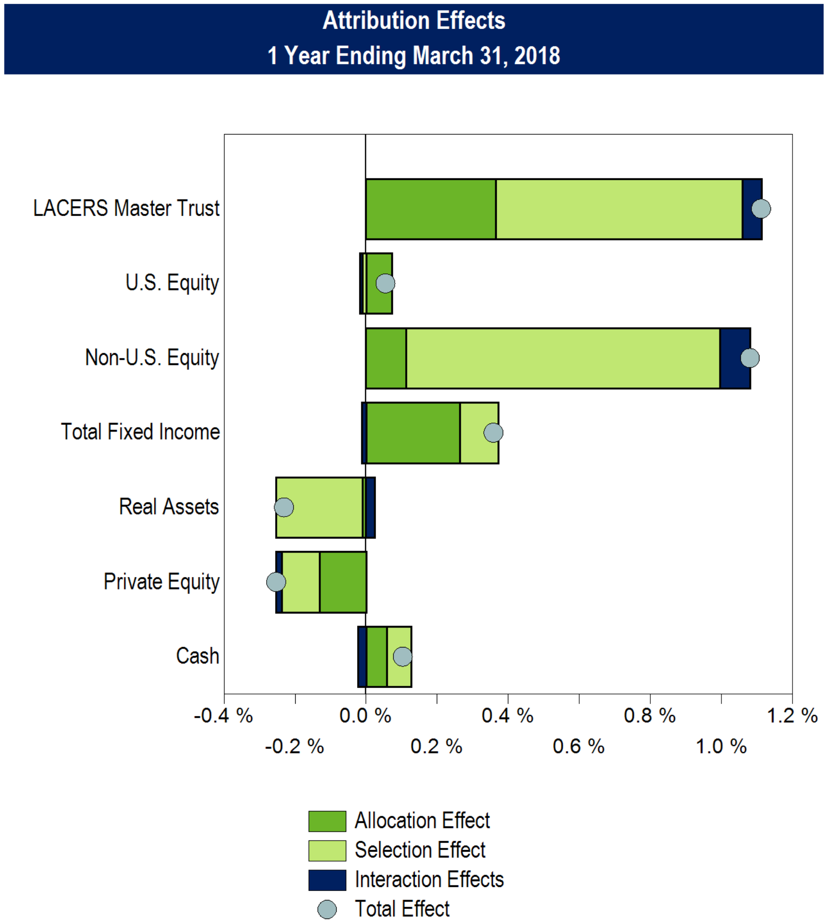
Attribution Summary
FYTD Ending March 31, 2018

	Policy Weight	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
U.S. Equity	24.00%	10.51%	10.48%	0.03%	0.01%	0.08%	0.00%	0.08%
Non-U.S. Equity	29.00%	12.19%	10.16%	2.03%	0.57%	0.07%	0.07%	0.72%
Total Fixed Income	24.00%	0.54%	0.17%	0.37%	0.09%	0.23%	-0.01%	0.31%
Real Assets	10.00%	3.74%	5.67%	-1.93%	-0.20%	-0.01%	0.02%	-0.19%
Private Equity	12.00%	10.73%	12.93%	-2.20%	-0.24%	-0.12%	0.01%	-0.35%
Cash	1.00%	5.23%	0.94%	4.29%	0.04%	0.05%	-0.02%	0.08%
Total	**100.00%**	**8.27%**	**7.63%**	**0.65%**	**0.28%**	**0.30%**	**0.07%**	**0.65%**

Wtd. = Weighted

Los Angeles City Employees' Retirement System

TOTAL FUND ATTRIBUTION ANALYSIS (NET)



Attribution Summary
1 Year Ending March 31, 2018

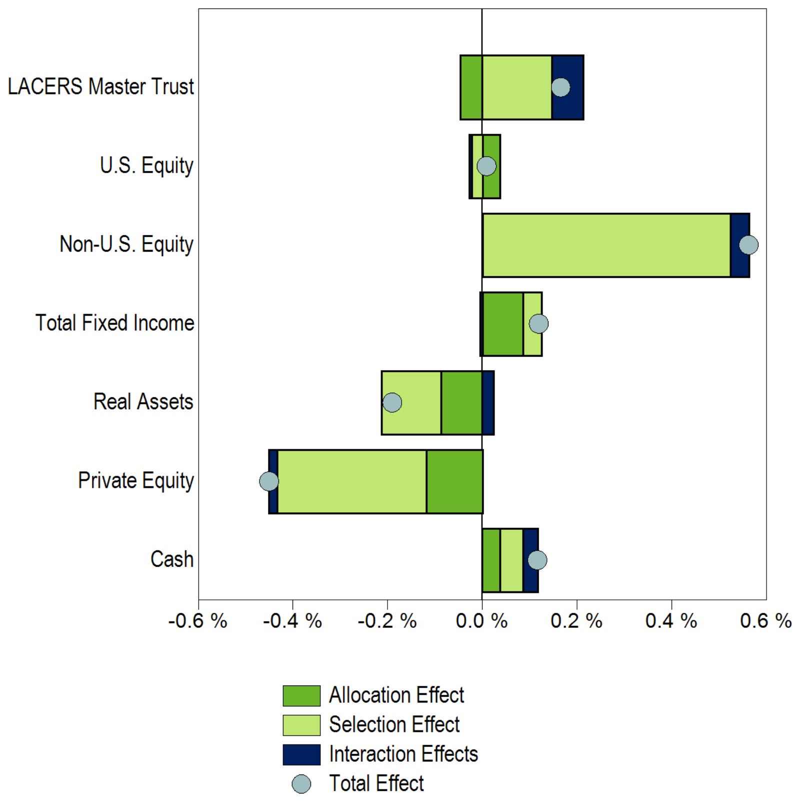
	Policy Weight	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
U.S. Equity	24.00%	13.77%	13.81%	-0.04%	-0.01%	0.07%	-0.01%	0.05%
Non-U.S. Equity	29.00%	19.72%	16.53%	3.19%	0.88%	0.11%	0.08%	1.08%
Total Fixed Income	24.00%	2.19%	1.78%	0.41%	0.11%	0.27%	-0.01%	0.36%
Real Assets	10.00%	5.15%	7.47%	-2.32%	-0.24%	-0.01%	0.02%	-0.23%
Private Equity	12.00%	16.20%	17.19%	-0.99%	-0.11%	-0.13%	-0.01%	-0.25%
Cash	1.00%	7.36%	1.16%	6.20%	0.07%	0.06%	-0.02%	0.10%
Total	**100.00%**	**12.40%**	**11.29%**	**1.11%**	**0.69%**	**0.37%**	**0.05%**	**1.11%**

Wtd. = Weighted

Los Angeles City Employees' Retirement System

TOTAL FUND ATTRIBUTION ANALYSIS (NET)

Attribution Effects
3 Years Ending March 31, 2018

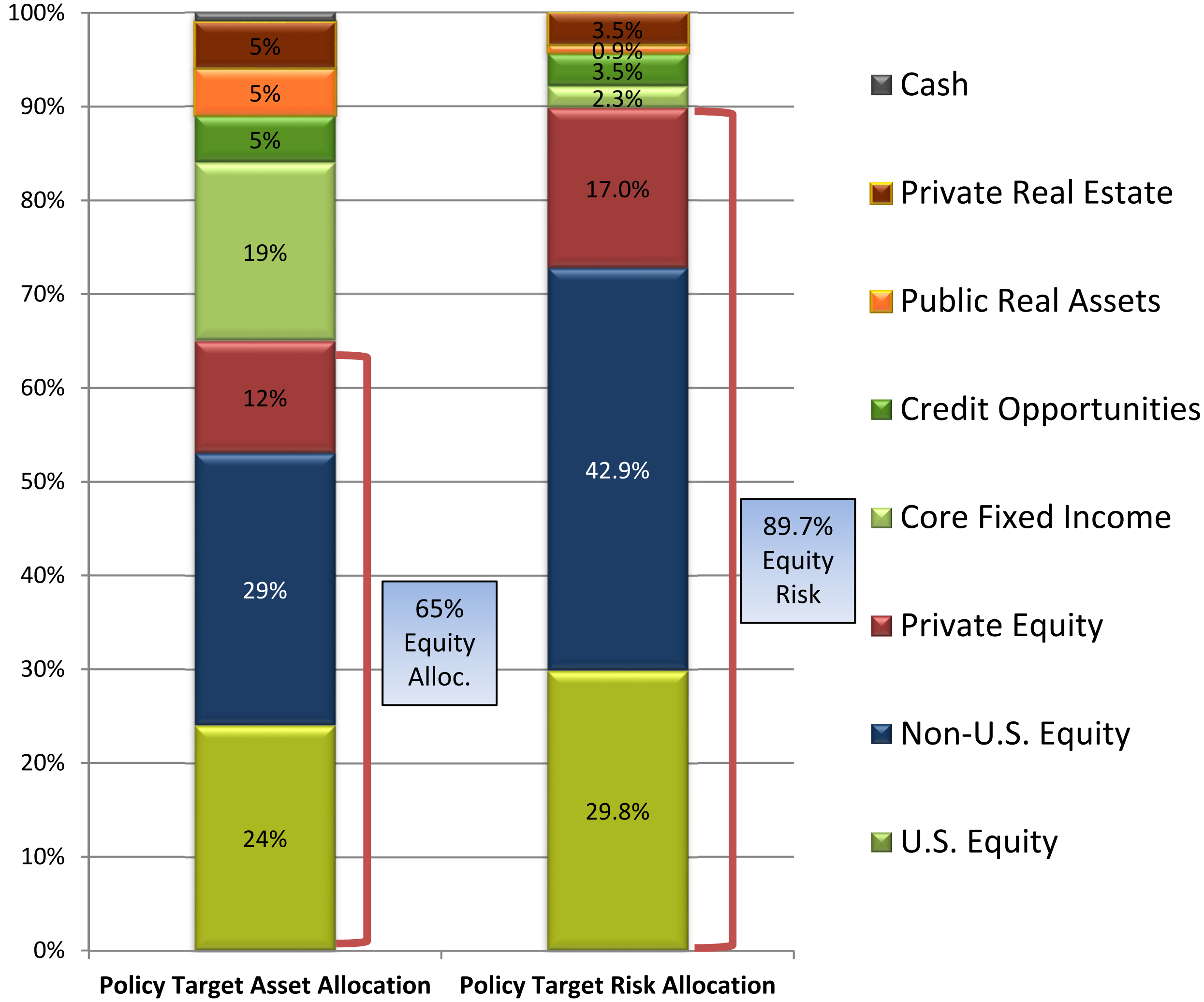


Attribution Summary
3 Years Ending March 31, 2018

	Policy Weight	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
U.S. Equity	24.00%	10.12%	10.22%	-0.10%	-0.02%	0.04%	0.00%	0.01%
Non-U.S. Equity	29.00%	8.00%	6.18%	1.82%	0.52%	0.00%	0.04%	0.56%
Total Fixed Income	24.00%	2.24%	2.08%	0.16%	0.04%	0.09%	0.00%	0.12%
Real Assets	10.00%	5.73%	6.95%	-1.22%	-0.13%	-0.09%	0.02%	-0.19%
Private Equity	12.00%	10.63%	13.50%	-2.88%	-0.31%	-0.12%	-0.02%	-0.45%
Cash	1.00%	5.29%	0.55%	4.74%	0.05%	0.04%	0.03%	0.12%
Total	**100.00%**	**7.34%**	**7.18%**	**0.17%**	**0.15%**	**-0.05%**	**0.06%**	**0.17%**

Wtd. = Weighted

TOTAL FUND RISK ALLOCATION – ASSET ALLOCATION VS. RISK ALLOCATION



- Public and Private Equity policy target asset allocation is 65%; accounts for 89.7% of the policy target portfolio risk.
- Core Fixed Income and Credit Opportunities policy allocation is 24%, accounting for 5.8% of the policy target portfolio risk.
- Real Assets (Private Real Estate and Pubic Real Assets) policy allocation is 10%, accounting for 4.4% of policy target portfolio risk.

PUBLIC MARKETS RISK BUDGET COMPARISON AS OF MARCH 31, 2018

Public Markets Asset Class	Target Risk Budget	Actual 3 Yr Tracking Error
U.S. Equity	0.50%	0.67%
Non-U.S. Equity	1.20%	1.16%
Core Fixed Income	1.00%	0.51%
Credit Opportunities	1.50%	0.93%
Public Real Assets*	3.00%	2.58%

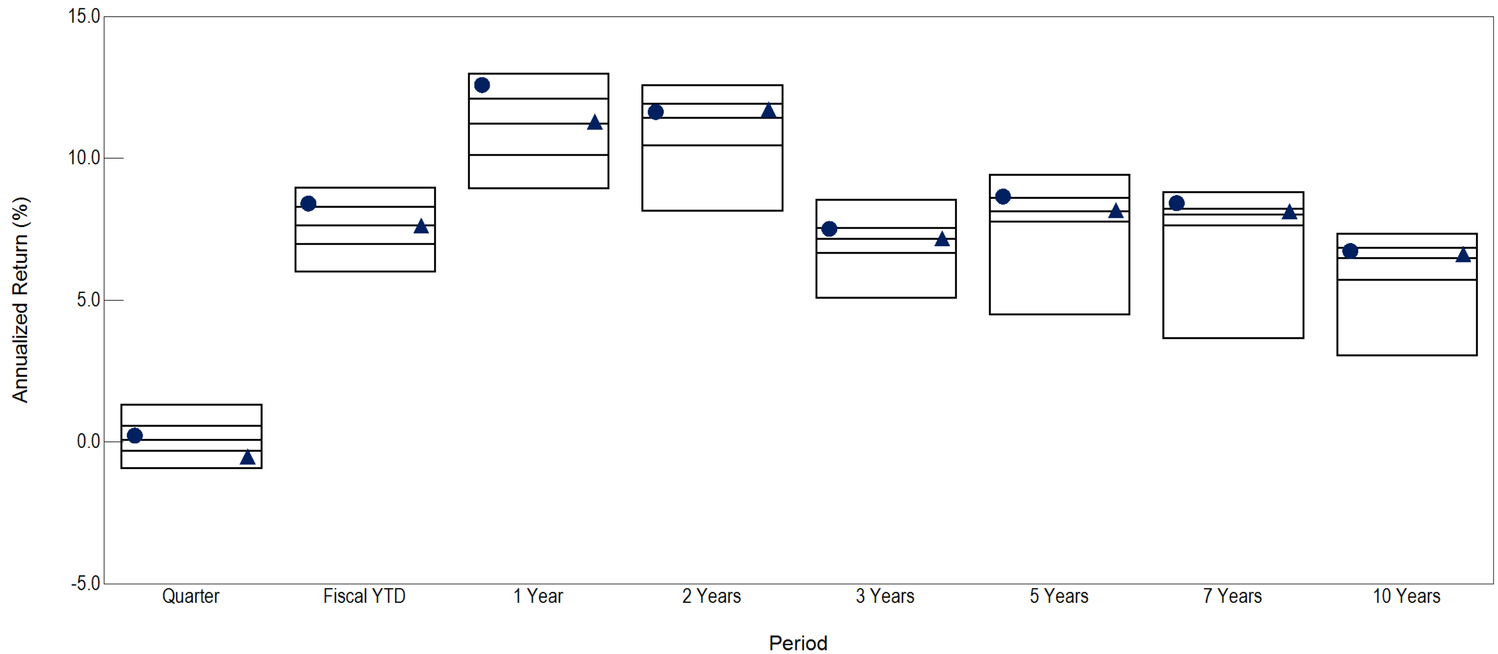
- Current LACERS public market asset class composite tracking errors are compared to asset class target risk budgets to ensure active risks are within expectations.
- Risk budgets are to be evaluated over three-year periods, at minimum, to reflect a full market cycle.
- All equity public markets asset classes are within an appropriately narrow range of their respective risk budgets.
- Both Core Fixed Income and Credit Opportunities have exhibited lower than expected active risk.
- The LACERS Public Real Assets composite is not at its target strategy allocation.

* The benchmark for the Public Real Assets composite is a custom policy benchmark that is comprised of the target weights of the public real asset components. The public real asset benchmark weights are 60% TIPS, 20% Commodities, 10% REITs, and 10% MLPs.

Los Angeles City Employees' Retirement System

TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

LACERS Master Trust vs. InvestorForce Public DB $5-50B Gross

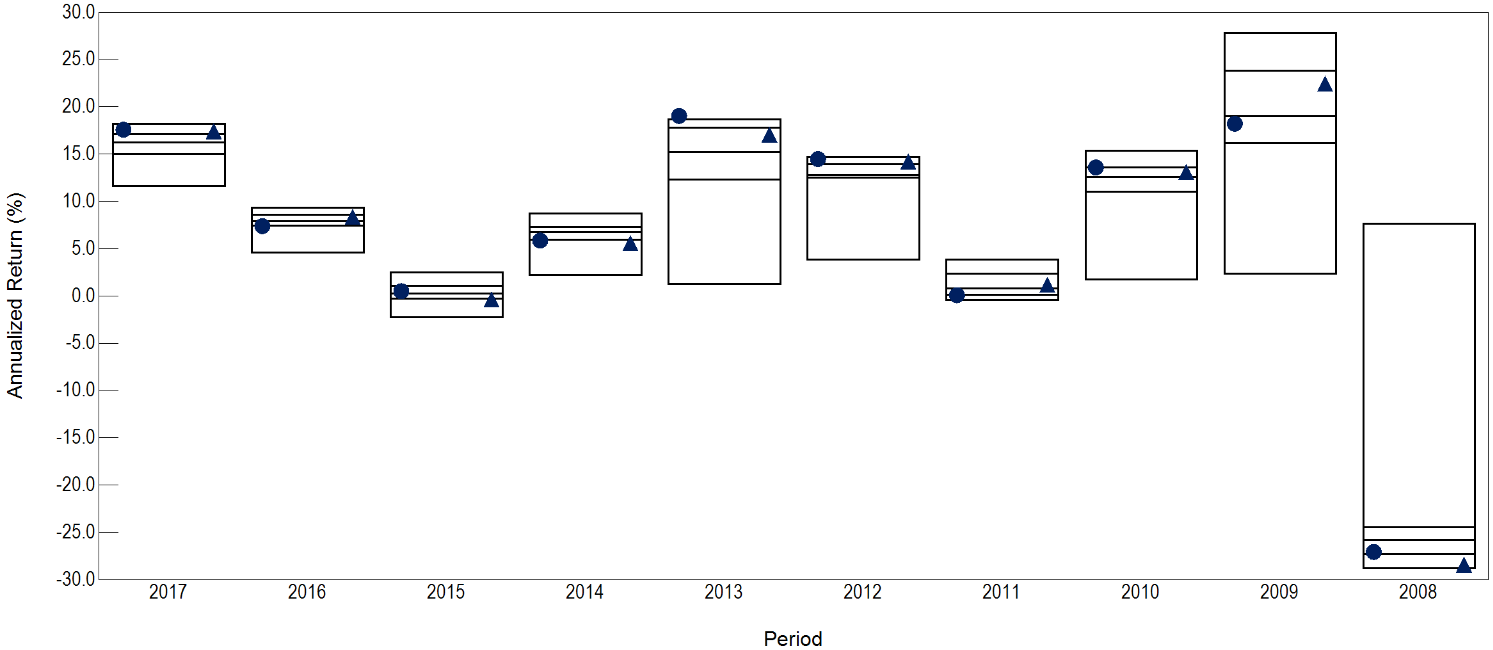


Return (Rank)	Quarter		Fiscal YTD		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	1.32		8.96		12.99		12.59		8.54		9.41		8.81		7.35	
25th Percentile	0.59		8.31		12.13		11.95		7.57		8.63		8.25		6.88	
Median	0.10		7.67		11.25		11.45		7.17		8.16		8.04		6.51	
75th Percentile	-0.29		7.00		10.15		10.48		6.69		7.79		7.66		5.74	
95th Percentile	-0.89		6.03		8.96		8.17		5.10		4.53		3.69		3.09	
# of Portfolios	47		45		45		42		39		31		25		24	
● LACERS Master Trust	0.22	(40)	8.41	(14)	12.58	(14)	11.63	(37)	7.51	(29)	8.65	(24)	8.42	(17)	6.73	(40)
▲ Policy Index	-0.52	(82)	7.63	(52)	11.29	(48)	11.72	(30)	7.17	(51)	8.17	(50)	8.13	(40)	6.62	(43)

Los Angeles City Employees' Retirement System

TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

LACERS Master Trust vs. InvestorForce Public DB $5-50B Gross



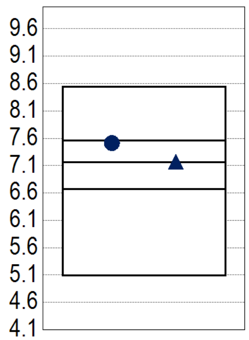
Return (Rank)	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
5th Percentile	18.21		9.30		2.50		8.72		18.69		14.65		3.83		15.32		27.83		7.63	
25th Percentile	17.15		8.68		1.12		7.38		17.86		14.01		2.41		13.67		23.91		-24.40	
Median	16.29		7.99		0.35		6.79		15.31		12.83		0.86		12.66		19.07		-25.72	
75th Percentile	15.05		7.51		-0.24		6.04		12.36		12.58		0.21		11.06		16.24		-27.23	
95th Percentile	11.68		4.65		-2.20		2.25		1.36		3.92		-0.37		1.83		2.42		-28.75	
# of Portfolios	46		30		24		24		23		16		16		15		15		15	
● LACERS Master Trust	17.57	(12)	7.38	(78)	0.49	(41)	5.85	(81)	19.03	(4)	14.47	(7)	0.08	(89)	13.58	(29)	18.21	(67)	-27.07	(68)
▲ Policy Index	17.41	(14)	8.35	(41)	-0.39	(77)	5.58	(87)	17.06	(31)	14.23	(21)	1.17	(44)	13.11	(34)	22.44	(38)	-28.43	(94)

Los Angeles City Employees' Retirement System

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

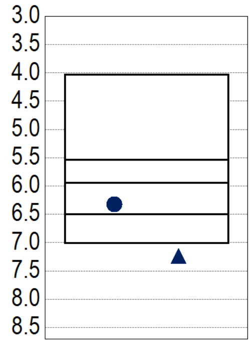
LACERS Master Trust vs. InvestorForce Public DB $5-50B Gross
3 Years

Annualized Return (%)



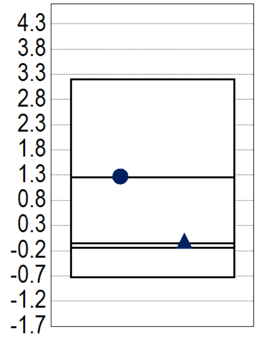
● LACERS Master Trust	
Value	7.51
Rank	29
▲ Policy Index	
Value	7.17
Rank	51
Universe	
5th %tile	8.54
25th %tile	7.57
Median	7.17
75th %tile	6.69
95th %tile	5.10

Annualized Standard Deviation



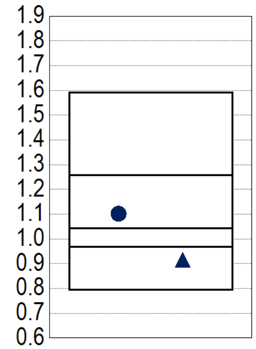
● LACERS Master Trust	
Value	6.32
Rank	68
▲ Policy Index	
Value	7.24
Rank	99
Universe	
5th %tile	4.03
25th %tile	5.53
Median	5.94
75th %tile	6.48
95th %tile	7.00

Annualized Alpha (%)



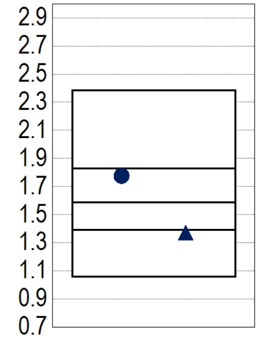
● LACERS Master Trust	
Value	1.27
Rank	25
▲ Policy Index	
Value	0.00
Rank	50
Universe	
5th %tile	3.20
25th %tile	1.27
Median	-0.04
75th %tile	-0.13
95th %tile	-0.72

Sharpe Ratio



● LACERS Master Trust	
Value	1.10
Rank	44
▲ Policy Index	
Value	0.92
Rank	83
Universe	
5th %tile	1.59
25th %tile	1.26
Median	1.05
75th %tile	0.97
95th %tile	0.80

Sortino Ratio Risk Free



● LACERS Master Trust	
Value	1.78
Rank	29
▲ Policy Index	
Value	1.37
Rank	77
Universe	
5th %tile	2.38
25th %tile	1.83
Median	1.59
75th %tile	1.40
95th %tile	1.06

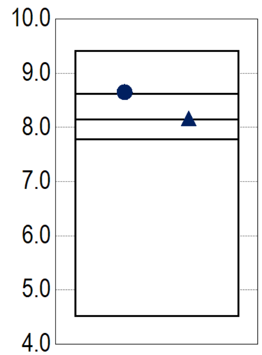
Sortino Ratio RF = Sortino Ratio Risk Free. The risk free rate is the Citi 91 Day T-Bill Index.

Los Angeles City Employees' Retirement System

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

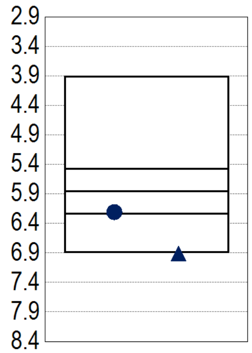
LACERS Master Trust vs. InvestorForce Public DB $5-50B Gross
5 Years

Annualized Return (%)



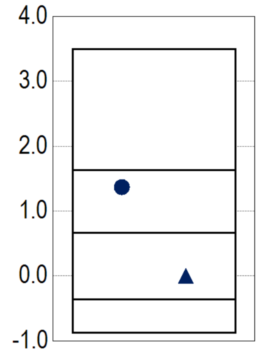
● LACERS Master Trust	
Value	8.65
Rank	24
▲ Policy Index	
Value	8.17
Rank	50
Universe	
5th %tile	9.41
25th %tile	8.63
Median	8.16
75th %tile	7.79
95th %tile	4.53

Annualized Standard Deviation



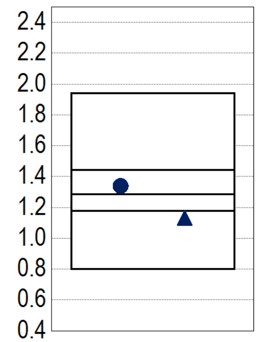
● LACERS Master Trust	
Value	6.21
Rank	73
▲ Policy Index	
Value	6.91
Rank	96
Universe	
5th %tile	3.91
25th %tile	5.47
Median	5.85
75th %tile	6.22
95th %tile	6.87

Annualized Alpha (%)



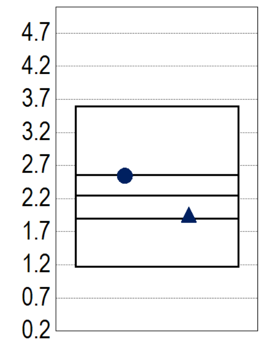
● LACERS Master Trust	
Value	1.37
Rank	28
▲ Policy Index	
Value	0.00
Rank	59
Universe	
5th %tile	3.50
25th %tile	1.64
Median	0.67
75th %tile	-0.35
95th %tile	-0.87

Sharpe Ratio



● LACERS Master Trust	
Value	1.34
Rank	41
▲ Policy Index	
Value	1.13
Rank	82
Universe	
5th %tile	1.94
25th %tile	1.45
Median	1.29
75th %tile	1.18
95th %tile	0.81

Sortino Ratio Risk Free



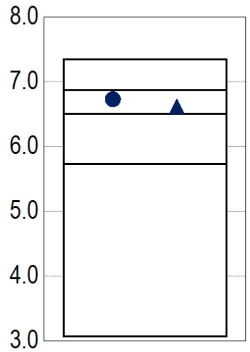
● LACERS Master Trust	
Value	2.55
Rank	27
▲ Policy Index	
Value	1.96
Rank	70
Universe	
5th %tile	3.60
25th %tile	2.56
Median	2.25
75th %tile	1.91
95th %tile	1.18

Sortino Ratio RF = Sortino Ratio Risk Free. The risk free rate is the Citi 91 Day T-Bill Index.

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

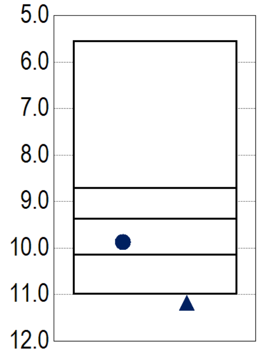
LACERS Master Trust vs. InvestorForce Public DB $5-50B Gross
10 Years

Annualized Return (%)



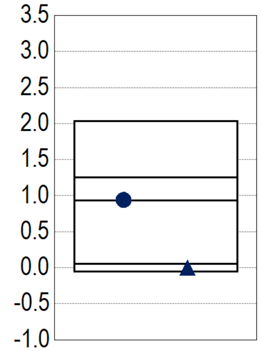
● LACERS Master Trust	
Value	6.73
Rank	40
▲ Policy Index	
Value	6.62
Rank	43
Universe	
5th %tile	7.35
25th %tile	6.88
Median	6.51
75th %tile	5.74
95th %tile	3.09

Annualized Standard Deviation



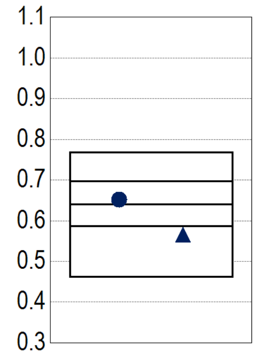
● LACERS Master Trust	
Value	9.87
Rank	70
▲ Policy Index	
Value	11.18
Rank	98
Universe	
5th %tile	5.54
25th %tile	8.70
Median	9.35
75th %tile	10.12
95th %tile	10.97

Annualized Alpha (%)



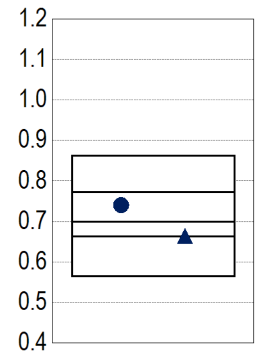
● LACERS Master Trust	
Value	0.94
Rank	51
▲ Policy Index	
Value	0.00
Rank	90
Universe	
5th %tile	2.03
25th %tile	1.26
Median	0.94
75th %tile	0.06
95th %tile	-0.04

Sharpe Ratio



● LACERS Master Trust	
Value	0.65
Rank	49
▲ Policy Index	
Value	0.57
Rank	90
Universe	
5th %tile	0.77
25th %tile	0.70
Median	0.64
75th %tile	0.59
95th %tile	0.46

Sortino Ratio Risk Free



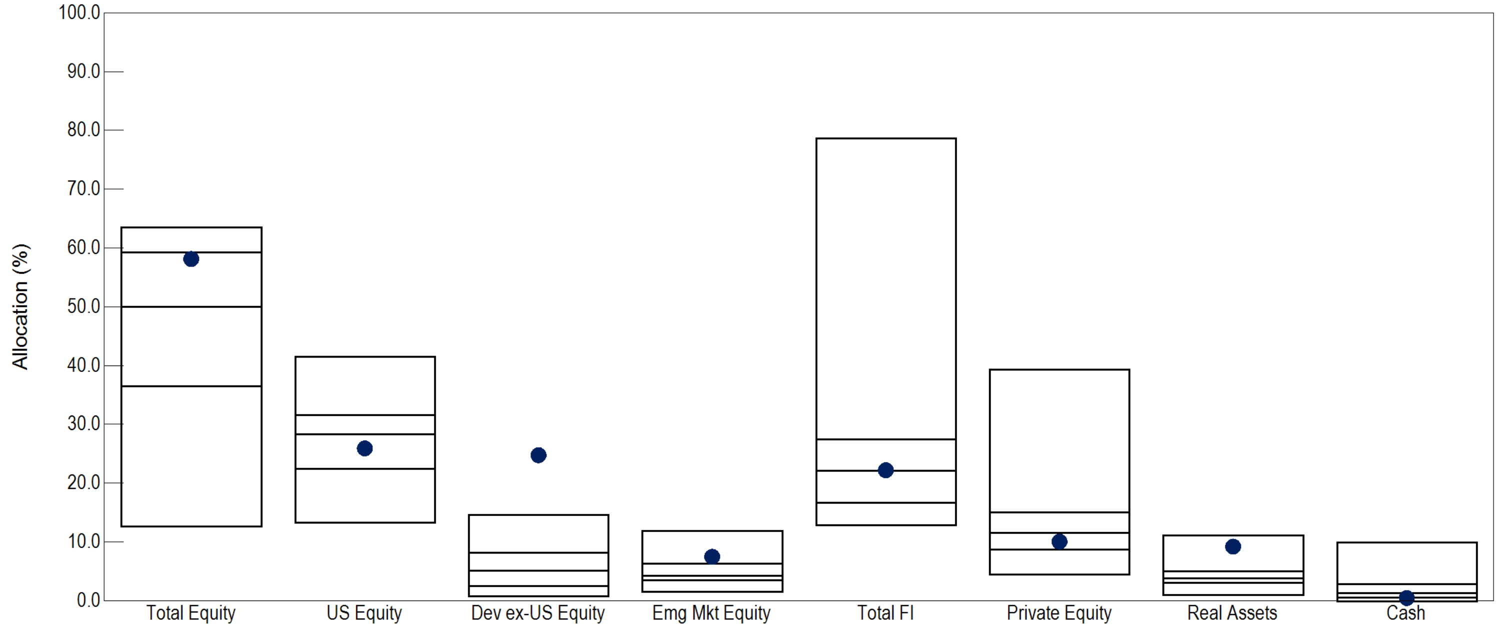
● LACERS Master Trust	
Value	0.74
Rank	40
▲ Policy Index	
Value	0.66
Rank	75
Universe	
5th %tile	0.86
25th %tile	0.77
Median	0.70
75th %tile	0.66
95th %tile	0.57

Sortino Ratio RF = Sortino Ratio Risk Free. The risk free rate is the Citi 91 Day T-Bill Index.

Los Angeles City Employees' Retirement System

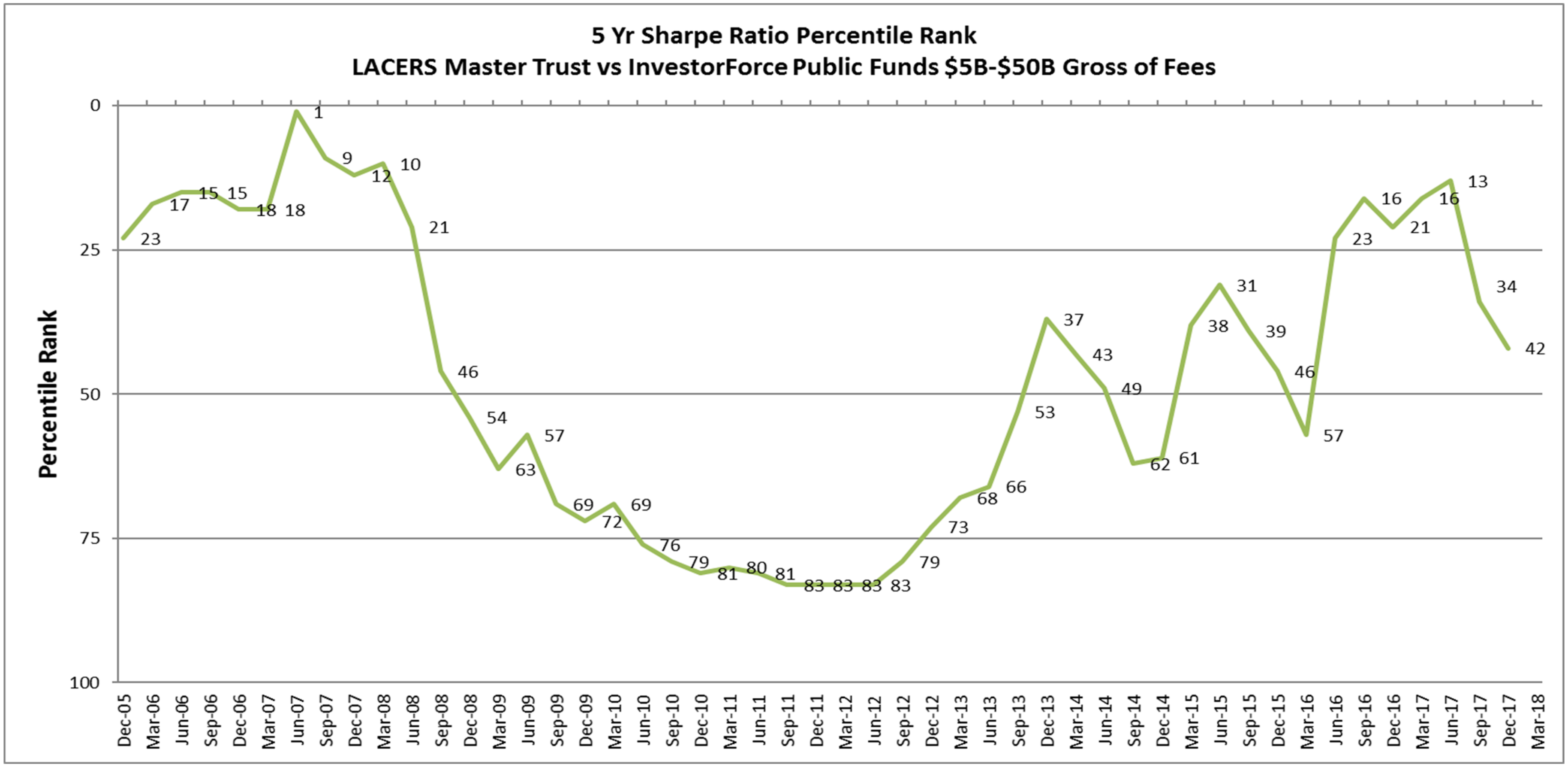
TOTAL FUND ALLOCATION VS. PEER UNIVERSE

Total Plan Allocation vs. InvestorForce Public DB $5-50B Gross



	Allocation (Rank)															
5th Percentile	63.47		41.47		14.57		11.86		78.65		39.35		11.12		9.88	
25th Percentile	59.35		31.68		8.26		6.41		27.60		15.12		5.10		2.92	
Median	50.10		28.43		5.23		4.31		22.25		11.60		3.94		1.40	
75th Percentile	36.55		22.48		2.55		3.62		16.77		8.84		3.15		0.65	
95th Percentile	12.68		13.39		0.81		1.63		12.96		4.52		1.11		0.00	
# of Portfolios	44		38		9		12		46		13		8		41	
● LACERS Master Trust	58.12	(33)	25.91	(60)	24.75	(1)	7.46	(19)	22.19	(51)	10.04	(59)	9.20	(9)	0.45	(83)

HISTORICAL RISK ADJUSTED RETURN UNIVERSE COMPARISON



- Total Plan ranks in the 42nd percentile versus other large public plans on a Sharpe Ratio basis.
  - Overweight to non-U.S. equities with favorable Sharpe Ratio rank.
  - Use of passive investment strategies within U.S. Equity has contributed to the overall Sharpe Ratio rank.

U.S. EQUITY

Los Angeles City Employees' Retirement System

U.S. EQUITY (GROSS)

	Market Value ($)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
U.S. Equity	**4,407,968,889**	**-0.57**	**10.56**	**13.84**	**10.21**	**13.08**	**9.80**	**10.50**	**Oct-94**
U.S. Equity Blend		*-0.64*	*10.48*	*13.81*	*10.22*	*13.03*	*9.62*	*9.36*	*Oct-94*
Over/Under		0.07	0.08	0.03	-0.01	0.05	0.18	1.14	
Aronson, Johnson & Ortiz	181,957,865	-2.40	9.57	11.20	6.83	11.05	8.72	8.80	Oct-01
Russell 1000 Value		*-2.83*	*5.53*	*6.95*	*7.88*	*10.78*	*7.78*	*7.92*	*Oct-01*
Over/Under		0.43	4.04	4.25	-1.05	0.27	0.94	0.88	
Rhumbline Advisors Russell 2000	257,934,511	-0.06	9.12	11.81	8.23	--	--	7.99	Mar-15
Russell 2000		*-0.08*	*9.11*	*11.79*	*8.39*	*11.47*	*9.84*	*8.76*	*Mar-15*
Over/Under		0.02	0.01	0.02	-0.16			-0.77	
Rhumbline Advisors Russell 2000 Growth[1]	132,993,359	2.30	13.62	18.56	8.63	--	--	10.11	Jan-15
Russell 2000 Growth		*2.30*	*13.64*	*18.63*	*8.76*	*12.90*	*10.95*	*10.22*	*Jan-15*
Over/Under		0.00	-0.02	-0.07	-0.13			-0.11	
Rhumbline Advisors Russell 2000 Value[1]	104,453,529	-2.62	4.42	5.14	--	--	--	20.33	Mar-16
Russell 2000 Value		*-2.64*	*4.43*	*5.13*	*7.87*	*9.96*	*8.61*	*20.42*	*Mar-16*
Over/Under		0.02	-0.01	0.01				-0.09	
EAM Investors	111,798,536	2.04	17.97	21.95	--	--	--	12.85	Sep-15
Russell 2000 Growth		*2.30*	*13.64*	*18.63*	*8.76*	*12.90*	*10.95*	*16.07*	*Sep-15*
Over/Under		-0.26	4.33	3.32				-3.22	
PanAgora	119,603,499	-1.33	3.91	3.85	7.37	11.56	11.18	7.36	Feb-06
Russell 2000 Value		*-2.64*	*4.43*	*5.13*	*7.87*	*9.96*	*8.61*	*6.73*	*Feb-06*
Over/Under		1.31	-0.52	-1.28	-0.50	1.60	2.57	0.63	
Principal Global Investors[1]	147,262,760	0.01	12.06	17.33	10.55	--	--	13.06	Aug-14
Russell MidCap		*-0.46*	*9.25*	*12.20*	*8.01*	*12.09*	*10.21*	*9.74*	*Aug-14*
Over/Under		0.47	2.81	5.13	2.54			3.32	
Rhumbline Advisors S&P 500	3,165,173,406	-0.72	10.58	13.99	10.73	13.27	9.58	9.70	Feb-93
S&P 500		*-0.76*	*10.58*	*13.99*	*10.78*	*13.31*	*9.49*	*9.53*	*Feb-93*
Over/Under		0.04	0.00	0.00	-0.05	-0.04	0.09	0.17	
Rhumbline Advisors Russell 1000 Growth[1]	186,791,425	1.41	15.82	21.22	12.82	--	--	15.85	Jun-13
Russell 1000 Growth		*1.42*	*15.84*	*21.25*	*12.90*	*15.53*	*11.34*	*15.91*	*Jun-13*
Over/Under		-0.01	-0.02	-0.03	-0.08			-0.06	

1- Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.
- U.S. Equity Blend = Russell 3000 from 1/1/2000 to present; 33.75% S&P 500/ 35% Russell 1000 Value/ 12.50% Russell 1000 Growth/ 12.50% Russell 2000 Value/ 6.25% Russell 2000 Growth prior to
eA = eVestment

Los Angeles City Employees' Retirement System

U.S. EQUITY (NET)

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
U.S. Equity	**4,407,968,889**	**100.00**	**-0.59**	**60**	**10.51**	**47**	**13.77**	**48**	**10.12**	**24**	**12.95**	**31**	**9.62**	**29**	**--**	**Oct-94**
U.S. Equity Blend			*-0.64*	*65*	*10.48*	*49*	*13.81*	*47*	*10.22*	*20*	*13.03*	*24*	*9.62*	*29*	*9.36*	*Oct-94*
Over/Under			0.05		0.03		-0.04		-0.10		-0.08		0.00			
InvestorForce Public DB > $1 Billion US Equity Net Median			*-0.45*		*10.42*		*13.76*		*9.81*		*12.65*		*9.40*		*9.59*	*Oct-94*
Aronson, Johnson & Ortiz	181,957,865	4.13	-2.47	55	9.34	32	10.89	39	6.52	80	10.72	61	8.42	45	8.51	Oct-01
Russell 1000 Value			*-2.83*	*67*	*5.53*	*76*	*6.95*	*82*	*7.88*	*54*	*10.78*	*60*	*7.78*	*63*	*7.92*	*Oct-01*
Over/Under			0.36		3.81		3.94		-1.36		-0.06		0.64		0.59	
eV US Large Cap Value Equity Net Median			*-2.29*		*7.98*		*9.90*		*8.06*		*11.35*		*8.30*		*8.49*	*Oct-01*
Rhumbline Advisors Russell 2000[1]	257,934,511	5.85	-0.06	43	9.12	47	11.80	46	8.22	53	--	--	--	--	7.99	Mar-15
Russell 2000			*-0.08*	*44*	*9.11*	*47*	*11.79*	*46*	*8.39*	*52*	*11.47*	*50*	*9.84*	*58*	*8.76*	*Mar-15*
Over/Under			0.02		0.01		0.01		-0.17						-0.77	
eV US Small Cap Equity Net Median			*-0.63*		*8.69*		*11.03*		*8.46*		*11.46*		*10.19*		*8.86*	*Mar-15*
Rhumbline Advisors Russell 2000 Growth[1]	132,993,359	3.02	2.30	60	13.61	52	18.55	57	8.62	62	--	--	--	--	10.10	Jan-15
Russell 2000 Growth			*2.30*	*60*	*13.64*	*52*	*18.63*	*56*	*8.76*	*62*	*12.90*	*56*	*10.95*	*57*	*10.22*	*Jan-15*
Over/Under			0.00		-0.03		-0.08		-0.14						-0.12	
eV US Small Cap Growth Equity Net Median			*2.96*		*13.86*		*20.32*		*9.58*		*13.17*		*11.23*		*10.73*	*Jan-15*
Rhumbline Advisors Russell 2000 Value[1]	104,453,529	2.37	-2.63	59	4.42	76	5.13	69	--	--	--	--	--	--	20.32	Mar-16
Russell 2000 Value			*-2.64*	*60*	*4.43*	*76*	*5.13*	*70*	*7.87*	*47*	*9.96*	*64*	*8.61*	*76*	*20.42*	*Mar-16*
Over/Under			0.01		-0.01		0.00								-0.10	
eV US Small Cap Value Equity Net Median			*-2.21*		*6.49*		*7.06*		*7.74*		*10.68*		*9.63*		*18.77*	*Mar-16*

1- Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.
- U.S. Equity Blend = Russell 3000 from 1/1/2000 to present; 33.75% S&P 500/ 35% Russell 1000 Value/ 12.50% Russell 1000 Growth/ 12.50% Russell 2000 Value/ 6.25% Russell 2000 Growth prior to
eA = eVestment

Los Angeles City Employees' Retirement System

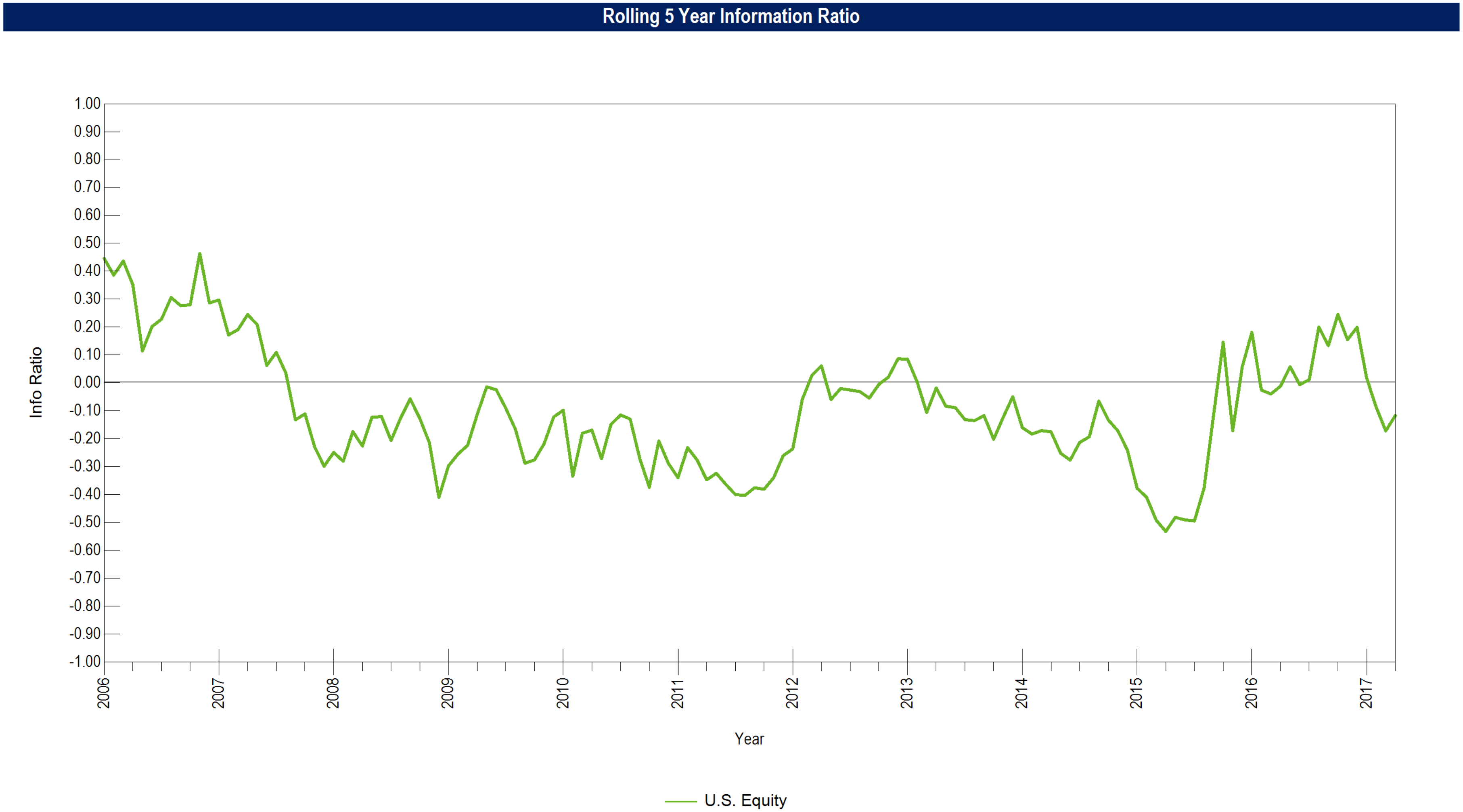
U.S. EQUITY (NET)

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
EAM Investors	111,798,536	2.54	1.86	26	17.36	11	21.07	16	--	--	--	--	--	--	12.05	Sep-15
Russell 2000 Growth			*2.30*	*23*	*13.64*	*22*	*18.63*	*22*	*8.76*	*46*	*12.90*	*28*	*10.95*	*34*	*16.07*	*Sep-15*
Over/Under			-0.44		3.72		2.44								-4.02	
eV US Small Cap Equity Net Median			*-0.63*		*8.69*		*11.03*		*8.46*		*11.46*		*10.19*		*14.99*	*Sep-15*
PanAgora	119,603,499	2.71	-1.50	34	3.39	82	3.16	85	6.66	71	10.79	47	10.41	32	6.62	Feb-06
Russell 2000 Value			*-2.64*	*60*	*4.43*	*76*	*5.13*	*70*	*7.87*	*47*	*9.96*	*64*	*8.61*	*76*	*6.73*	*Feb-06*
Over/Under			1.14		-1.04		-1.97		-1.21		0.83		1.80		-0.11	
eV US Small Cap Value Equity Net Median			*-2.21*		*6.49*		*7.06*		*7.74*		*10.68*		*9.63*		*7.79*	*Feb-06*
Principal Global Investors[1]	147,262,760	3.34	-0.09	45	11.74	34	16.89	30	10.12	20	--	--	--	--	12.66	Aug-14
Russell MidCap			*-0.46*	*50*	*9.25*	*51*	*12.20*	*51*	*8.01*	*49*	*12.09*	*41*	*10.21*	*52*	*9.74*	*Aug-14*
Over/Under			0.37		2.49		4.69		2.11						2.92	
eV US Mid Cap Equity Net Median			*-0.46*		*9.31*		*12.35*		*7.90*		*11.72*		*10.26*		*9.49*	*Aug-14*
Rhumbline Advisors S&P 500	3,165,173,406	71.81	-0.72	47	10.58	49	13.98	47	10.72	25	13.26	33	9.57	41	--	Feb-93
S&P 500			*-0.76*	*48*	*10.58*	*49*	*13.99*	*47*	*10.78*	*24*	*13.31*	*32*	*9.49*	*43*	*9.53*	*Feb-93*
Over/Under			0.04		0.00		-0.01		-0.06		-0.05		0.08			
eV US Large Cap Equity Net Median			*-0.88*		*10.44*		*13.28*		*9.08*		*12.29*		*9.14*		*9.94*	*Feb-93*
Rhumbline Advisors Russell 1000 Growth[1]	186,791,425	4.24	1.41	65	15.82	43	21.21	52	12.81	24	--	--	--	--	15.84	Jun-13
Russell 1000 Growth			*1.42*	*65*	*15.84*	*42*	*21.25*	*51*	*12.90*	*23*	*15.53*	*29*	*11.34*	*23*	*15.91*	*Jun-13*
Over/Under			-0.01		-0.02		-0.04		-0.09						-0.07	
eV US Large Cap Growth Equity Net Median			*2.54*		*15.31*		*21.27*		*11.07*		*14.51*		*10.33*		*14.77*	*Jun-13*

1- Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.
eA = eVestment

Los Angeles City Employees' Retirement System

U.S. EQUITY ROLLING 5 YEAR INFORMATION RATIO



*Returns are net of fees.

MANAGER REPORT CARD

U.S. Equity Managers	Inception Date	Mandate	Current Quarter (Net)		One Year (Net)		Three Years (Net)		Five Years (Net)		Since Inception (Net)	Annual Mgt Fee Paid $ (000)	Comments
			Index	Universe	Index	Universe	Index	Universe	Index	Universe	Index		
AJO	Oct-01	Large Cap Value	✓	×	✓	✓	×	×	×	×	✓	449.7	On Watch since July 2016 due to performance.
Principal Global Investors	Jul-14	Mid Cap	✓	✓	✓	✓	✓	✓	N/A	N/A	✓	563.0	Performance compliant with LACERS' Manager Monitoring Policy
EAM Investors	Sep-15	Small Cap Growth	×	✓	✓	✓	N/A	N/A	N/A	N/A	×	501.2	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
PanAgora	Feb-06	Small Cap Value	✓	✓	×	×	×	×	✓	✓	×	647.8	Performance compliant with LACERS' Manager Monitoring Policy
Rhumbline (Passive)	Feb-93	S&P 500	✓	✓	×	✓	×	✓	×	✓	✓✓	100.9	Performance compliant with LACERS' Manager Monitoring Policy
Rhumbline (Passive)	Jun-13	R1000 Growth	×	×	×	×	×	✓	N/A	N/A	✓	8.8	Performance compliant with LACERS' Manager Monitoring Policy
Rhumbline (Passive)	Jun-15	R2000	✓	✓	✓	✓	✓	✓	N/A	N/A	×	11.9	Performance compliant with LACERS' Manager Monitoring Policy
Rhumbline (Passive)	Jun-15	R2000 Growth	=	×	×	×	×	×	N/A	N/A	×	5.9	Performance compliant with LACERS' Manager Monitoring Policy
Rhumbline (Passive)	Feb-16	R2000 Value	✓	×	=	×	N/A	N/A	N/A	N/A	×	2.2	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance

Note: Managers are placed on Watch List for concerns with organization, process and performance. Managers are normally on the Watch List for 12 months though may be longer if manager issues remain but not severe enough to warrant termination recommendation.

- Annual Management Fee Paid as of fiscal year ending June 30, 2017.

* Where net of fees performance is not available gross of fee returns are evaluated.

Legend	
✓	Outperformed
×	Underperformed
=	Equal to
✓✓	Gross Return

NON-U.S. EQUITY

Los Angeles City Employees' Retirement System

NON-U.S. EQUITY (GROSS)

	Market Value ($)	% of Portfolio	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Non-U.S. Equity	**5,481,335,376**	**100.00**	**-0.06**	**12.49**	**20.15**	**8.38**	**7.71**	**4.21**	**7.52**	**Aug-01**
MSCI ACWI ex USA			*-1.18*	*10.16*	*16.53*	*6.18*	*5.89*	*2.70*	*6.58*	*Aug-01*
Over/Under			1.12	2.33	3.62	2.20	1.82	1.51	0.94	
Developed ex-U.S.	**4,211,191,010**	**76.83**	**-0.70**	**10.80**	**18.67**	**7.54**	**7.67**	**--**	**10.27**	**Jun-12**
MSCI EAFE			*-1.53*	*8.18*	*14.80*	*5.55*	*6.50*	*2.74*	*9.00*	*Jun-12*
Over/Under			0.83	2.62	3.87	1.99	1.17		1.27	
AQR Capital[1]	389,688,048	7.11	0.10	15.04	24.48	13.31	--	--	8.77	Feb-14
MSCI EAFE Small Cap			*0.24*	*14.24*	*23.49*	*12.25*	*11.10*	*6.48*	*7.94*	*Feb-14*
Over/Under			-0.14	0.80	0.99	1.06			0.83	
Barrow Hanley[1]	554,217,538	10.11	-0.81	8.06	14.14	5.78	--	--	4.37	Nov-13
MSCI EAFE Value			*-2.03*	*7.08*	*12.19*	*4.29*	*5.78*	*1.97*	*2.86*	*Nov-13*
Over/Under			1.22	0.98	1.95	1.49			1.51	
Lazard Asset Management[1]	603,772,167	11.02	2.21	15.74	24.57	6.22	--	--	6.17	Nov-13
MSCI EAFE			*-1.53*	*8.18*	*14.80*	*5.55*	*6.50*	*2.74*	*4.11*	*Nov-13*
Over/Under			3.74	7.56	9.77	0.67			2.06	
MFS Institutional Advisors	569,469,685	10.39	-1.76	9.49	20.97	9.03	--	--	6.81	Oct-13
MSCI World ex US Growth			*-1.56*	*8.69*	*16.28*	*6.06*	*6.57*	*3.03*	*5.02*	*Oct-13*
Over/Under			-0.20	0.80	4.69	2.97			1.79	
Oberweis Asset Mgmt[1]	168,262,929	3.07	2.47	21.16	32.00	15.19	--	--	12.10	Jan-14
MSCI EAFE Small Cap			*0.24*	*14.24*	*23.49*	*12.25*	*11.10*	*6.48*	*9.17*	*Jan-14*
Over/Under			2.23	6.92	8.51	2.94			2.93	
SSgA World ex US IMI	1,925,780,643	35.13	-1.66	8.86	15.43	6.51	6.97	3.51	6.00	Aug-93
MSCI World ex USA IMI NR USD[2]			*-1.81*	*8.58*	*14.95*	*6.10*	*6.53*	*3.00*	--	*Aug-93*
Over/Under			0.15	0.28	0.48	0.41	0.44	0.51		

1 Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.
2 Since inception index return sourced from SSgA.
eA = eVestment

Los Angeles City Employees' Retirement System

NON-U.S. EQUITY (GROSS)

	Market Value ($)	% of Portfolio	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Emerging Markets	**1,270,144,366**	**23.17**	**1.97**	**18.06**	**24.97**	**9.77**	**5.15**	**--**	**6.43**	**Jun-12**
MSCI Emerging Markets			*1.42*	*17.56*	*24.93*	*8.81*	*4.99*	*3.02*	*6.38*	*Jun-12*
Over/Under			0.55	0.50	0.04	0.96	0.16		0.05	
Axiom Emerging Markets	404,916,492	7.39	2.15	20.13	29.08	10.84	--	--	8.14	Mar-14
MSCI Emerging Markets Growth NR USD			*1.22*	*20.36*	*31.73*	*10.89*	*7.35*	*3.96*	*9.03*	*Mar-14*
Over/Under			0.93	-0.23	-2.65	-0.05			-0.89	
DFA Emerging Markets[1]	404,370,994	7.38	1.69	16.04	19.65	9.59	--	--	3.55	Jul-14
MSCI Emerging Markets Value NR USD			*1.62*	*14.51*	*18.14*	*6.65*	*2.62*	*2.20*	*1.87*	*Jul-14*
Over/Under			0.07	1.53	1.51	2.94			1.68	
QMA Emerging Markets[1]	460,856,880	8.41	2.07	18.04	26.28	9.07	--	--	7.59	Apr-14
MSCI Emerging Markets			*1.42*	*17.56*	*24.93*	*8.81*	*4.99*	*3.02*	*6.71*	*Apr-14*
Over/Under			0.65	0.48	1.35	0.26			0.88	

1 Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.
eA = eVestment

Los Angeles City Employees' Retirement System

NON-U.S. EQUITY (NET)

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Non-U.S. Equity	**5,481,335,376**	**100.00**	**-0.16**	**26**	**12.19**	**26**	**19.72**	**20**	**8.00**	**31**	**7.37**	**39**	**3.85**	**22**	**7.16**	**Aug-01**
MSCI ACWI ex USA			*-1.18*	*77*	*10.16*	*57*	*16.53*	*66*	*6.18*	*84*	*5.89*	*82*	*2.70*	*72*	*6.58*	*Aug-01*
Over/Under			1.02		2.03		3.19		1.82		1.48		1.15		0.58	
Developed ex-U.S.	**4,211,191,010**	**76.83**	**-0.78**	**22**	**10.55**	**15**	**18.30**	**8**	**7.21**	**31**	**7.38**	**34**	**--**	**--**	**9.99**	**Jun-12**
MSCI EAFE			*-1.53*	*81*	*8.18*	*71*	*14.80*	*66*	*5.55*	*79*	*6.50*	*90*	*2.74*	*65*	*9.00*	*Jun-12*
Over/Under			0.75		2.37		3.50		1.66		0.88				0.99	
InvestorForce Public DB > $1 Billion Dev Mkt ex-US Eq Net Median			*-1.17*		*9.04*		*15.89*		*6.45*		*7.11*		*3.58*		*9.49*	*Jun-12*
AQR Capital[1]	389,688,048	7.11	-0.10	48	14.38	45	23.55	56	12.46	50	--	--	--	--	8.06	Feb-14
MSCI EAFE Small Cap			*0.24*	*40*	*14.24*	*47*	*23.49*	*56*	*12.25*	*54*	*11.10*	*65*	*6.48*	*78*	*7.94*	*Feb-14*
Over/Under			-0.34		0.14		0.06		0.21						0.12	
eV EAFE Small Cap Equity Net Median			*-0.25*		*14.01*		*24.49*		*12.44*		*11.89*		*7.38*		*8.25*	*Feb-14*
Barrow Hanley[1]	554,217,538	10.11	-0.93	23	7.66	47	13.59	50	5.24	71	--	--	--	--	3.86	Nov-13
MSCI EAFE Value			*-2.03*	*58*	*7.08*	*50*	*12.19*	*69*	*4.29*	*83*	*5.78*	*81*	*1.97*	*85*	*2.86*	*Nov-13*
Over/Under			1.10		0.58		1.40		0.95						1.00	
eV EAFE Value Equity Net Median			*-1.81*		*7.06*		*13.41*		*6.03*		*7.33*		*4.40*		*4.35*	*Nov-13*
Lazard Asset Management[1]	603,772,167	11.02	2.08	6	15.32	11	23.96	16	5.65	70	--	--	--	--	5.62	Nov-13
MSCI EAFE			*-1.53*	*64*	*8.18*	*65*	*14.80*	*68*	*5.55*	*72*	*6.50*	*72*	*2.74*	*86*	*4.11*	*Nov-13*
Over/Under			3.61		7.14		9.16		0.10						1.51	
eV All EAFE Equity Net Median			*-1.05*		*9.57*		*16.39*		*6.67*		*7.54*		*4.10*		*5.19*	*Nov-13*
MFS Institutional Advisors	569,469,685	10.39	-1.88	99	9.09	76	20.40	42	8.47	28	--	--	--	--	6.30	Oct-13
MSCI World ex US Growth			*-1.56*	*96*	*8.69*	*83*	*16.28*	*87*	*6.06*	*85*	*6.57*	*95*	*3.03*	*62*	*5.02*	*Oct-13*
Over/Under			-0.32		0.40		4.12		2.41						1.28	
eV EAFE All Cap Growth Net Median			*0.10*		*12.05*		*19.59*		*7.46*		*7.66*		*4.16*		*6.17*	*Oct-13*

1 Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.
eA = eVestment

Los Angeles City Employees' Retirement System

NON-U.S. EQUITY (NET)

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Oberweis Asset Mgmt[1]	168,262,929	3.07	2.23	10	20.38	4	30.89	7	14.22	23	--	--	--	--	11.17	Jan-14
MSCI EAFE Small Cap			*0.24*	*40*	*14.24*	*47*	*23.49*	*56*	*12.25*	*54*	*11.10*	*65*	*6.48*	*78*	*9.17*	*Jan-14*
Over/Under			1.99		6.14		7.40		1.97						2.00	
eV EAFE Small Cap Equity Net Median			*-0.25*		*14.01*		*24.49*		*12.44*		*11.89*		*7.38*		*9.60*	*Jan-14*
SSgA World ex US IMI	1,925,780,643	35.13	-1.67	71	8.84	64	15.40	69	6.49	60	6.94	71	3.48	62	--	Aug-93
MSCI World ex USA IMI NR USD[2]			*-1.81*	*76*	*8.58*	*66*	*14.95*	*72*	*6.10*	*65*	*6.53*	*76*	*3.00*	*77*	*--*	*Aug-93*
Over/Under			0.14		0.26		0.45		0.39		0.41		0.48			
eV EAFE Core Equity Net Median			*-1.04*		*9.98*		*16.93*		*6.84*		*7.73*		*3.92*		*7.65*	*Aug-93*
Emerging Markets	**1,270,144,366**	**23.17**	**1.83**	**23**	**17.61**	**14**	**24.33**	**24**	**9.17**	**24**	**4.51**	**36**	**--**	**--**	**5.76**	**Jun-12**
MSCI Emerging Markets			*1.42*	*42*	*17.56*	*15*	*24.93*	*17*	*8.81*	*28*	*4.99*	*20*	*3.02*	*42*	*6.38*	*Jun-12*
Over/Under			0.41		0.05		-0.60		0.36		-0.48				-0.62	
InvestorForce Public DB > $1 Billion Emg Mkt Eq Net Median			*1.05*		*14.87*		*20.13*		*8.06*		*4.32*		*2.90*		*5.73*	*Jun-12*
Axiom Emerging Markets	404,916,492	7.39	1.96	38	19.51	27	28.20	23	10.06	36	--	--	--	--	7.45	Mar-14
MSCI Emerging Markets Growth NR USD			*1.22*	*56*	*20.36*	*19*	*31.73*	*11*	*10.89*	*24*	*7.35*	*18*	*3.96*	*48*	*9.03*	*Mar-14*
Over/Under			0.74		-0.85		-3.53		-0.83						-1.58	
eV Emg Mkts Equity Net Median			*1.39*		*16.96*		*23.96*		*9.04*		*5.27*		*3.91*		*6.99*	*Mar-14*
DFA Emerging Markets[1]	404,370,994	7.38	1.55	47	15.62	59	19.07	78	9.04	50	--	--	--	--	3.06	Jul-14
MSCI Emerging Markets Value NR USD			*1.62*	*46*	*14.51*	*67*	*18.14*	*83*	*6.65*	*84*	*2.62*	*91*	*2.20*	*91*	*1.87*	*Jul-14*
Over/Under			-0.07		1.11		0.93		2.39						1.19	
eV Emg Mkts Equity Net Median			*1.39*		*16.96*		*23.96*		*9.04*		*5.27*		*3.91*		*5.47*	*Jul-14*
QMA Emerging Markets[1]	460,856,880	8.41	1.97	38	17.71	44	25.82	34	8.59	57	--	--	--	--	7.12	Apr-14
MSCI Emerging Markets			*1.42*	*50*	*17.56*	*45*	*24.93*	*42*	*8.81*	*54*	*4.99*	*59*	*3.02*	*75*	*6.71*	*Apr-14*
Over/Under			0.55		0.15		0.89		-0.22						0.41	
eV Emg Mkts Equity Net Median			*1.39*		*16.96*		*23.96*		*9.04*		*5.27*		*3.91*		*6.99*	*Apr-14*

1 Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.
2 Since inception index return sourced from SSgA.
eA = eVestment

Los Angeles City Employees' Retirement System

NON-U.S. EQUITY COUNTRY ALLOCATION

Versus MSCI ACWI ex USA - Quarter Ending March 31, 2018	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Europe		
Austria	0.4%	0.2%
Belgium	0.4%	0.8%
Bulgaria**	0.0%	0.0%
Croatia**	0.0%	0.0%
Czech Republic*	0.0%	0.0%
Denmark	1.1%	1.3%
Estonia**	0.0%	0.0%
Finland	1.0%	0.7%
France	8.2%	7.5%
Germany	6.4%	6.6%
Greece*	0.1%	0.1%
Hungary*	0.1%	0.1%
Ireland	0.7%	0.3%
Italy	2.4%	1.7%
Lithuania**	0.0%	0.0%
Luxembourg	0.1%	0.0%
Netherlands	3.0%	2.5%
Norway	0.6%	0.5%
Poland*	0.2%	0.3%
Portugal	0.1%	0.1%
Romania**	0.0%	0.0%
Russia*	0.8%	0.9%
Serbia**	0.0%	0.0%
Slovenia**	0.0%	0.0%
Spain	1.7%	2.2%
Sweden	1.6%	1.8%
Switzerland	5.1%	5.4%
United Kingdom	11.4%	11.9%
Total-Europe	**45.4%**	**44.8%**

Versus MSCI ACWI ex USA - Quarter Ending March 31, 2018	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Americas		
Argentina**	0.1%	0.0%
Brazil*	2.2%	1.9%
Canada	4.5%	6.1%
Chile*	0.2%	0.3%
Colombia*	0.1%	0.1%
Mexico*	0.9%	0.7%
Peru*	0.1%	0.1%
United States	1.6%	0.0%
Total-Americas	**9.6%**	**9.2%**
AsiaPacific		
Australia	2.8%	4.5%
China*	4.6%	7.6%
Hong Kong	5.3%	2.5%
India*	2.4%	2.1%
Indonesia*	0.5%	0.5%
Japan	15.0%	16.7%
Korea*	3.7%	3.8%
Malaysia*	0.8%	0.6%
New Zealand	0.2%	0.1%
Philippines*	0.3%	0.3%
Singapore	1.4%	0.9%
Taiwan*	3.6%	3.0%
Thailand*	0.7%	0.6%
Total-AsiaPacific	**41.3%**	**43.3%**
Other		
Egypt*	0.1%	0.0%
Israel	0.3%	0.3%
Other Countries	0.1%	0.0%
Qatar*	0.1%	0.1%
South Africa*	1.5%	1.7%
Turkey*	0.3%	0.2%
United Arab Emirates*	0.1%	0.2%
Total-Other	**2.5%**	**2.6%**
Totals		
Developed	75.3%	74.5%
Emerging*	23.3%	25.5%
Frontier**	0.1%	0.0%
Other	0.1%	
Cash	1.2%	

Los Angeles City Employees' Retirement System

NON-U.S. EQUITY ROLLING 5 YEAR INFORMATION

*Returns are net of fees

MANAGER REPORT CARD

Non-U.S. Equity Managers	Inception Date	Mandate	Current Quarter (Net)		One Year (Net)		Three Years (Net)		Five Years (Net)		Since Inception (Net)	Annual Mgt Fee Paid $ (000)	Comments
			Index	Universe	Index	Universe	Index	Universe	Index	Universe	Index		
Axiom International	Mar-14	Emerging Markets	✓	✓	×	✓	×	✓	N/A	N/A	×	1,866.9	Performance compliant with LACERS' Manager Monitoring Policy
Q.M.A.	Apr-14	Emerging Markets	✓	✓	✓	✓	×	×	N/A	N/A	✓	1,219.4	Performance compliant with LACERS' Manager Monitoring Policy
DFA Emerging Markets	Jul-14	Emerging Markets	×	✓	✓	×	✓	=	N/A	N/A	✓	1,188.2	Performance compliant with LACERS' Manager Monitoring Policy
AQR	Feb-14	Non-U.S. Developed	×	✓	✓	×	✓	×	N/A	N/A	✓	2,314.2	Performance compliant with LACERS' Manager Monitoring Policy
Oberweis Asset Mgt.	Jan-14	Non-U.S. Developed	✓	✓	✓	✓	✓	✓	N/A	N/A	✓	568.5	Performance compliant with LACERS' Manager Monitoring Policy
Barrow, Hanley, Mewhinney & Strauss	Nov-13	Non-U.S. Developed	✓	✓	✓	✓	✓	×	N/A	N/A	✓	2,097.9	Performance compliant with LACERS' Manager Monitoring Policy
Lazard Asset Mgt.	Nov-13	Non-U.S. Developed	✓	✓	✓	✓	✓	×	N/A	N/A	✓	2,467.4	Performance compliant with LACERS' Manager Monitoring Policy
MFS Institutional Advisors	Oct-13	Non-U.S. Developed	×	×	✓	×	✓	×	N/A	N/A	✓	2,313.6	Performance compliant with LACERS' Manager Monitoring Policy
SsgA (Passive)	Aug-93	Non-U.S. Developed	✓	×	✓	×	✓	×	✓	×	✓✓	368.9	Performance compliant with LACERS' Manager Monitoring Policy

Note: Managers are placed on Watch List for concerns with organization, process and performance. Managers are normally on the Watch List for 12 months though may be longer if manager issues remain but not severe enough to warrant termination recommendation.

- Annual Management Fee Paid as of fiscal year ending June 30, 2017.

* Where net of fees performance is not available gross of fee returns are evaluated.

Legend	
✓	Outperformed
×	Underperformed
=	Equal to
✓✓	Gross Return

CORE FIXED INCOME

CORE FIXED INCOME (GROSS)

	Market Value ($)	% of Portfolio	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Core Fixed Income	**2,981,563,282**	**100.00**	**-1.29**	**0.06**	**1.59**	**1.67**	**2.28**	**--**	**2.79**	**Jul-12**
Core Fixed Income Blend			*-1.46*	*-0.24*	*1.20*	*1.20*	*1.82*	*3.82*	*2.04*	*Jul-12*
Over/Under			0.17	0.30	0.39	0.47	0.46		0.75	
Baird Advisors	211,344,802	7.09	-0.87	-0.20	0.93	1.63	1.92	3.99	4.24	Mar-05
BBgBarc US Govt/Credit Int TR			*-0.98*	*-0.59*	*0.35*	*0.94*	*1.25*	*2.92*	*3.54*	*Mar-05*
Over/Under			0.11	0.39	0.58	0.69	0.67	1.07	0.70	
LM Capital	272,547,143	9.14	-1.56	0.04	1.60	1.75	2.27	4.21	4.54	Mar-05
Core Fixed Income Blend			*-1.46*	*-0.24*	*1.20*	*1.20*	*1.82*	*3.82*	*4.20*	*Mar-05*
Over/Under			-0.10	0.28	0.40	0.55	0.45	0.39	0.34	
Loomis Sayles	731,963,088	24.55	-1.21	0.38	2.25	2.23	2.87	5.27	9.17	Jul-80
Core Fixed Income Blend			*-1.46*	*-0.24*	*1.20*	*1.20*	*1.82*	*3.82*	*--*	*Jul-80*
Over/Under			0.25	0.62	1.05	1.03	1.05	1.45		
Neuberger Berman	729,975,849	24.48	-1.20	0.20	1.59	1.65	2.14	5.35	5.73	Sep-01
Core Fixed Income Blend			*-1.46*	*-0.24*	*1.20*	*1.20*	*1.82*	*3.82*	*4.53*	*Sep-01*
Over/Under			0.26	0.44	0.39	0.45	0.32	1.53	1.20	
SSgA U.S. Aggregate Bond [1]	1,035,732,400	34.74	-1.45	-0.23	1.22	1.21	--	--	2.05	Jul-14
BBgBarc US Aggregate TR			*-1.46*	*-0.24*	*1.20*	*1.20*	*1.82*	*3.63*	*2.03*	*Jul-14*
Over/Under			0.01	0.01	0.02	0.01			0.02	

1 Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.
BBgBarc = Bloomberg Barclays

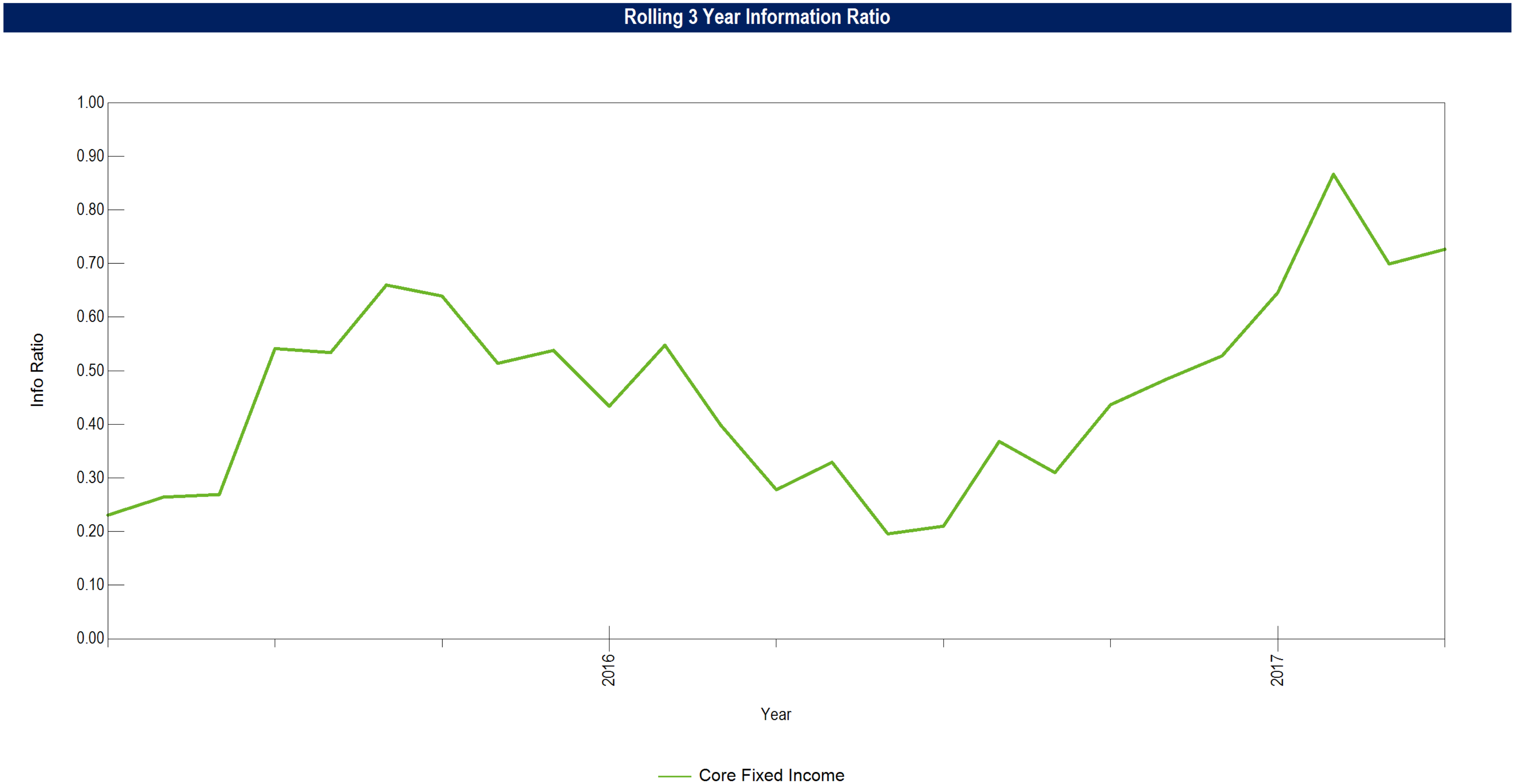
Los Angeles City Employees' Retirement System

CORE FIXED INCOME (NET)

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Core Fixed Income	**2,981,563,282**	**100.00**	**-1.32**	**76**	**-0.01**	**88**	**1.49**	**87**	**1.57**	**85**	**2.17**	**73**	**--**	**--**	**2.67**	**Jul-12**
Core Fixed Income Blend			*-1.46*	*82*	*-0.24*	*99*	*1.20*	*99*	*1.20*	*99*	*1.82*	*92*	*3.82*	*92*	*2.04*	*Jul-12*
Over/Under			0.14		0.23		0.29		0.37		0.35				0.63	
InvestorForce Public DB > $1 Billion US Fixed Income Net Median			*-0.81*		*0.94*		*2.49*		*2.39*		*2.62*		*4.84*		*3.04*	*Jul-12*
Baird Advisors	211,344,802	7.09	-0.91	28	-0.29	35	0.80	24	1.50	13	1.79	13	3.85	17	4.10	Mar-05
BBgBarc US Govt/Credit Int TR			*-0.98*	*44*	*-0.59*	*74*	*0.35*	*69*	*0.94*	*57*	*1.25*	*52*	*2.92*	*75*	*3.54*	*Mar-05*
Over/Under			0.07		0.30		0.45		0.56		0.54		0.93		0.56	
eV US Interm Duration Fixed Inc Net Median			*-1.00*		*-0.42*		*0.52*		*1.02*		*1.26*		*3.24*		*3.66*	*Mar-05*
LM Capital	272,547,143	9.14	-1.59	78	-0.04	41	1.49	41	1.64	28	2.14	33	4.06	50	--	Mar-05
Core Fixed Income Blend			*-1.46*	*57*	*-0.24*	*61*	*1.20*	*66*	*1.20*	*71*	*1.82*	*61*	*3.82*	*66*	*4.20*	*Mar-05*
Over/Under			-0.13		0.20		0.29		0.44		0.32		0.24			
eV US Core Fixed Inc Net Median			*-1.43*		*-0.14*		*1.38*		*1.39*		*1.92*		*4.04*		*4.29*	*Mar-05*
Loomis Sayles	731,963,088	24.55	-1.24	22	0.29	20	2.12	13	2.10	11	2.73	9	5.13	7	--	Jul-80
Core Fixed Income Blend			*-1.46*	*57*	*-0.24*	*61*	*1.20*	*66*	*1.20*	*71*	*1.82*	*61*	*3.82*	*66*	*--*	*Jul-80*
Over/Under			0.22		0.53		0.92		0.90		0.91		1.31			
eV US Core Fixed Inc Net Median			*-1.43*		*-0.14*		*1.38*		*1.39*		*1.92*		*4.04*		*--*	*Jul-80*
Neuberger Berman	729,975,849	24.48	-1.24	22	0.09	29	1.44	44	1.49	41	1.98	46	5.18	6	5.58	Sep-01
Core Fixed Income Blend			*-1.46*	*57*	*-0.24*	*61*	*1.20*	*66*	*1.20*	*71*	*1.82*	*61*	*3.82*	*66*	*4.53*	*Sep-01*
Over/Under			0.22		0.33		0.24		0.29		0.16		1.36		1.05	
eV US Core Fixed Inc Net Median			*-1.43*		*-0.14*		*1.38*		*1.39*		*1.92*		*4.04*		*4.50*	*Sep-01*
SSgA U.S. Aggregate Bond[1]	1,035,732,400	34.74	-1.46	56	-0.25	62	1.19	67	1.17	74	--	--	--	--	2.01	Jul-14
BBgBarc US Aggregate TR			*-1.46*	*57*	*-0.24*	*61*	*1.20*	*66*	*1.20*	*71*	*1.82*	*61*	*3.63*	*80*	*2.03*	*Jul-14*
Over/Under			0.00		-0.01		-0.01		-0.03						-0.02	
eV US Core Fixed Inc Net Median			*-1.43*		*-0.14*		*1.38*		*1.39*		*1.92*		*4.04*		*2.16*	*Jul-14*

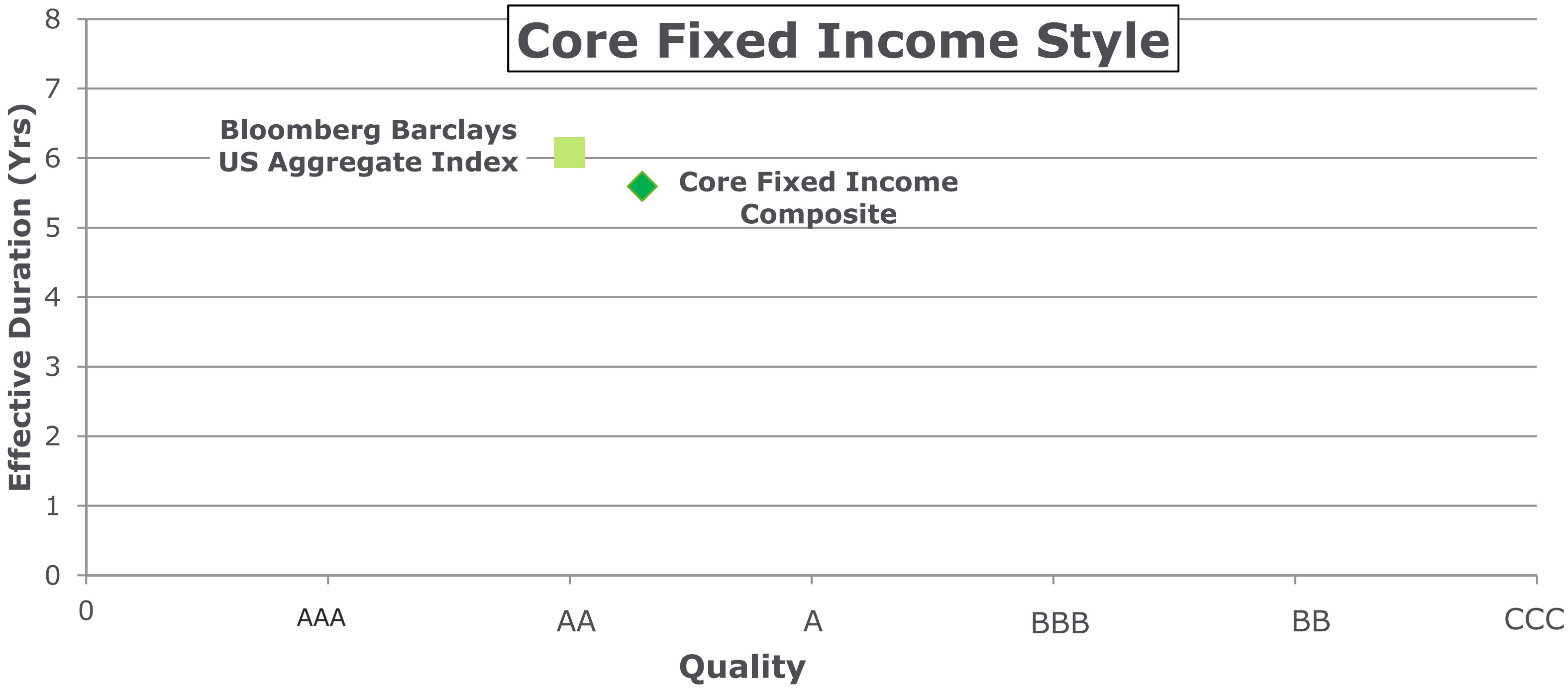
1 Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.
BBgBarc = Bloomberg Barclays
eV = eVestment

CORE FIXED INCOME 3 YEAR INFORMATION RATIO



*Returns are net of fees

CORE FIXED INCOME STYLE ANALYSIS



- LACERS has a slightly lower duration (interest rate risk) than its benchmark.
- The Core Fixed Income Composite has slightly lower average quality rating than its benchmark.

MANAGER REPORT CARD

Core Fixed Income Managers	Inception Date	Mandate	Current Quarter (Net)		One Year (Net)		Three Years (Net)		Five Years (Net)		Since Inception (Net)	Annual Mgt Fee Paid $ (000)	Comments
			Index	Universe	Index	Universe	Index	Universe	Index	Universe	Index		
Neuberger Berman	Sep-01	Core	✓	✓	✓	✓	✓	✓	✓	✓	✓	1010.3	Performance compliant with LACERS' Manager Monitoring Policy
Loomis Sayles	Jul-80	Core	✓	✓	✓	✓	✓	✓	✓	✓	✓✓	863.0	Performance compliant with LACERS' Manager Monitoring Policy
Baird Advisors	Mar-05	Intermediate	✓	✓	✓	✓	✓	✓	✓	✓	✓	291.7	Performance compliant with LACERS' Manager Monitoring Policy
LM Capital Group	Mar-05	Core	×	×	✓	✓	✓	✓	✓	✓	✓✓	240.1	Performance compliant with LACERS' Manager Monitoring Policy
SSgA (Passive)	Jul-14	Core	=	×	×	×	×	×	N/A	N/A	×	369.3	Performance compliant with LACERS' Manager Monitoring Policy

Note: Managers are placed on Watch List for concerns with organization, process and performance. Managers are normally on the Watch List for 12 months though may be longer if manager issues remain but not severe enough to warrant termination recommendation.

- Annual Management Fee Paid as of fiscal year ending June 30, 2017.

* Where net of fees performance is not available gross of fee returns are evaluated.

Legend	
✓	Outperformed
×	Underperformed
=	Equal to
✓✓	Gross Return

CREDIT OPPORTUNITIES

Los Angeles City Employees' Retirement System

CREDIT OPPORTUNITIES (GROSS)

	Market Value ($)	% of Portfolio	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Credit Opportunities	**793,551,406**	**100.00**	**-0.77**	**2.70**	**4.96**	**5.04**	**--**	**--**	**5.66**	**Jun-13**
Credit Opportunities Blend			*-1.17*	*1.74*	*3.97*	*5.41*	--	--	*5.84*	*Jun-13*
Over/Under			0.40	0.96	0.99	-0.37			-0.18	
AEGON USA	391,212,519	49.30	-0.50	1.97	4.35	5.52	--	--	6.06	Jun-13
BBgBarc US High Yield 2% Issuer Cap TR			*-0.86*	*1.58*	*3.78*	*5.18*	*5.00*	*8.32*	*5.59*	*Jun-13*
Over/Under			0.36	0.39	0.57	0.34			0.47	
Prudential Emerging Markets	307,488,228	38.75	-1.70	3.42	5.91	6.27	--	--	5.62	May-14
JP Morgan EMBI Global Diversified			*-1.74*	*2.01*	*4.30*	*5.78*	*4.69*	*7.04*	*4.82*	*May-14*
Over/Under			0.04	1.41	1.61	0.49			0.80	
Bain Capital Senior Loan Fund, LP*	94,804,611	11.95	1.15	3.41	4.37	--	--	--	4.05	Jun-15
Credit Suisse Leveraged Loans			*1.58*	*3.86*	*4.64*	*4.33*	*4.17*	*5.36*	*4.44*	*Jun-15*
Over/Under			-0.43	-0.45	-0.27				-0.39	

- Credit Opportunities Blend = 65% BBgBarc US High Yield 2% Issuer Cap TR / 35% JP Morgan EMBI Global Diversified 7/01/2014 to present; BBgBarc US High Yield 2% Issuer Cap TR prior to
eA = eVestment
BBgBarc = Bloomberg Barclays
*Net of fee return since vehicle is commingled.

Los Angeles City Employees' Retirement System

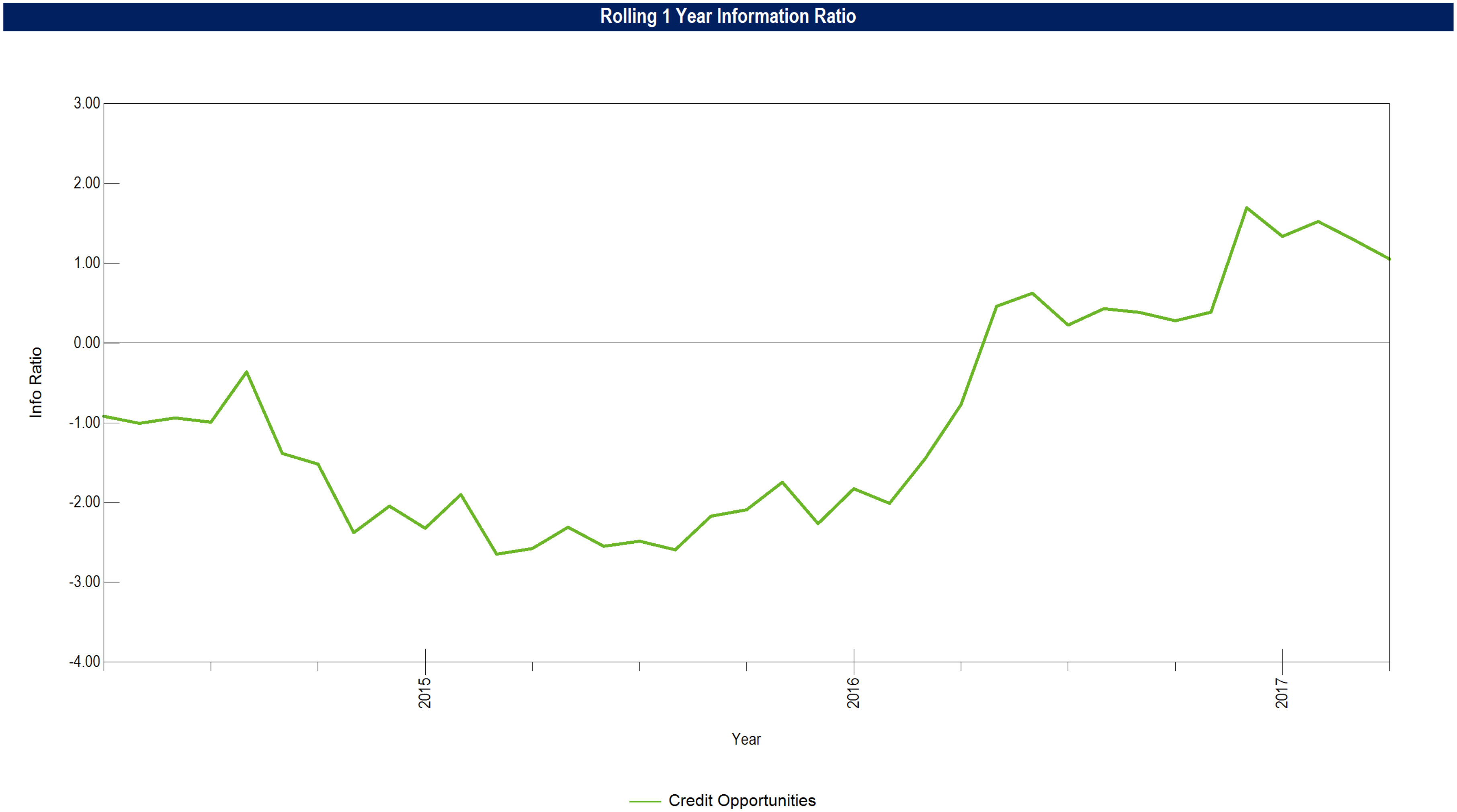
CREDIT OPPORTUNITIES (NET)

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Credit Opportunities	**793,551,406**	**100.00**	**-0.86**	**--**	**2.43**	**--**	**4.60**	**--**	**4.66**	**--**	**--**	**--**	**--**	**--**	**5.31**	**Jun-13**
Credit Opportunities Blend			*-1.17*	--	*1.74*	--	*3.97*	--	*5.41*	--	--	--	--	--	*5.84*	*Jun-13*
Over/Under			0.31		0.69		0.63		-0.75						-0.53	
AEGON USA	391,212,519	49.30	-0.59	45	1.68	44	3.96	38	5.13	26	--	--	--	--	5.70	Jun-13
BBgBarc US High Yield 2% Issuer Cap TR			*-0.86*	*56*	*1.58*	*49*	*3.78*	*44*	*5.18*	*24*	*5.00*	*25*	*8.32*	*13*	*5.59*	*Jun-13*
Over/Under			0.27		0.10		0.18		-0.05						0.11	
eV US High Yield Fixed Inc Net Median			*-0.67*		*1.54*		*3.62*		*4.49*		*4.44*		*7.47*		*4.98*	*Jun-13*
Prudential Emerging Markets	307,488,228	38.75	-1.80	99	3.11	77	5.49	72	5.86	61	--	--	--	--	5.23	May-14
JP Morgan EMBI Global Diversified			*-1.74*	*99*	*2.01*	*95*	*4.30*	*92*	*5.78*	*65*	*4.69*	*8*	*7.04*	*30*	*4.82*	*May-14*
Over/Under			-0.06		1.10		1.19		0.08						0.41	
eV Emg Mkt Fixed Inc Hedged Net Median			*0.02*		*4.61*		*7.26*		*6.30*		*3.43*		*6.52*		*3.57*	*May-14*
Bain Capital Senior Loan Fund, LP	94,804,611	11.95	1.15	64	3.41	50	4.37	31	--	--	--	--	--	--	4.05	Jun-15
Credit Suisse Leveraged Loans			*1.58*	*13*	*3.86*	*25*	*4.64*	*23*	*4.33*	*35*	*4.17*	*30*	*5.36*	*45*	*4.44*	*Jun-15*
Over/Under			-0.43		-0.45		-0.27								-0.39	
eV US Float-Rate Bank Loan Fixed Inc Net Median			*1.23*		*3.40*		*4.21*		*3.94*		*3.75*		*5.25*		*4.05*	*Jun-15*

- Credit Opportunities Blend = 65% BBgBarc US High Yield 2% Issuer Cap TR / 35% JP Morgan EMBI Global Diversified 7/01/2014 to present; BBgBarc US High Yield 2% Issuer Cap TR prior to
eA = eVestment
BBgBarc = Bloomberg Barclays

Los Angeles City Employees' Retirement System

CREDIT OPPORTUNITIES ROLLING 1 YEAR



*Returns are net of fees

MANAGER REPORT CARD

Credit Opportunities Managers	Inception Date	Mandate	Current Quarter (Net)		One Year (Net)		Three Years (Net)		Five Years (Net)		Since Inception (Net)	Annual Mgt Fee Paid $ (000)	Comments
			Index	Universe	Index	Universe	Index	Universe	Index	Universe	Index		
AEGON USA	Jun-13	High Yield Bonds	✓	✓	✓	✓	×	✓	N/A	N/A	✓	781.6	Watch pursuant to LACERS' Manager Monitoring Policy for a period of one year ending October 5, 2018
Prudential	May-14	Emerging Market Debt	×	×	✓	×	✓	×	N/A	N/A	✓	1230.2	Performance compliant with LACERS' Manager Monitoring Policy
Bain	Jun-15	Bank Loans	×	×	×	✓	N/A	N/A	N/A	N/A	×	330.0	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance

Note: Managers are placed on Watch List for concerns with organization, process and performance. Managers are normally on the Watch List for 12 months though may be longer if manager issues remain but not severe enough to warrant termination recommendation.

- Annual Management Fee Paid as of fiscal year ending June 30, 2017.

* Where net of fees performance is not available gross of fee returns are evaluated.

Legend	
✓	Outperformed
×	Underperformed
=	Equal to
✓✓	Gross Return

REAL ASSETS

NEPC, LLC

Los Angeles City Employees' Retirement System

REAL ASSETS (GROSS)

	Market Value ($)	% of Portfolio	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Real Assets	**1,565,247,855**	**100.00**	**0.46**	**3.86**	**5.31**	**5.89**	**8.18**	**-0.17**	**6.34**	**Nov-94**
CPI + 5% (Unadjusted)			2.47	5.67	7.47	6.95	6.47	6.64	7.32	*Nov-94*
Over/Under			-2.01	-1.81	-2.16	-1.06	1.71	-6.81	-0.98	
Public Real Assets	**772,068,346**	**49.33**	**-1.38**	**2.29**	**1.65**	**1.39**	**--**	**--**	**0.78**	**Jun-14**
Public Real Assets Blend			-2.29	0.37	-0.89	-0.45	--	--	-2.12	*Jun-14*
Over/Under			0.91	1.92	2.54	1.84			2.90	
TIPS	**506,626,262**	**32.37**	**-0.92**	**1.10**	**0.84**	**1.35**	**--**	**--**	**0.75**	**Jul-14**
BBgBarc US TIPS TR			-0.79	1.33	0.92	1.30	0.05	2.92	0.87	*Jul-14*
Over/Under			-0.13	-0.23	-0.08	0.05			-0.12	
DFA US TIPS[1]	506,626,262	32.37	-0.92	1.10	0.84	1.57	--	--	0.95	Jul-14
BBgBarc US TIPS TR			-0.79	1.33	0.92	1.30	0.05	2.92	0.87	*Jul-14*
Over/Under			-0.13	-0.23	-0.08	0.27			0.08	
REITS	**90,333,849**	**5.77**	**-6.34**	**-1.33**	**0.17**	**4.82**	**--**	**--**	**4.82**	**Mar-15**
FTSE NAREIT All Equity REIT			-6.66	-3.29	-1.09	2.90	6.66	6.88	2.90	*Mar-15*
Over/Under			0.32	1.96	1.26	1.92			1.92	
CenterSquare US Real Estate[1]	90,333,849	5.77	-6.34	-1.33	0.17	--	--	--	6.07	Apr-15
FTSE NAREIT All Equity REIT			-6.66	-3.29	-1.09	2.90	6.66	6.88	4.79	*Apr-15*
Over/Under			0.32	1.96	1.26				1.28	
Commodities	**175,108,235**	**11.19**	**0.39**	**8.83**	**5.52**	**--**	**--**	**--**	**-4.26**	**Jun-15**
Bloomberg Commodity Index TR USD			-0.40	6.92	3.71	-3.21	-8.32	-7.71	-5.08	*Jun-15*
Over/Under			0.79	1.91	1.81				0.82	
CoreCommodity Mgmt[1]	175,108,235	11.19	0.39	8.83	5.52	--	--	--	-4.26	Jun-15
Bloomberg Commodity Index TR USD			-0.40	6.92	3.71	-3.21	-8.32	-7.71	-5.08	*Jun-15*
Over/Under			0.79	1.91	1.81				0.82	
Private Real Estate	**772,766,844**	**49.37**	**2.26**	**5.52**	**8.76**	**9.71**	**10.86**	**1.06**	**6.88**	**Oct-94**
Real Estate Blend			2.39	6.89	8.92	10.86	11.76	7.03	9.99	*Oct-94*
Over/Under			-0.13	-1.37	-0.16	-1.15	-0.90	-5.97	-3.11	
Timber	**20,412,666**	**1.30**	**0.00**	**-0.24**	**3.60**	**1.82**	**6.27**	**4.71**	**9.80**	**Sep-99**

1 Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance.
- Public Real Assets Custom Benchmark = 60% BBgBarc US TIPS TR / 20% Bloomberg Commodity Index TR USD / 10% Alerian MLP TR USD / 10% FTSE NAREIT All REIT - Real Estate Blend = NCREIF-ODCE + 80bps 7/1/2014 to present;NCREIF Property Index 1 Qtr Lag plus 100bps 7/1/2012 - 6/30/2014; NCREIF Property Index prior to
eA = eVestment

Los Angeles City Employees' Retirement System

REAL ASSETS (NET)

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Real Assets	**1,565,247,855**	**100.00**	**0.43**	**--**	**3.74**	**--**	**5.15**	**--**	**5.73**	**--**	**8.03**	**--**	**-0.30**	**--**	**--**	**Nov-94**
CPI + 5% (Unadjusted)			*2.47*	--	*5.67*	--	*7.47*	--	*6.95*	--	*6.47*	--	*6.64*	--	*7.32*	*Nov-94*
Over/Under			-2.04		-1.93		-2.32		-1.22		1.56		-6.94			
Public Real Assets	**772,068,346**	**49.33**	**-1.43**	**--**	**2.10**	**--**	**1.40**	**--**	**1.16**	**--**	**--**	**--**	**--**	**--**	**0.59**	**Jun-14**
Public Real Assets Blend			*-2.29*	--	*0.37*	--	*-0.89*	--	*-0.45*	--	--	--	--	--	*-2.12*	*Jun-14*
Over/Under			0.86		1.73		2.29		1.61						2.71	
TIPS	**506,626,262**	**32.37**	**-0.93**	**--**	**1.06**	**--**	**0.79**	**--**	**1.29**	**--**	**--**	**--**	**--**	**--**	**0.70**	**Jul-14**
BBgBarc US TIPS TR			*-0.79*	--	*1.33*	--	*0.92*	--	*1.30*	--	*0.05*	--	*2.92*	--	*0.87*	*Jul-14*
Over/Under			-0.14		-0.27		-0.13		-0.01						-0.17	
DFA US TIPS[1]	506,626,262	32.37	-0.93	86	1.06	77	0.79	68	1.51	22	--	--	--	--	0.90	Jul-14
BBgBarc US TIPS TR			*-0.79*	*49*	*1.33*	*51*	*0.92*	*53*	*1.30*	*34*	*0.05*	*41*	*2.92*	*52*	*0.87*	*Jul-14*
Over/Under			-0.14		-0.27		-0.13		0.21						0.03	
eV US TIPS / Inflation Fixed Inc Net Median			*-0.80*		*1.33*		*0.98*		*1.17*		*-0.03*		*2.95*		*0.60*	*Jul-14*
REITS	**90,333,849**	**5.77**	**-6.34**	**--**	**-1.56**	**--**	**-0.18**	**--**	**4.41**	**--**	**--**	**--**	**--**	**--**	**4.41**	**Mar-15**
FTSE NAREIT All Equity REIT			*-6.66*	--	*-3.29*	--	*-1.09*	--	*2.90*	--	*6.66*	--	*6.88*	--	*2.90*	*Mar-15*
Over/Under			0.32		1.73		0.91		1.51						1.51	
CenterSquare US Real Estate[1]	90,333,849	5.77	-6.34	26	-1.56	10	-0.18	16	--	--	--	--	--	--	5.65	Apr-15
FTSE NAREIT All Equity REIT			*-6.66*	*42*	*-3.29*	*31*	*-1.09*	*23*	*2.90*	*19*	*6.66*	*47*	*6.88*	*55*	*4.79*	*Apr-15*
Over/Under			0.32		1.73		0.91								0.86	
eV US REIT Net Median			*-6.87*		*-3.64*		*-2.30*		*1.59*		*6.57*		*7.04*		*3.71*	*Apr-15*
Commodities	**175,108,235**	**11.19**	**0.17**	**--**	**8.15**	**--**	**4.63**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**-4.98**	**Jun-15**
Bloomberg Commodity Index TR USD			*-0.40*	--	*6.92*	--	*3.71*	--	*-3.21*	--	*-8.32*	--	*-7.71*	--	*-5.08*	*Jun-15*
Over/Under			0.57		1.23		0.92								0.10	
CoreCommodity Mgmt[1]	175,108,235	11.19	0.17	--	8.15	--	4.63	--	--	--	--	--	--	--	-4.98	Jun-15
Bloomberg Commodity Index TR USD			*-0.40*	--	*6.92*	--	*3.71*	--	*-3.21*	--	*-8.32*	--	*-7.71*	--	*-5.08*	*Jun-15*
Over/Under			0.57		1.23		0.92								0.10	

1 Portfolio has a mid-month inception date. Since inception return is calculated from the first full month of performance. No universe is available.
- Public Real Assets Custom Benchmark = 60% BBgBarc US TIPS TR / 20% Bloomberg Commodity Index TR USD / 10% Alerian MLP TR USD / 10% FTSE NAREIT All REIT
eA = eVestment

REAL ASSETS (NET)

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Private Real Estate	**772,766,844**	**49.37**	**2.24**	**11**	**5.46**	**59**	**8.68**	**9**	**9.61**	**33**	**10.74**	**50**	**0.94**	**99**	**--**	**Oct-94**
Real Estate Blend			*2.39*	*4*	*6.89*	*5*	*8.92*	*5*	*10.86*	*10*	*11.76*	*13*	*7.03*	*9*	*9.99*	*Oct-94*
Over/Under			-0.15		-1.43		-0.24		-1.25		-1.02		-6.09			
InvestorForce Public DB Real Estate Priv Net Median			*1.89*		*5.67*		*7.53*		*9.27*		*10.71*		*4.01*		*7.36*	*Oct-94*
Timber	**20,412,666**	**1.30**	**0.00**	**--**	**-0.24**	**--**	**3.60**	**--**	**1.82**	**--**	**6.27**	**--**	**4.70**	**--**	**--**	**Sep-99**

- Real Estate Blend = NCREIF-ODCE + 80bps 7/1/2014 to present;NCREIF Property Index 1 Qtr Lag plus 100bps 7/1/2012 - 6/30/2014; NCREIF Property Index prior to
eA = eVestment

MANAGER REPORT CARD

Real Assets Managers	Inception Date	Mandate	Current Quarter (Net)		One Year (Net)		Three Years (Net)		Five Years (Net)		Since Inception (Net)	Annual Mgt Fee Paid $ (000)	Comments
			Index	Universe	Index	Universe	Index	Universe	Index	Universe	Index		
DFA	Jul-14	U.S. TIPS	×	×	×	×	✓	✓	N/A	N/A	✓	194.6	Performance compliant with LACERS' Manager Monitoring Policy
CenterSquare	Apr-15	REITS	✓	✓	✓	✓	N/A	N/A	N/A	N/A	✓	399.8	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance
CoreCommodity Mgt.	Jul-15	Commodities	✓	N/A	✓	N/A	N/A	N/A	N/A	N/A	✓	860.4	LACERS' Manager Monitoring Policy requires at least 3 years of track record to evaluate performance

Note: Managers are placed on Watch List for concerns with organization, process and performance. Managers are normally on the Watch List for 12 months though may be longer if manager issues remain but not severe enough to warrant termination recommendation.

- Annual Management Fee Paid as of fiscal year ending June 30, 2017.

* Where net of fees performance is not available gross of fee returns are evaluated.

Legend	
✓	Outperformed
×	Underperformed
=	Equal to
✓✓	Gross Return

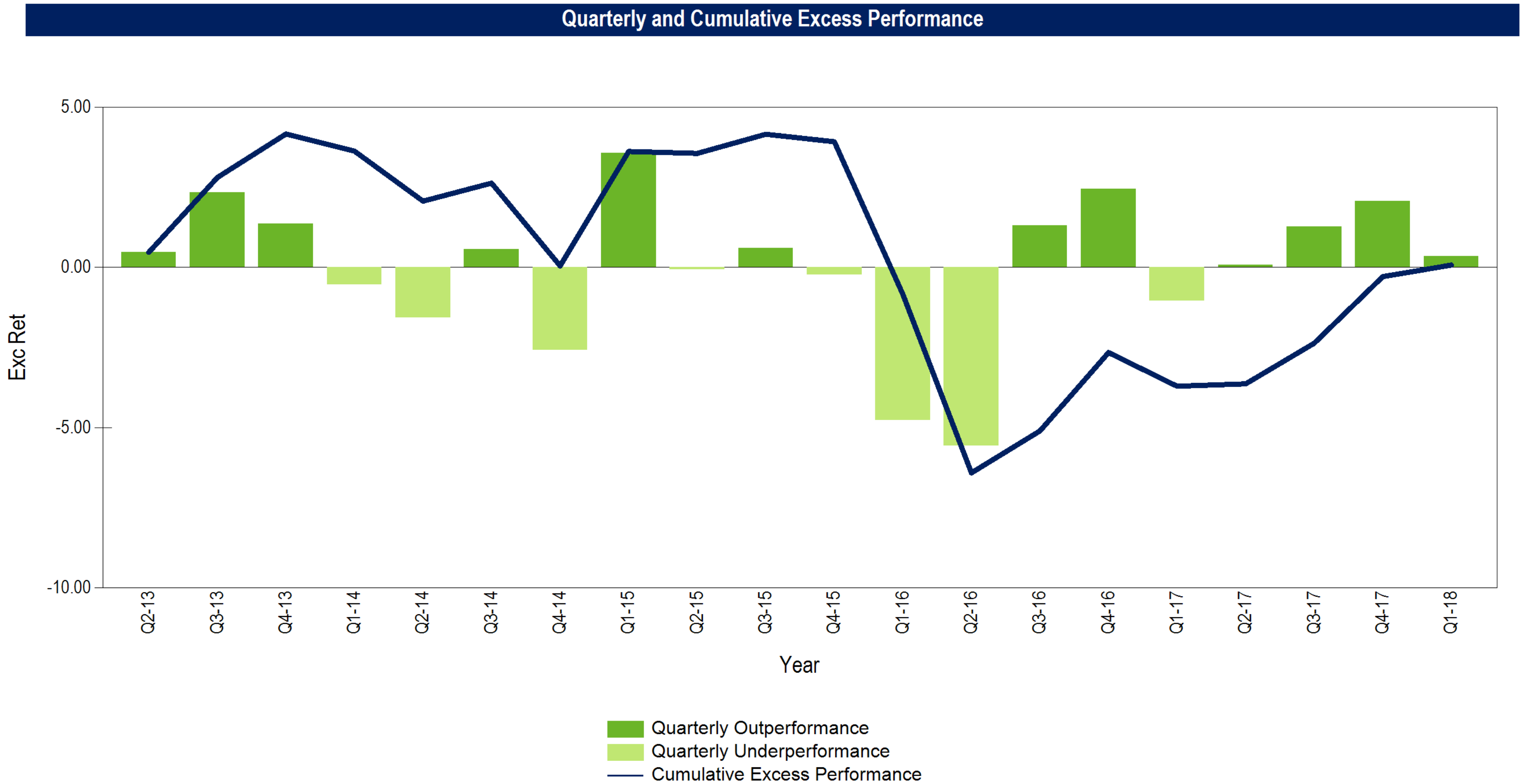
APPENDIX

U.S. EQUITY MANAGER PERFORMANCE

NEPC, LLC

Los Angeles City Employees' Retirement System

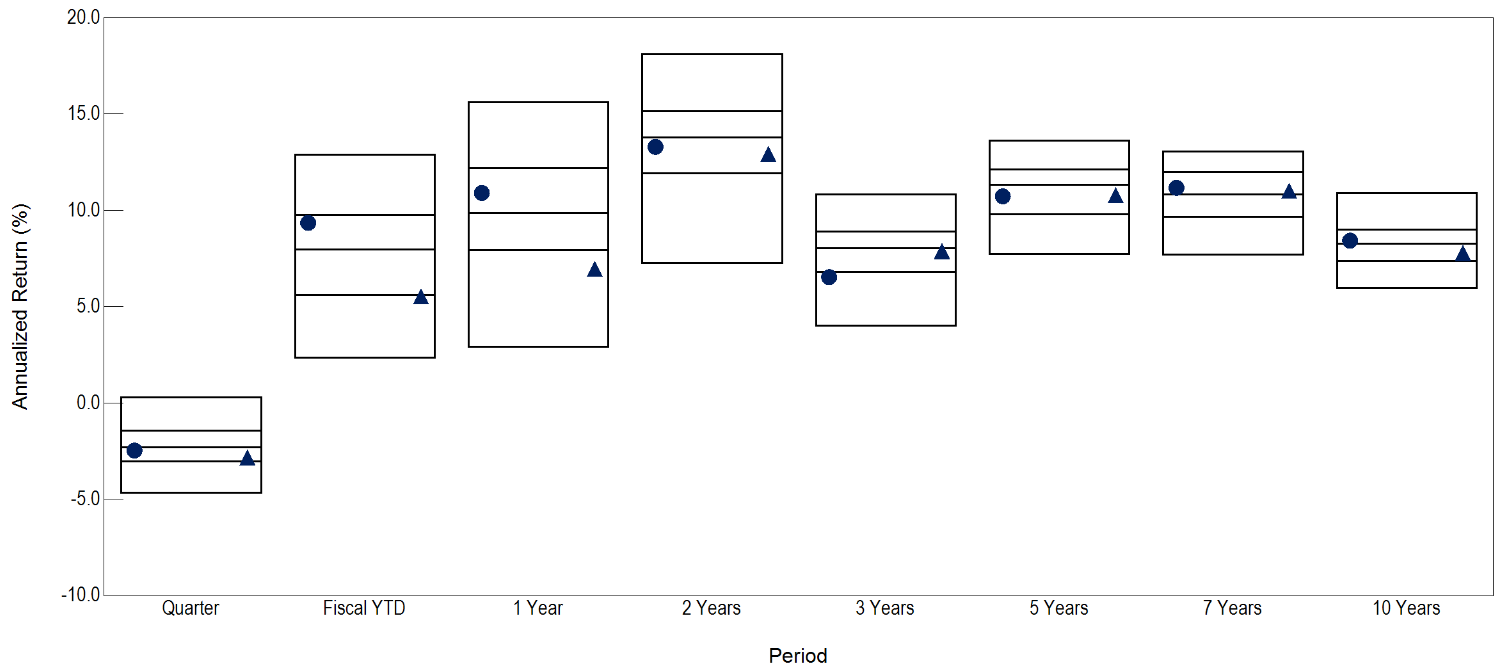
ARONSON, JOHNSON & ORTIZ



Los Angeles City Employees' Retirement System

ARONSON, JOHNSON & ORTIZ

Aronson, Johnson & Ortiz vs. eV US Large Cap Value Equity Net

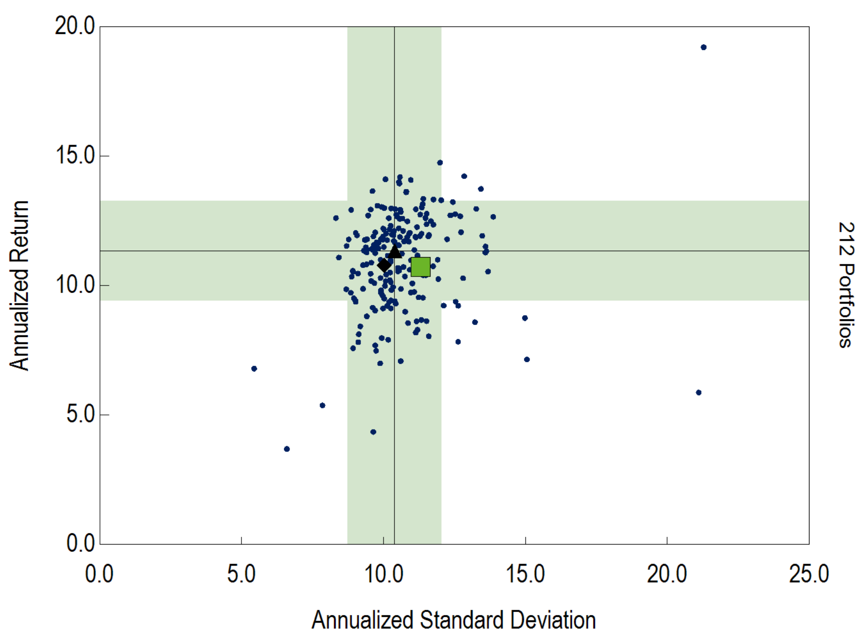


Return (Rank)	Quarter		Fiscal YTD		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	0.28		12.87		15.60		18.10		10.81		13.61		13.06		10.88	
25th Percentile	-1.42		9.79		12.20		15.19		8.93		12.16		12.01		9.04	
Median	-2.29		7.98		9.90		13.81		8.06		11.35		10.86		8.30	
75th Percentile	-3.02		5.63		7.97		11.93		6.84		9.83		9.67		7.39	
95th Percentile	-4.64		2.38		2.94		7.29		4.05		7.76		7.73		5.99	
# of Portfolios	230		230		230		228		227		212		188		167	
● Aronson, Johnson & Ortiz	-2.47	(55)	9.34	(32)	10.89	(39)	13.29	(58)	6.52	(80)	10.72	(61)	11.16	(45)	8.42	(45)
▲ Russell 1000 Value	-2.83	(67)	5.53	(76)	6.95	(82)	12.92	(66)	7.88	(54)	10.78	(60)	11.00	(48)	7.78	(63)

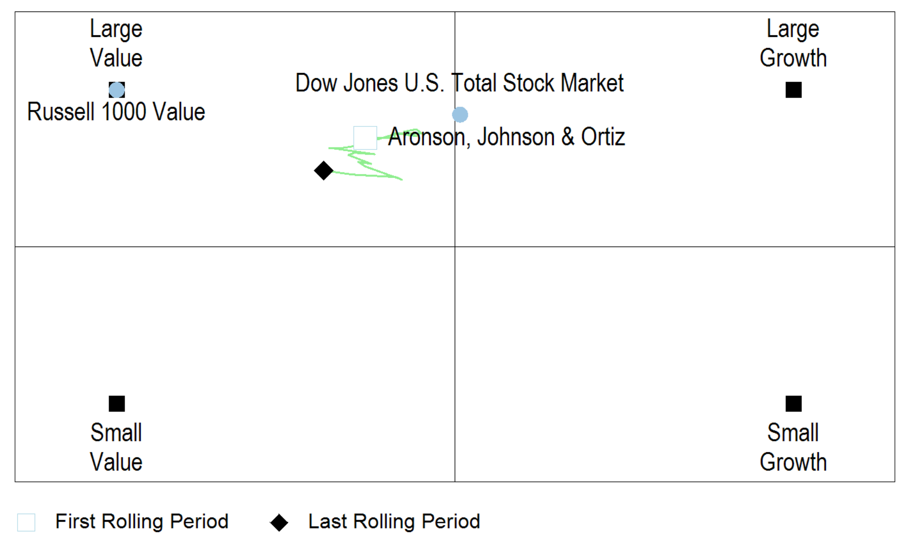
Los Angeles City Employees' Retirement System

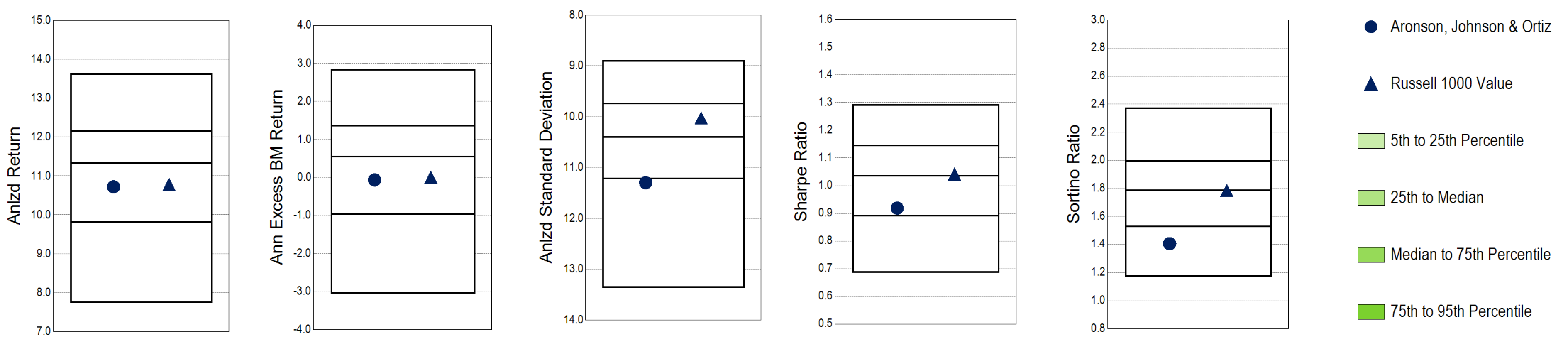
ARONSON, JOHNSON & ORTIZ

5 Year Risk Return



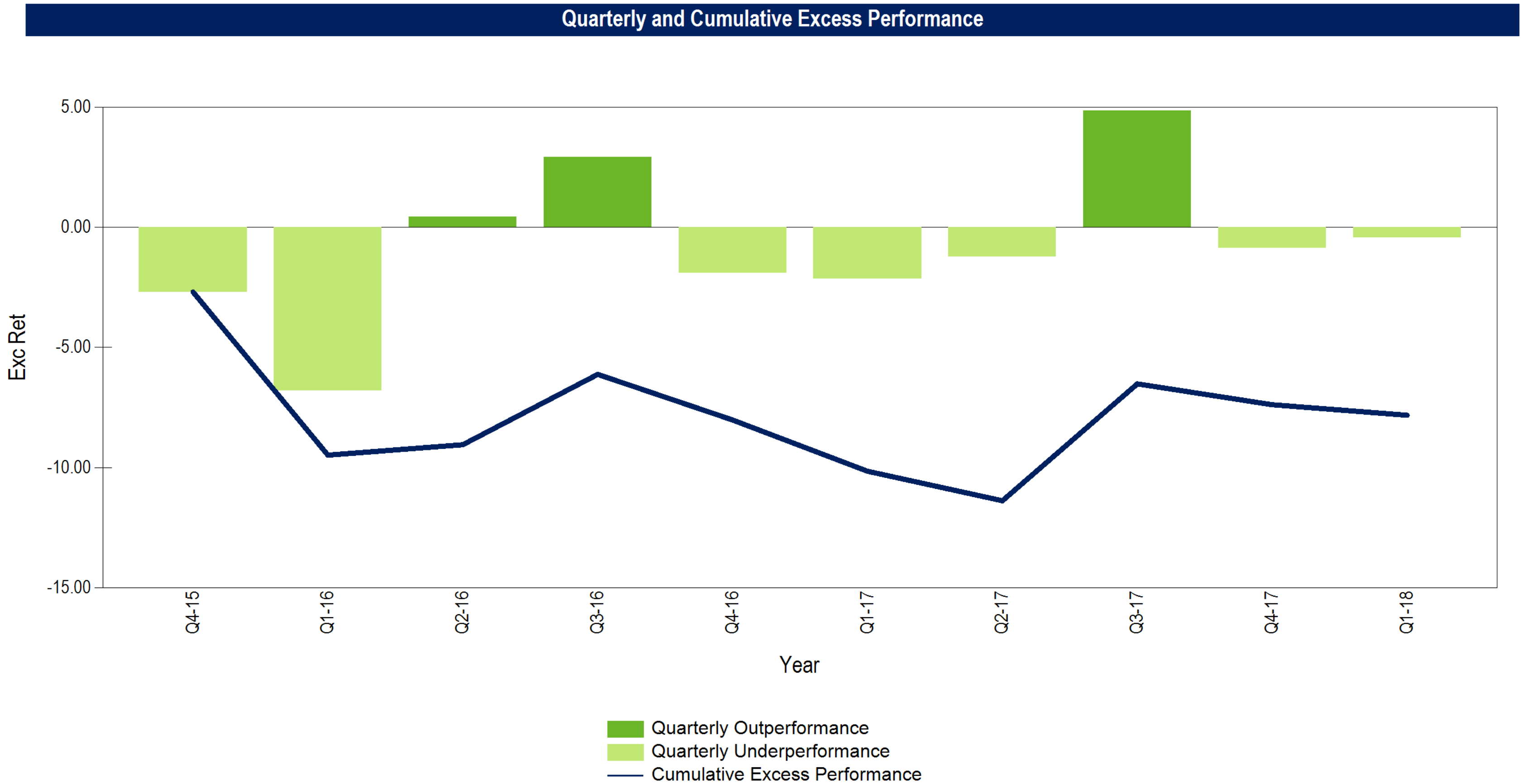
5 Year Style Map





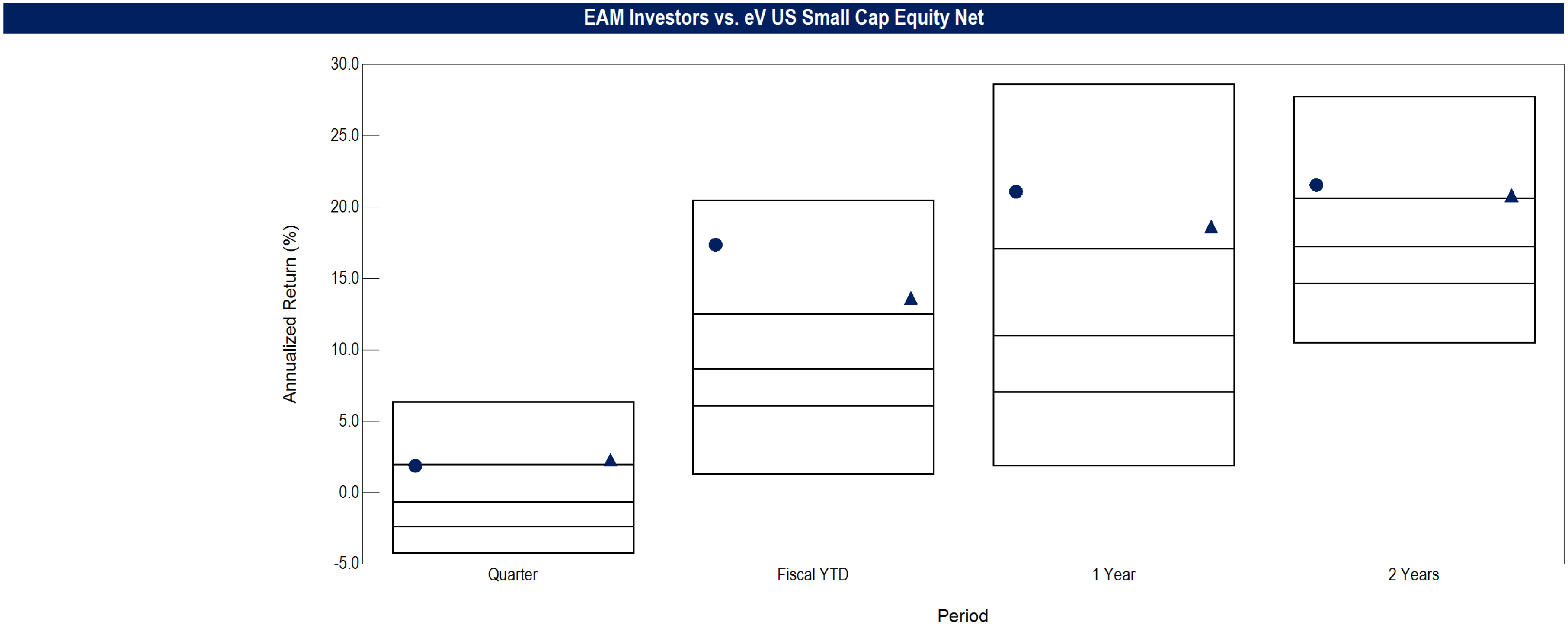
Los Angeles City Employees' Retirement System

EAM INVESTORS



Los Angeles City Employees' Retirement System

EAM INVESTORS

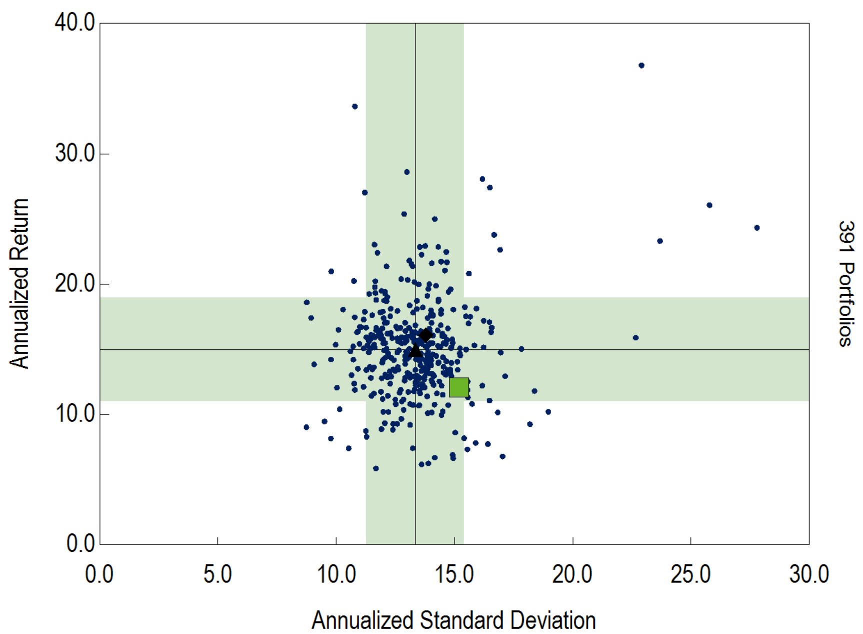


	Return (Rank)							
5th Percentile	6.34		20.45		28.59		27.75	
25th Percentile	2.01		12.55		17.13		20.64	
Median	-0.63		8.69		11.03		17.28	
75th Percentile	-2.35		6.12		7.06		14.67	
95th Percentile	-4.22		1.35		1.93		10.51	
# of Portfolios	405		404		404		398	
● EAM Investors	1.86	(26)	17.36	(11)	21.07	(16)	21.54	(19)
▲ Russell 2000 Growth	2.30	(23)	13.64	(22)	18.63	(22)	20.81	(23)

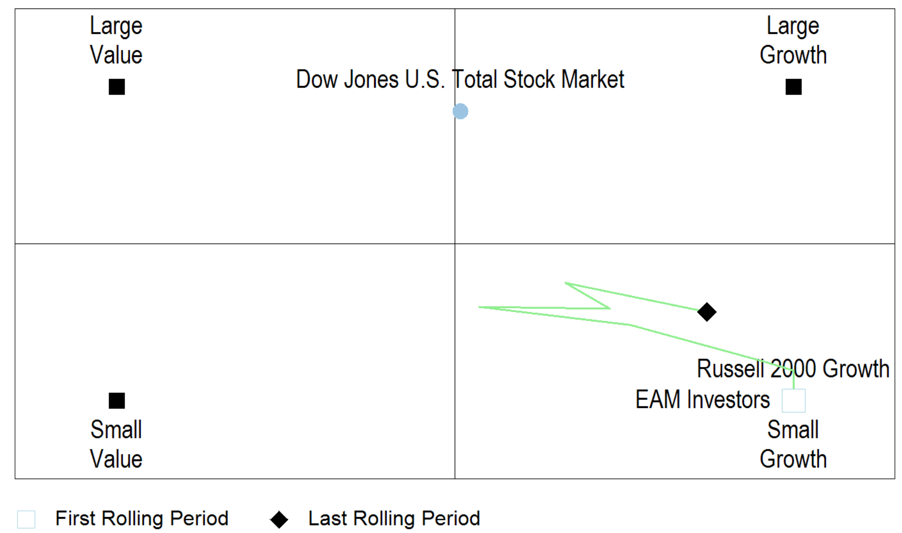
Los Angeles City Employees' Retirement System

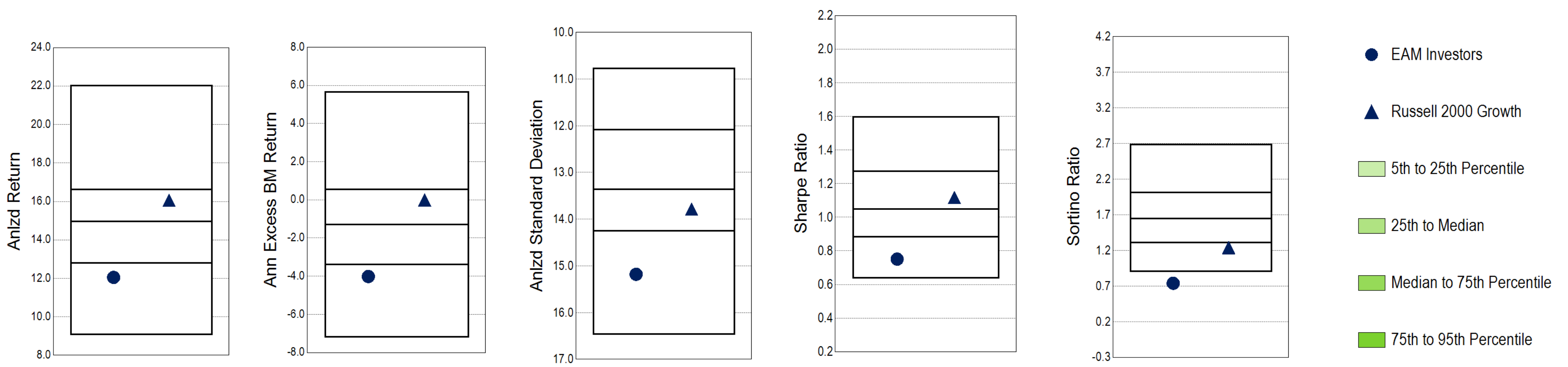
EAM INVESTORS

Since Inception Risk Return



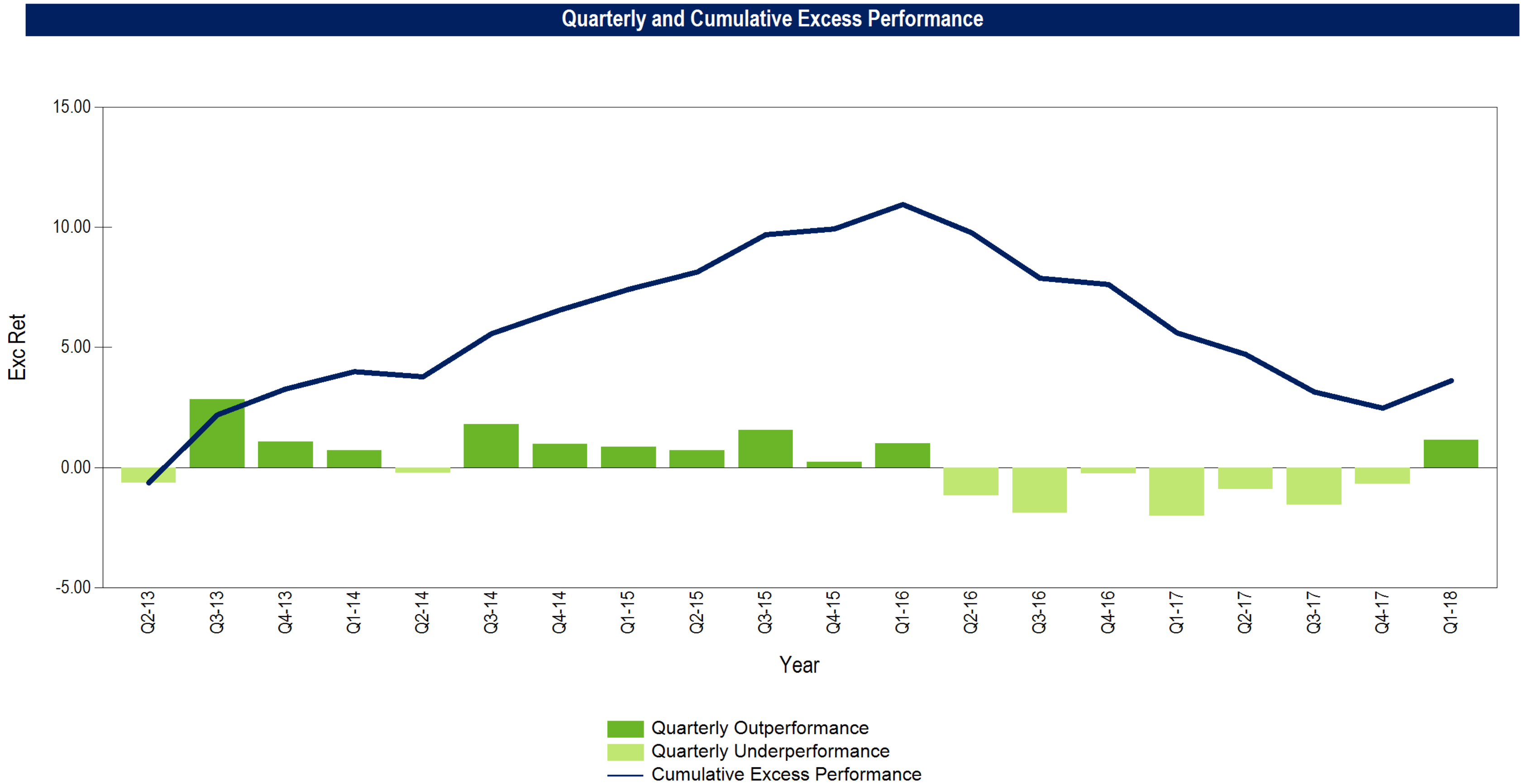
Since Inception Style Map





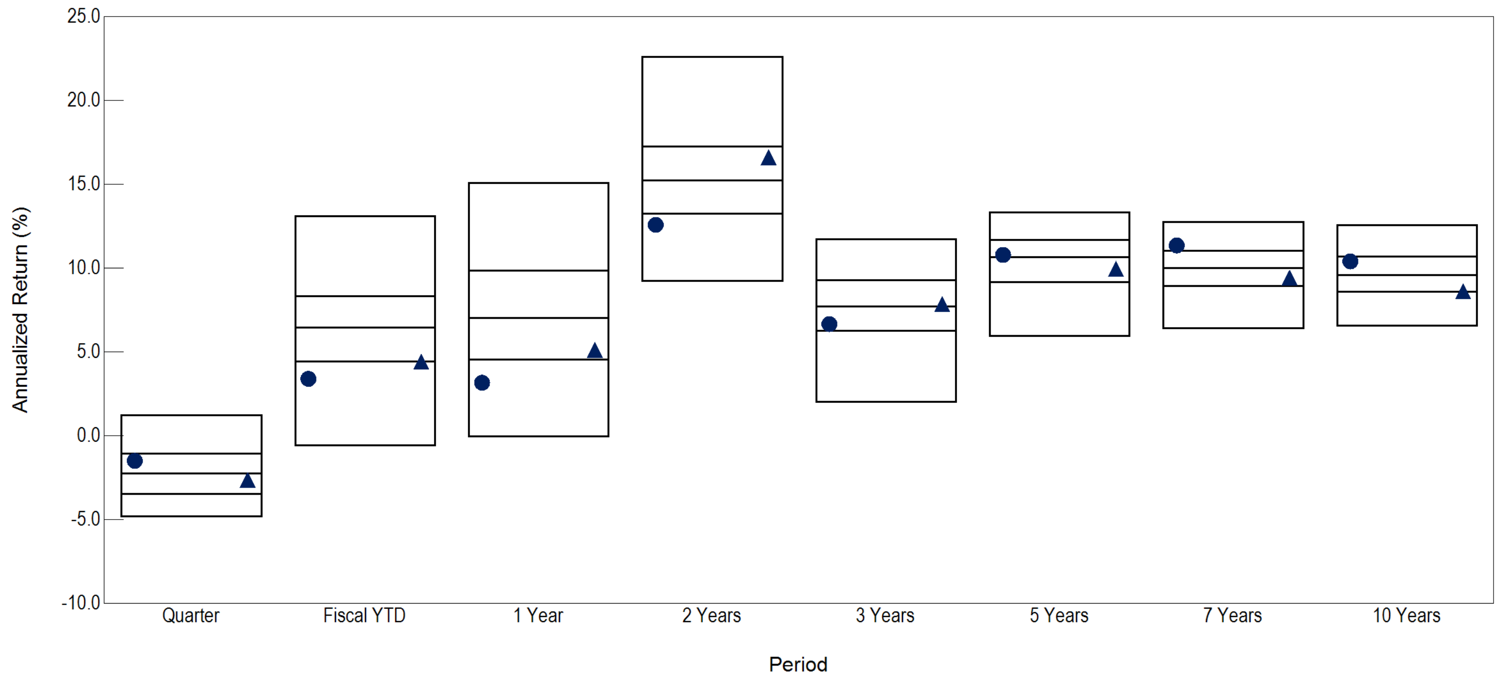
Los Angeles City Employees' Retirement System

PANAGORA



PANAGORA

PanAgora vs. eV US Small Cap Value Equity Net

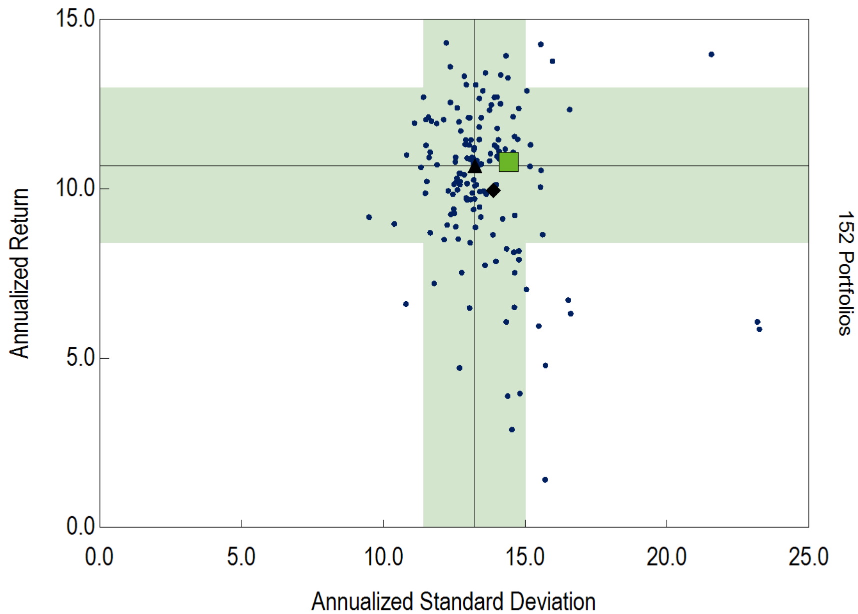


	Return (Rank)															
5th Percentile	1.22		13.11		15.09		22.62		11.71		13.34		12.76		12.54	
25th Percentile	-1.02		8.35		9.88		17.29		9.31		11.73		11.07		10.72	
Median	-2.21		6.49		7.06		15.28		7.74		10.68		10.03		9.63	
75th Percentile	-3.42		4.46		4.59		13.28		6.31		9.20		8.98		8.64	
95th Percentile	-4.78		-0.55		0.00		9.29		2.05		6.01		6.47		6.62	
# of Portfolios	172		172		172		170		162		152		143		127	
● PanAgora	-1.50	(34)	3.39	(82)	3.16	(85)	12.58	(79)	6.66	(71)	10.79	(47)	11.35	(20)	10.41	(32)
▲ Russell 2000 Value	-2.64	(60)	4.43	(76)	5.13	(70)	16.62	(34)	7.87	(47)	9.96	(64)	9.42	(66)	8.61	(76)

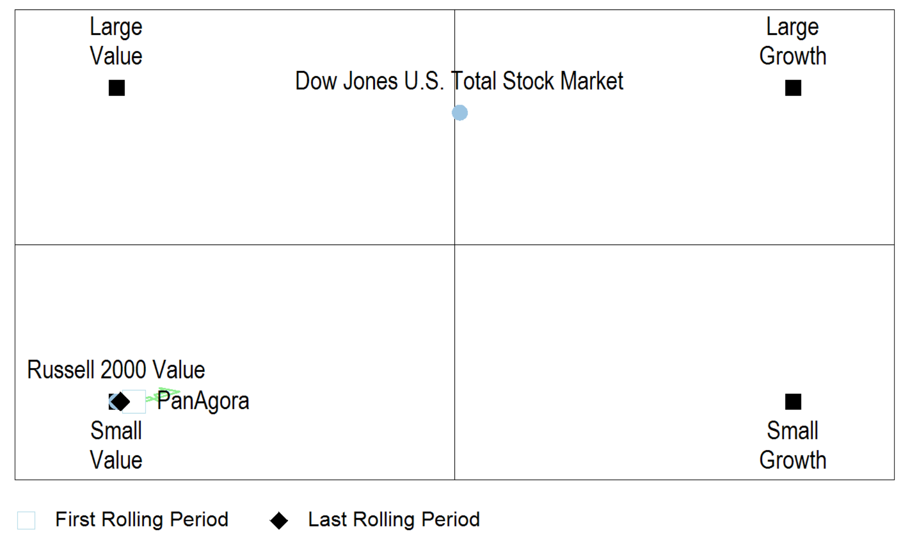
Los Angeles City Employees' Retirement System

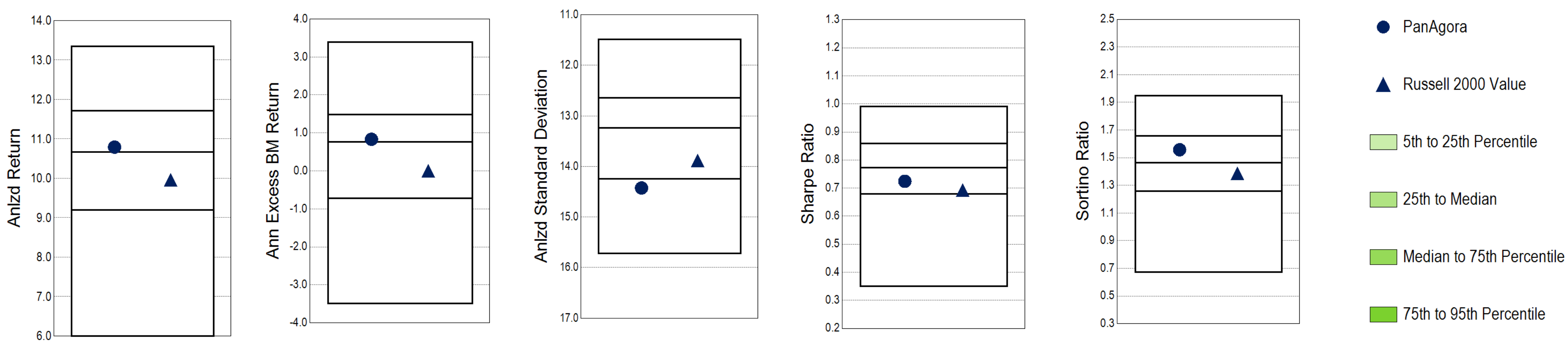
PANAGORA

5 Year Risk Return



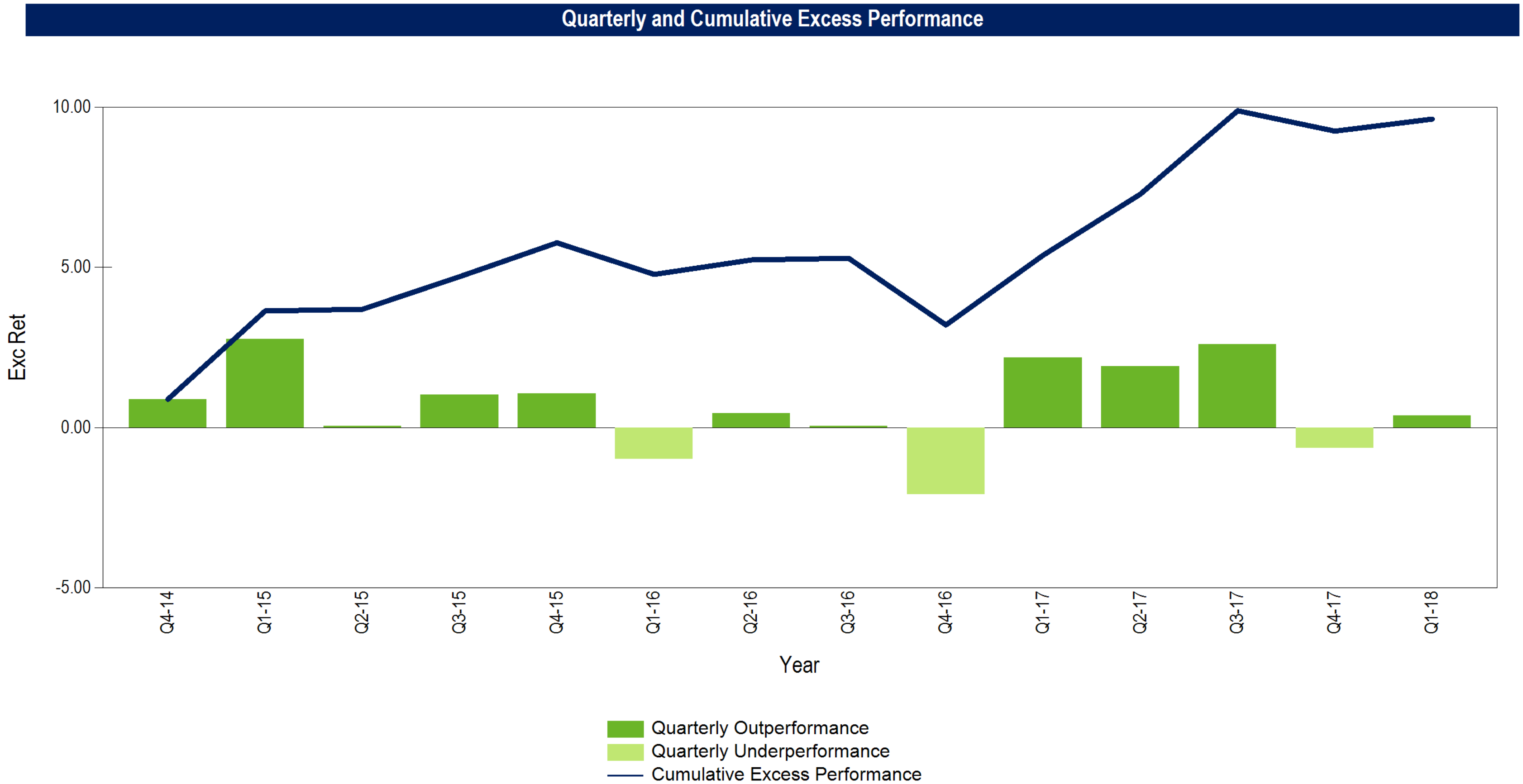
5 Year Style Map





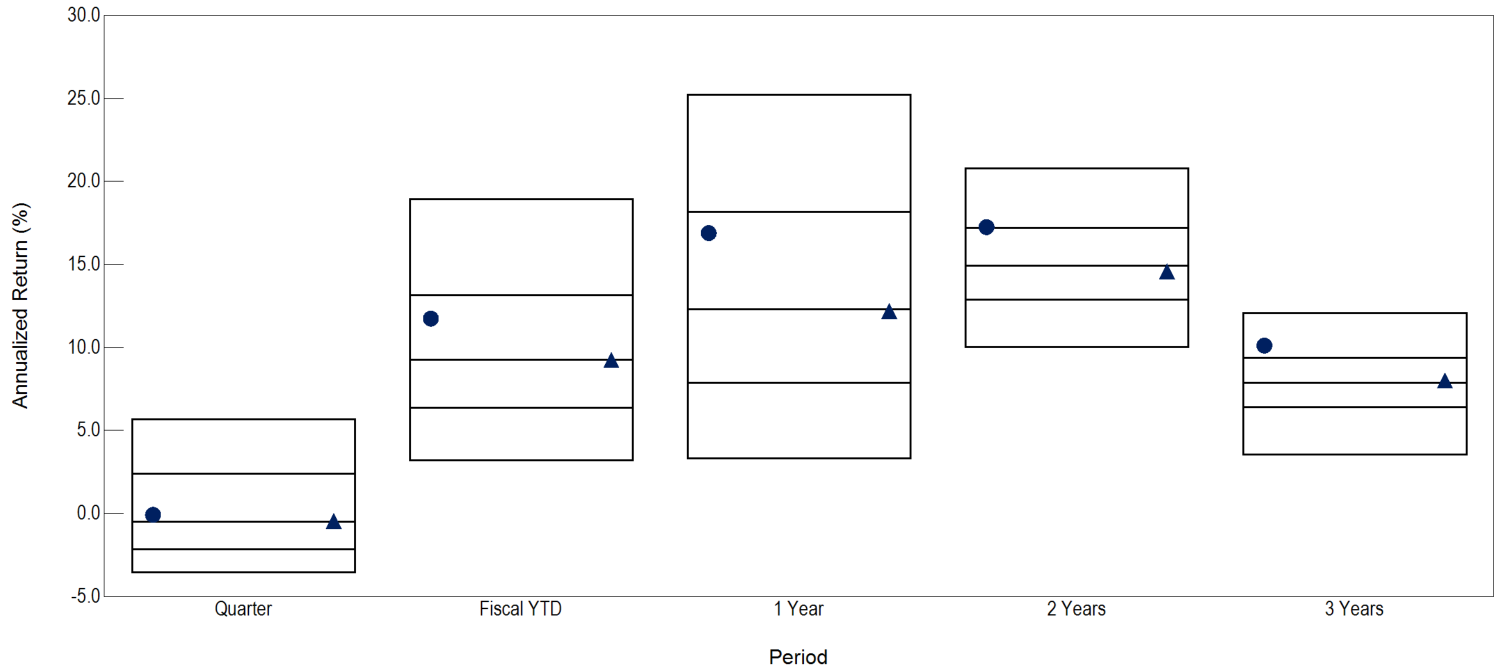
Los Angeles City Employees' Retirement System

PRINCIPAL GLOBAL INVESTORS



PRINCIPAL GLOBAL INVESTORS

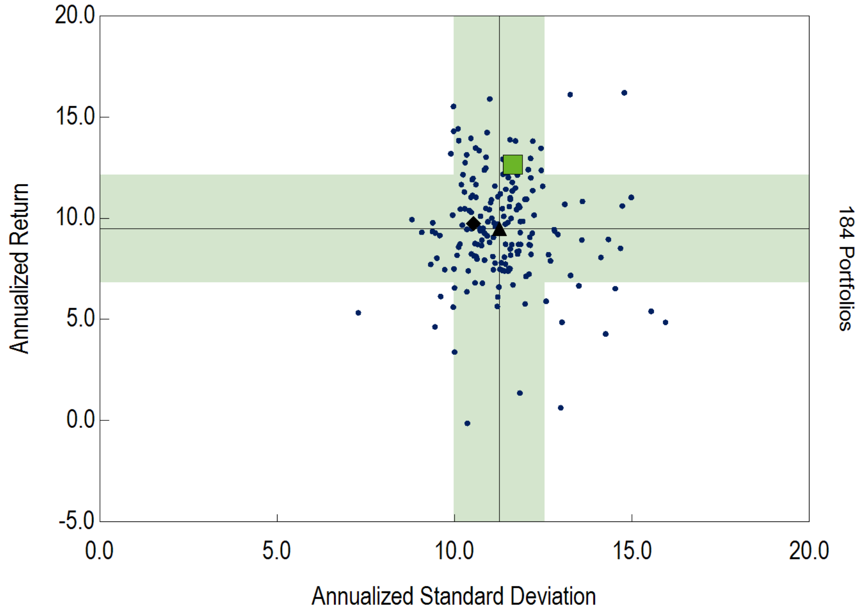
Principal Global Investors vs. eV US Mid Cap Equity Net



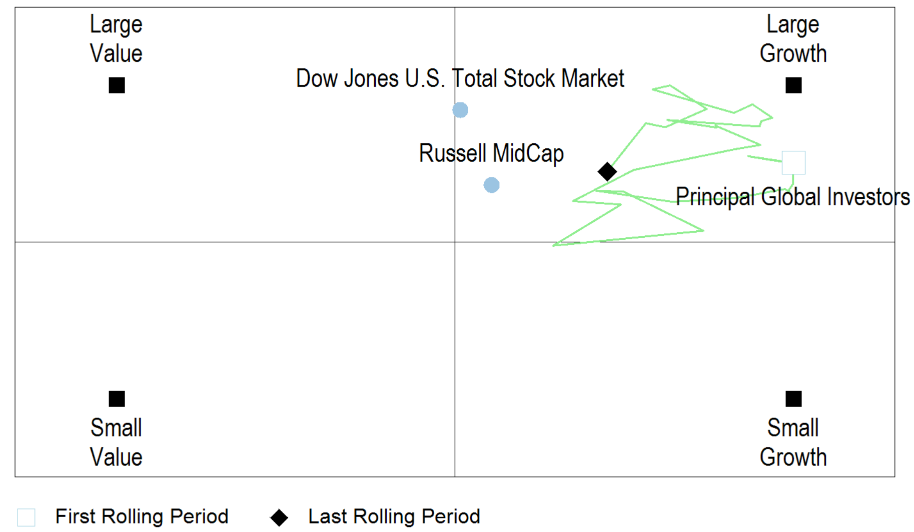
	Return (Rank)									
5th Percentile	5.68		18.94		25.24		20.78		12.07	
25th Percentile	2.45		13.19		18.22		17.23		9.41	
Median	-0.46		9.31		12.35		14.95		7.90	
75th Percentile	-2.12		6.40		7.92		12.92		6.45	
95th Percentile	-3.49		3.24		3.35		10.06		3.61	
# of Portfolios	191		190		190		188		188	
● Principal Global Investors	-0.09	(45)	11.74	(34)	16.89	(30)	17.25	(25)	10.12	(20)
▲ Russell MidCap	-0.46	(50)	9.25	(51)	12.20	(51)	14.59	(55)	8.01	(49)

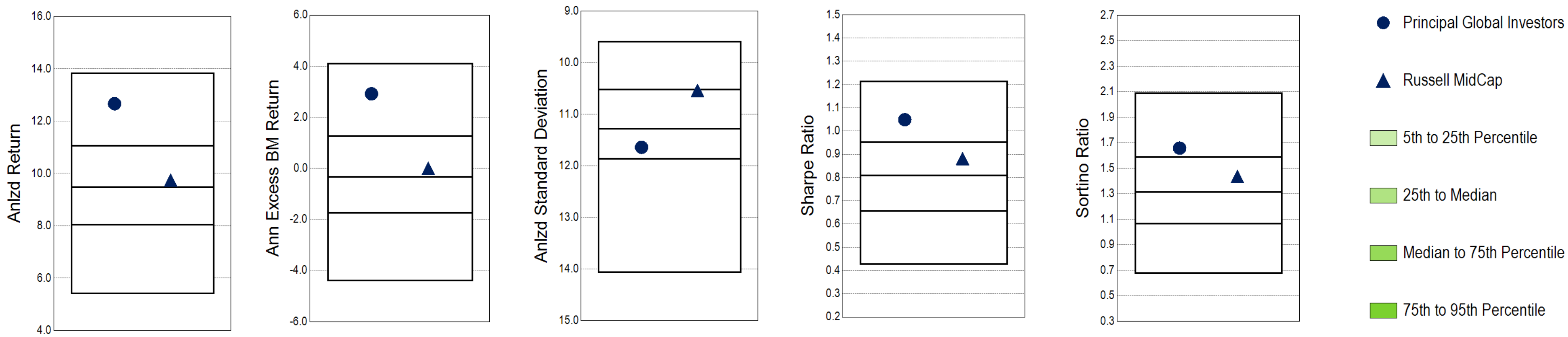
PRINCIPAL GLOBAL INVESTORS

Since Inception Risk Return

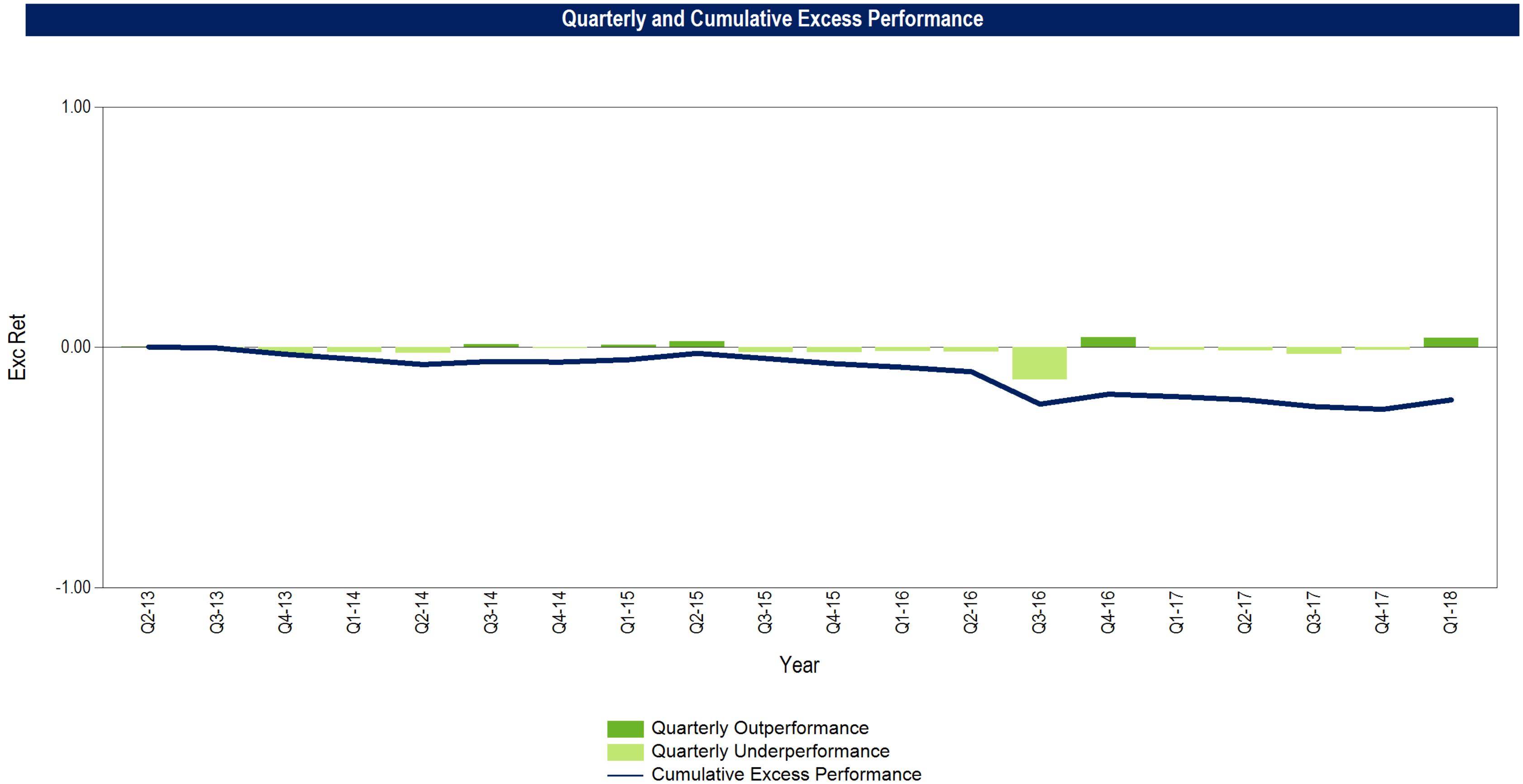


Since Inception Style Map



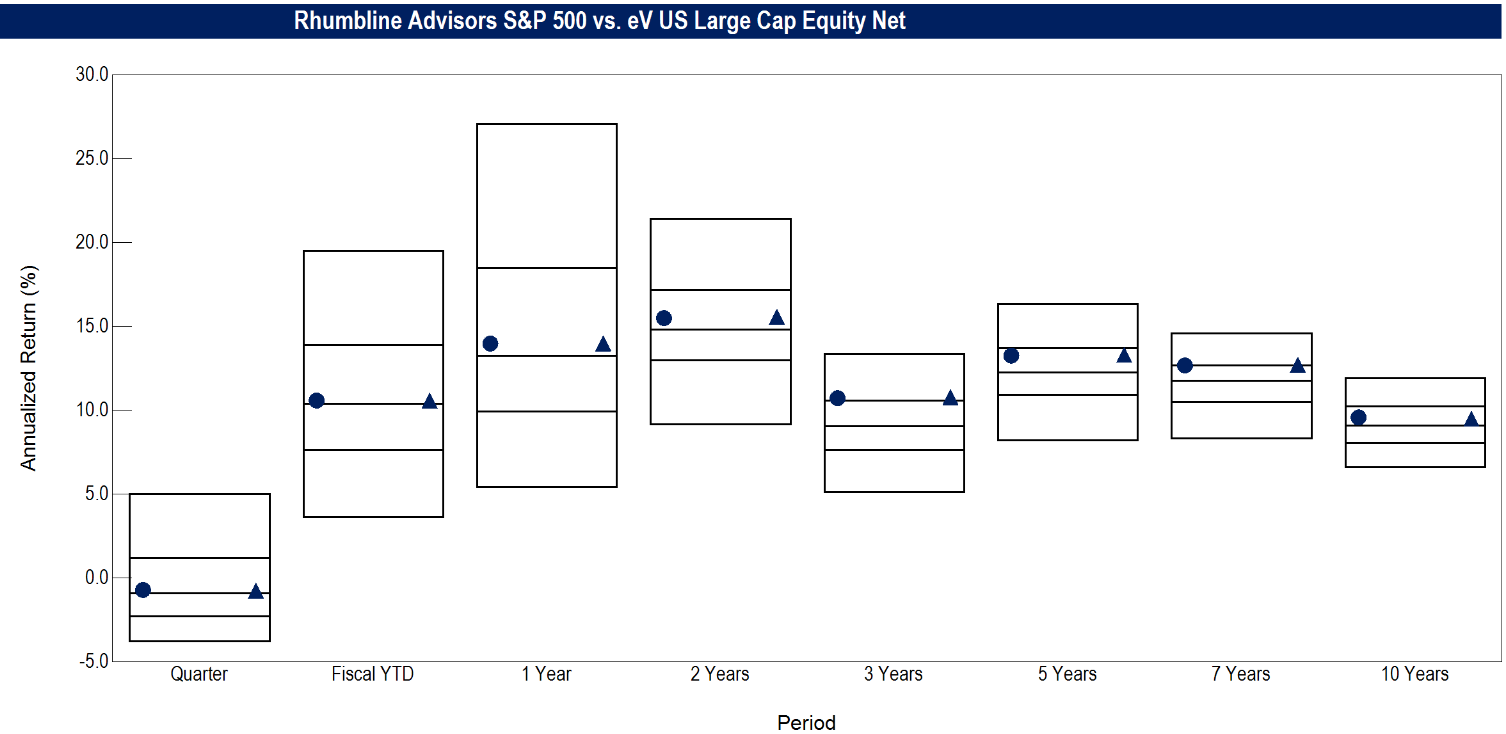


RHUMBLINE ADVISORS S&P 500



Los Angeles City Employees' Retirement System

RHUMBLINE ADVISORS S&P 500

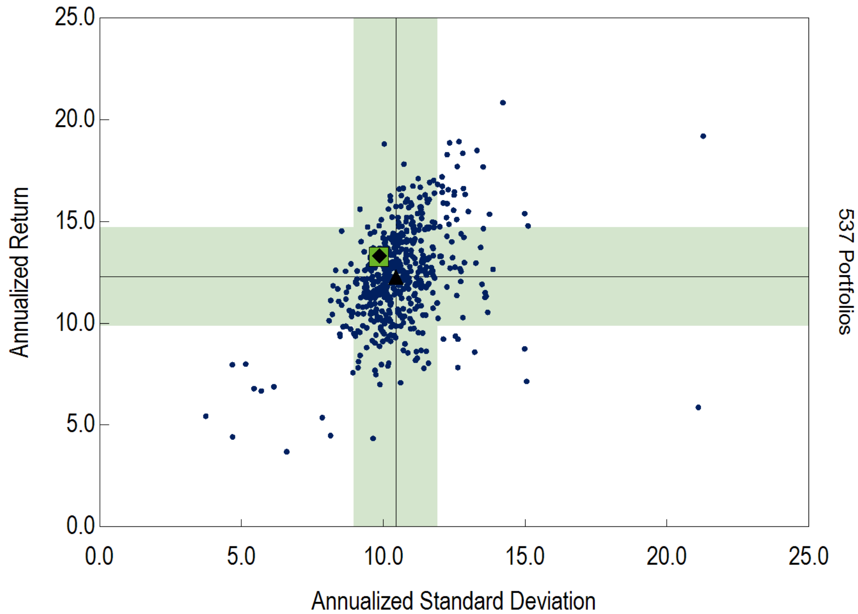


	Return (Rank)															
5th Percentile	4.99		19.50		27.07		21.40		13.38		16.34		14.58		11.92	
25th Percentile	1.21		13.92		18.52		17.22		10.63		13.75		12.71		10.26	
Median	-0.88		10.44		13.28		14.84		9.08		12.29		11.81		9.14	
75th Percentile	-2.27		7.66		9.97		13.00		7.66		10.97		10.52		8.11	
95th Percentile	-3.72		3.65		5.46		9.22		5.16		8.27		8.36		6.66	
# of Portfolios	594		593		593		585		576		537		484		435	
● Rhumbline Advisors S&P 500	-0.72	(47)	10.58	(49)	13.98	(47)	15.50	(41)	10.72	(25)	13.26	(33)	12.67	(26)	9.57	(41)
▲ S&P 500	-0.76	(48)	10.58	(49)	13.99	(47)	15.57	(40)	10.78	(24)	13.31	(32)	12.71	(26)	9.49	(43)

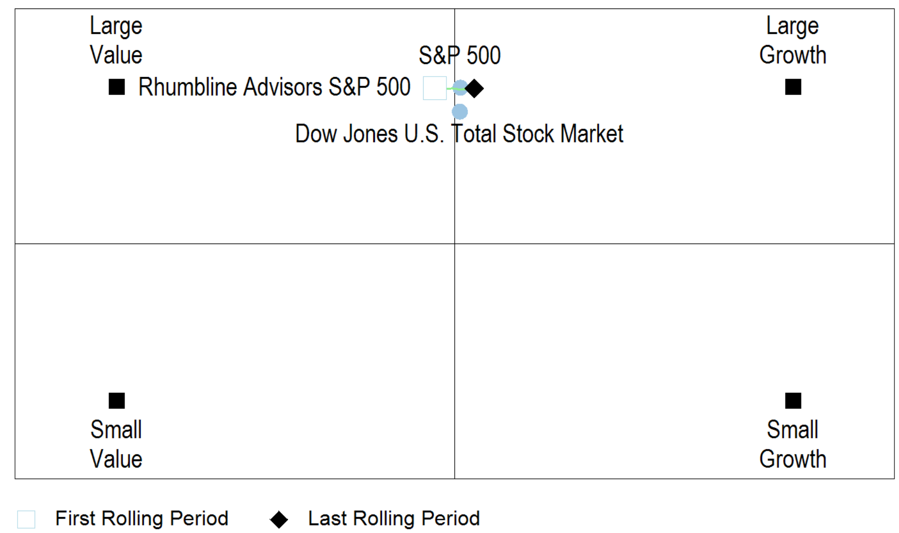
Los Angeles City Employees' Retirement System

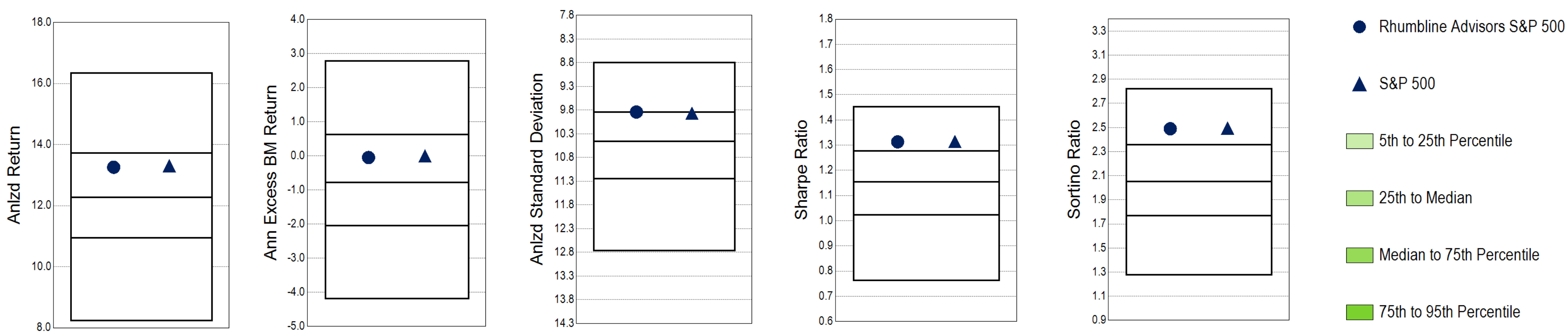
RHUMBLINE ADVISORS S&P 500

5 Year Risk Return



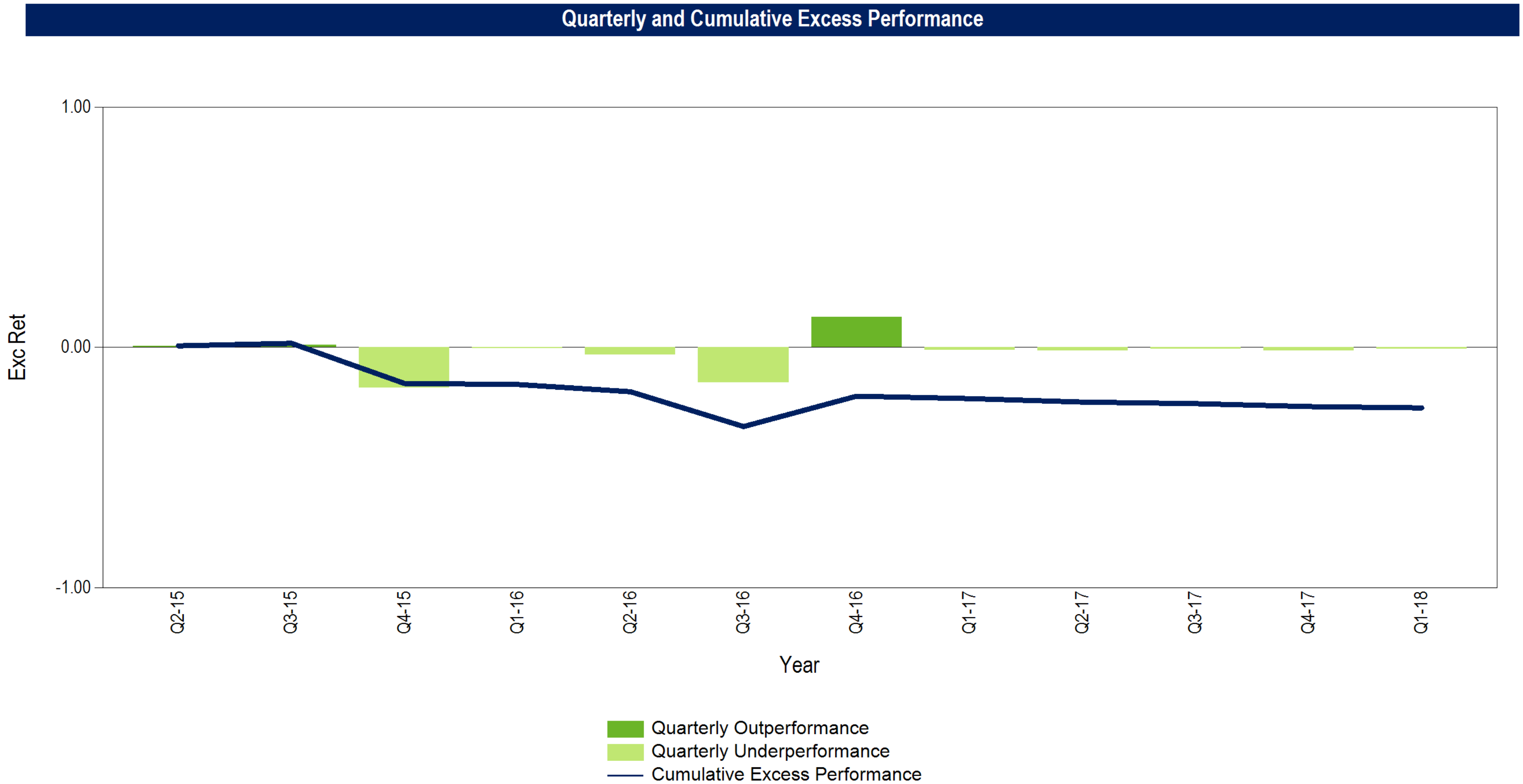
5 Year Style Map





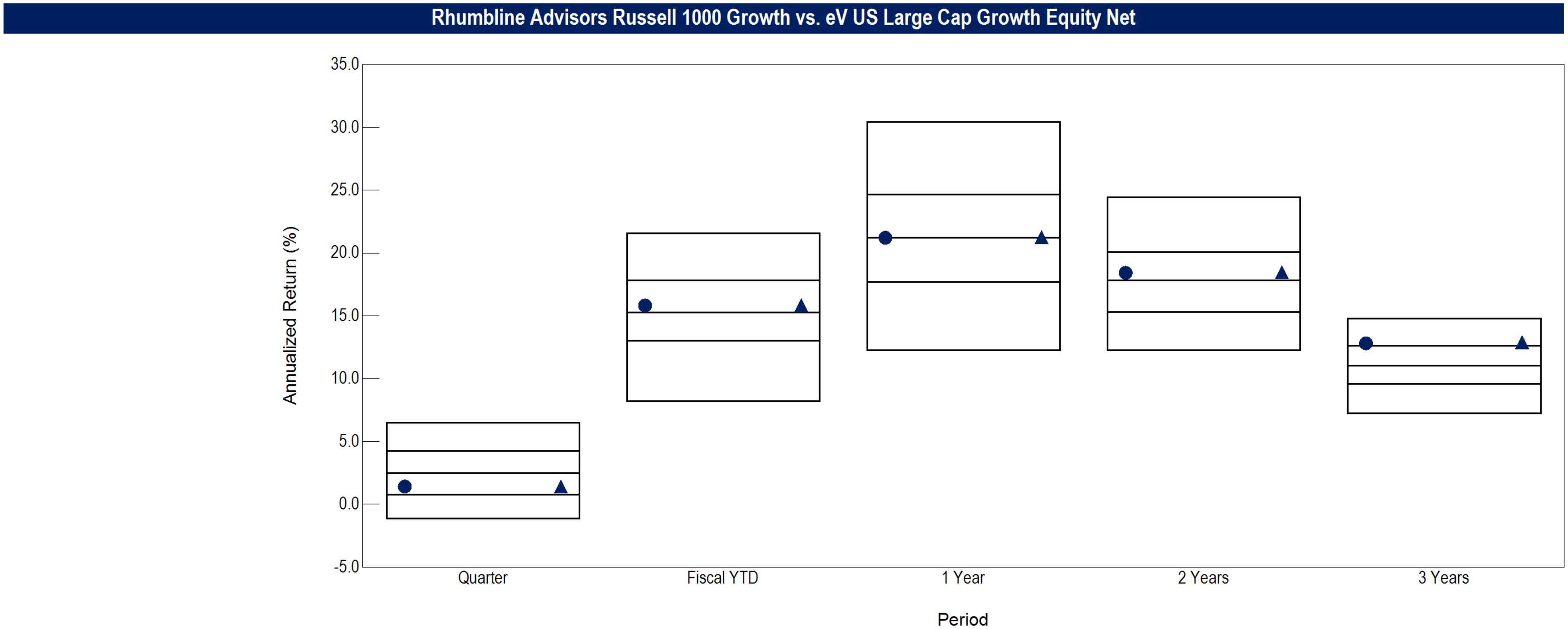
Los Angeles City Employees' Retirement System

RHUMBLINE ADVISORS RUSSELL 1000 GROWTH



Los Angeles City Employees' Retirement System

RHUMBLINE ADVISORS RUSSELL 1000 GROWTH



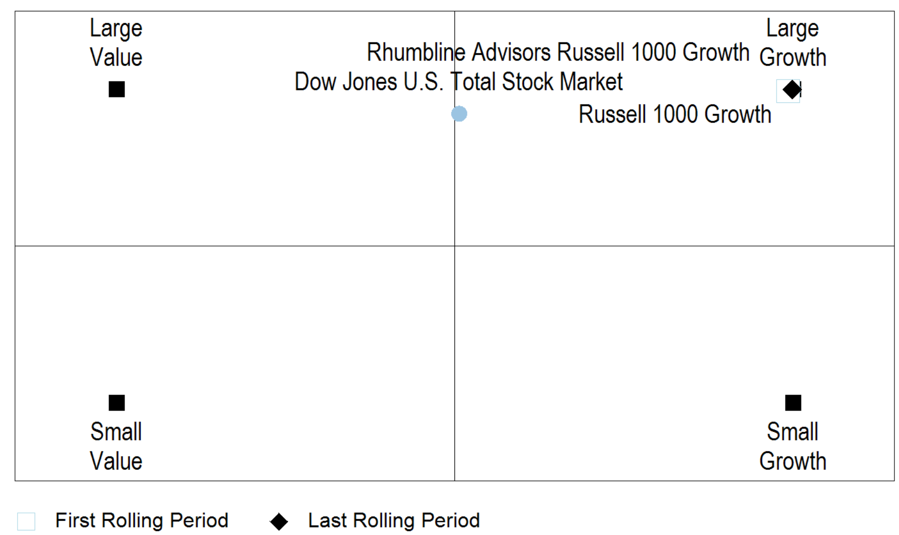
	Return (Rank)									
5th Percentile	6.47		21.57		30.40		24.43		14.76	
25th Percentile	4.30		17.84		24.69		20.11		12.66	
Median	2.54		15.31		21.27		17.88		11.07	
75th Percentile	0.82		13.06		17.71		15.33		9.64	
95th Percentile	-1.07		8.24		12.32		12.31		7.26	
# of Portfolios	180		180		180		176		173	
● Rhumbline Advisors Russell 1000 Growth	1.41	(65)	15.82	(43)	21.21	(52)	18.42	(43)	12.81	(24)
▲ Russell 1000 Growth	1.42	(65)	15.84	(42)	21.25	(51)	18.47	(42)	12.90	(23)

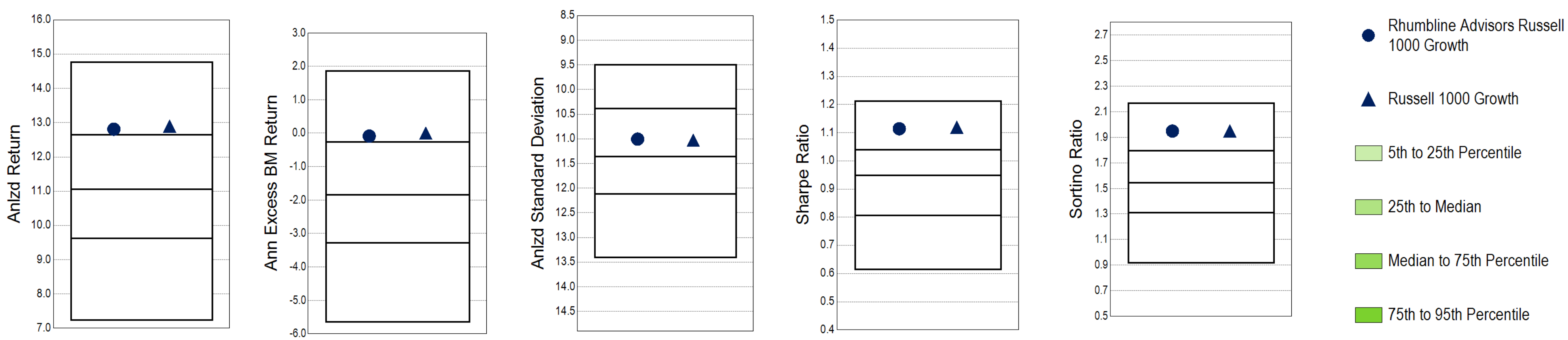
Los Angeles City Employees' Retirement System

RHUMBLINE ADVISORS RUSSELL 1000 GROWTH

3 Year Risk Return

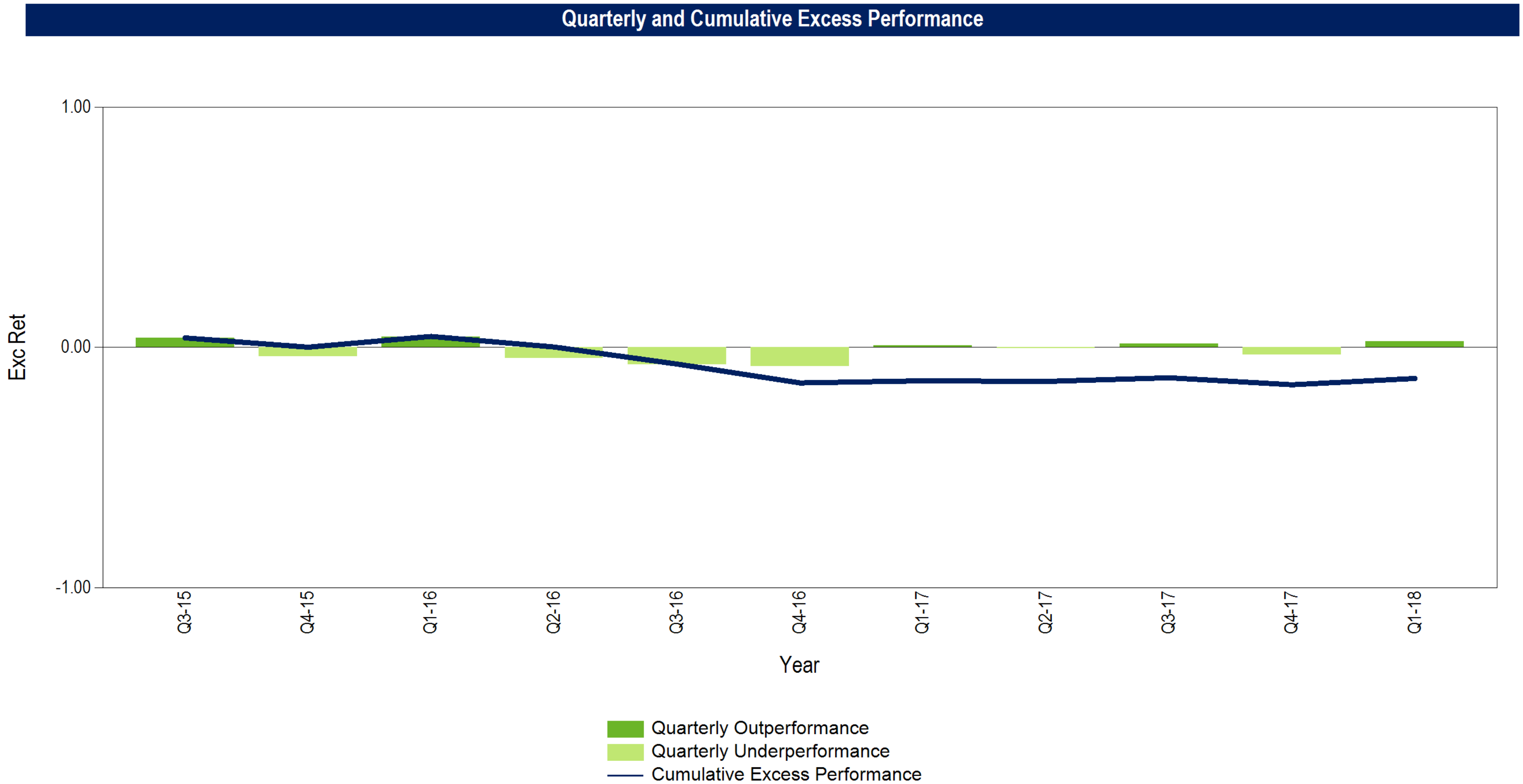
3 Year Style Map





Los Angeles City Employees' Retirement System

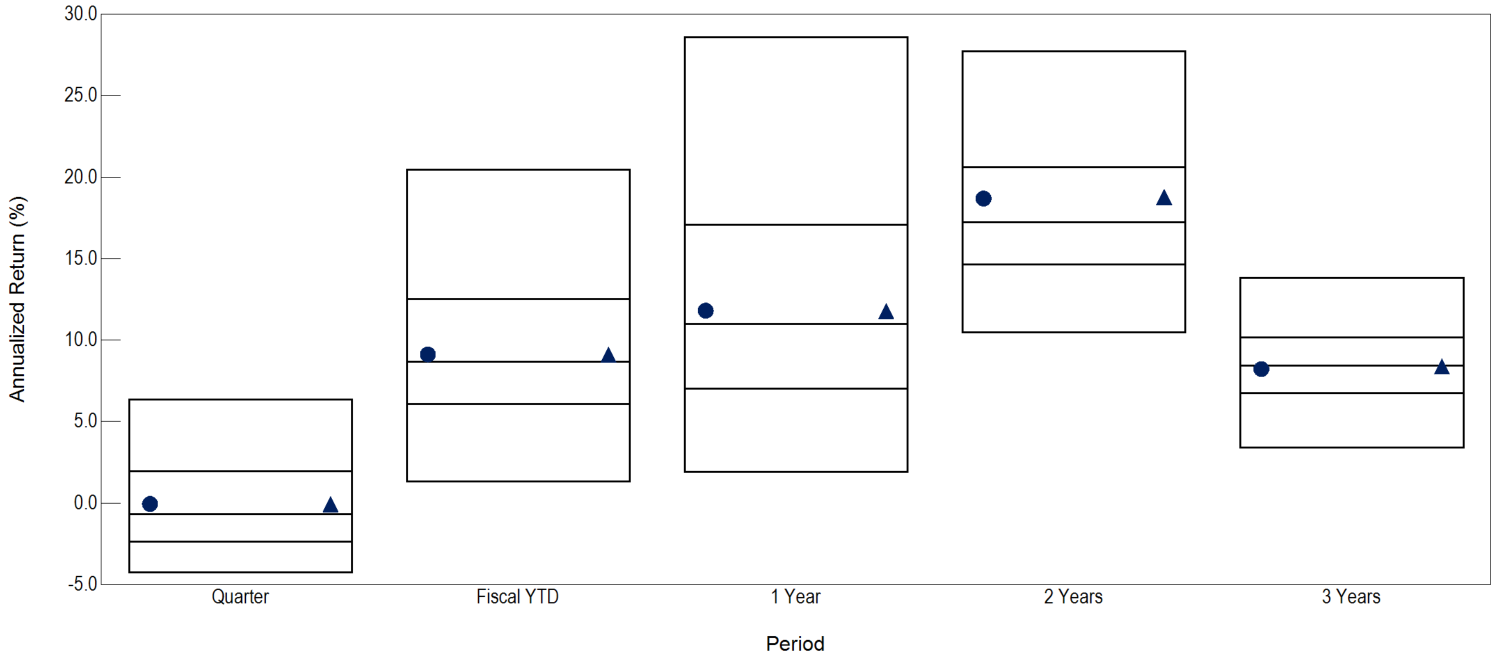
RHUMBLINE ADVISORS RUSSELL 2000



Los Angeles City Employees' Retirement System

RHUMBLINE ADVISORS RUSSELL 2000

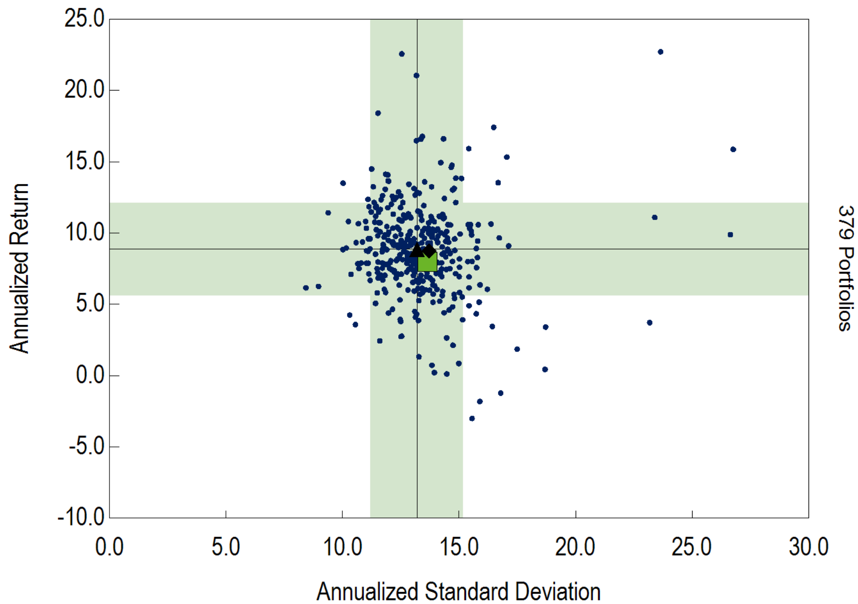
Rhumbline Advisors Russell 2000 vs. eV US Small Cap Equity Net



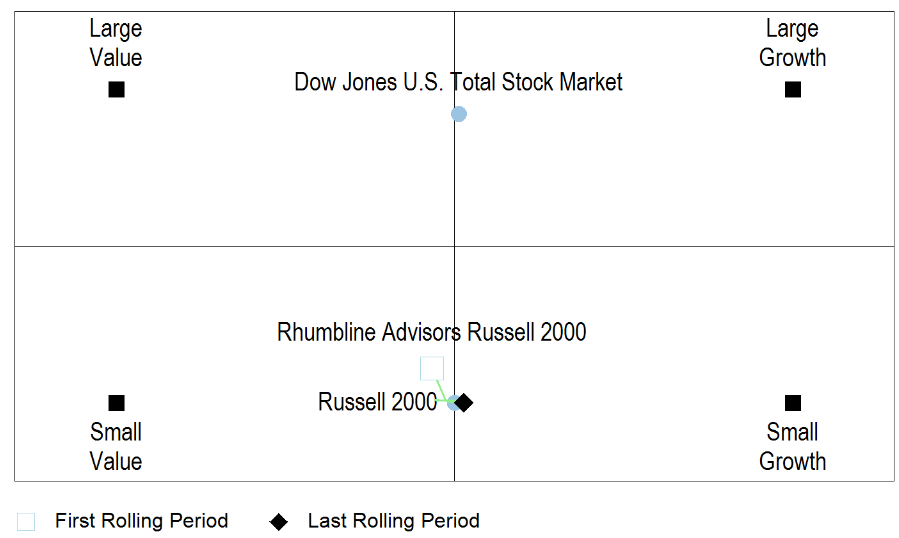
	Return (Rank)									
5th Percentile	6.34		20.45		28.59		27.75		13.80	
25th Percentile	2.01		12.55		17.13		20.64		10.20	
Median	-0.63		8.69		11.03		17.28		8.46	
75th Percentile	-2.35		6.12		7.06		14.67		6.78	
95th Percentile	-4.22		1.35		1.93		10.51		3.43	
# of Portfolios	405		404		404		398		384	
● Rhumbline Advisors Russell 2000	-0.06	(43)	9.12	(47)	11.80	(46)	18.69	(37)	8.22	(53)
▲ Russell 2000	-0.08	(44)	9.11	(47)	11.79	(46)	18.79	(36)	8.39	(52)

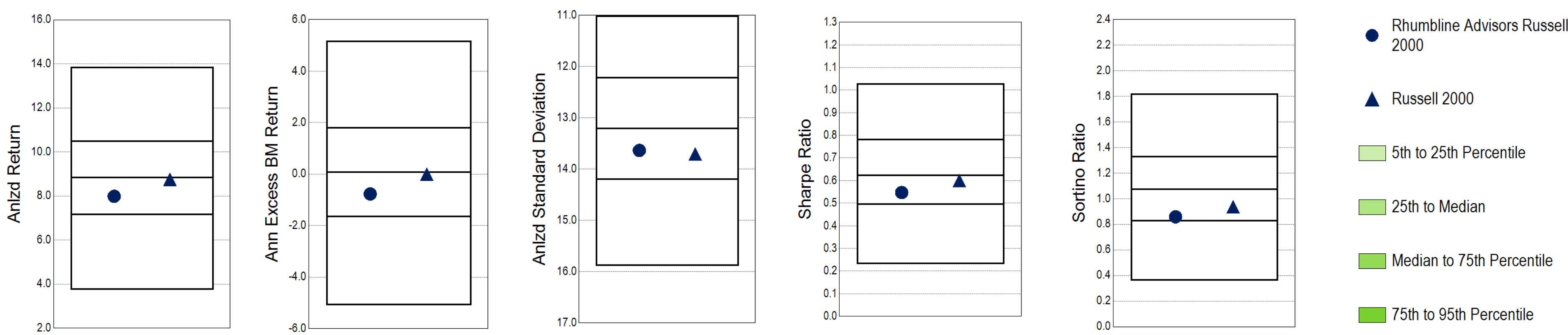
RHUMBLINE ADVISORS RUSSELL 2000

Since Inception Risk Return



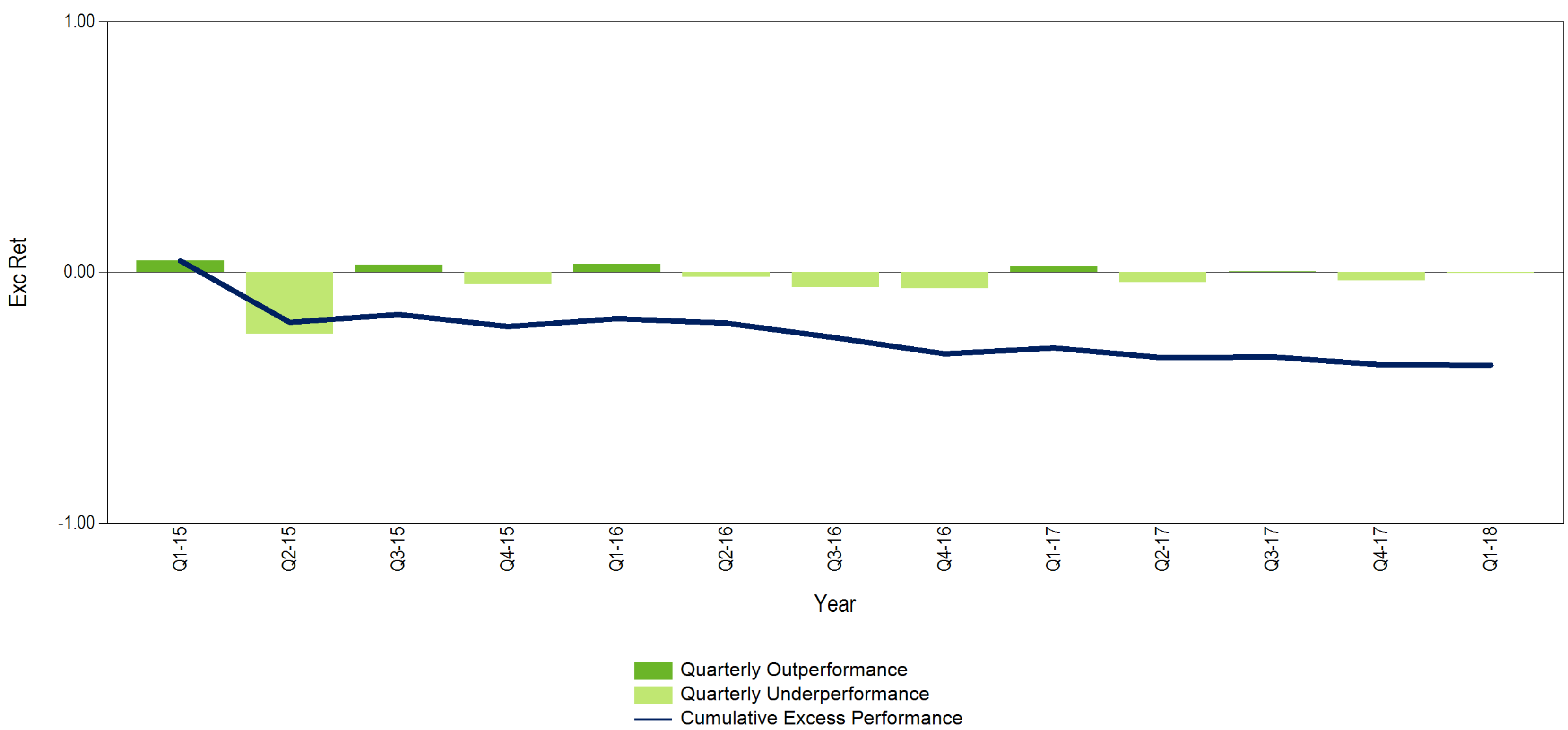
Since Inception Style Map





RHUMBLINE ADVISORS RUSSELL 2000 GROWTH

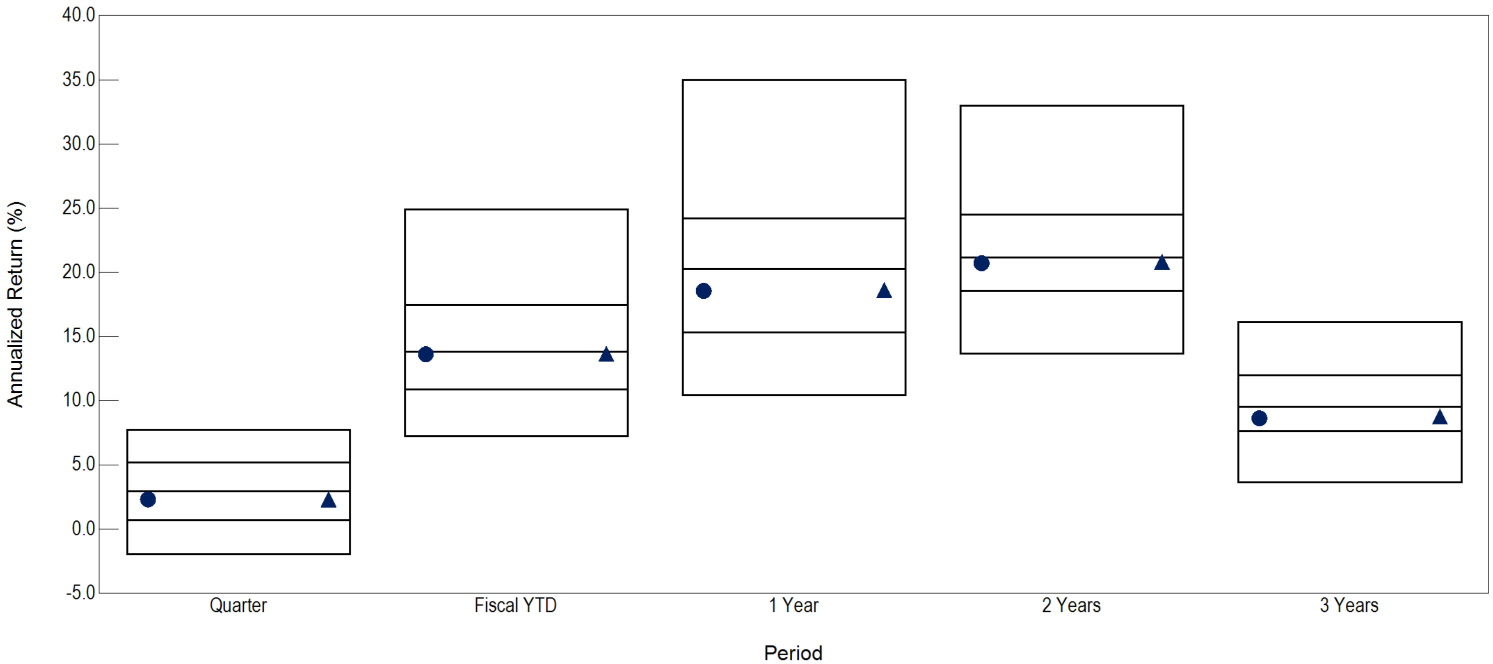
Quarterly and Cumulative Excess Performance



Los Angeles City Employees' Retirement System

RHUMBLINE ADVISORS RUSSELL 2000 GROWTH

Rhumbline Advisors Russell 2000 Growth vs. eV US Small Cap Growth Equity Net

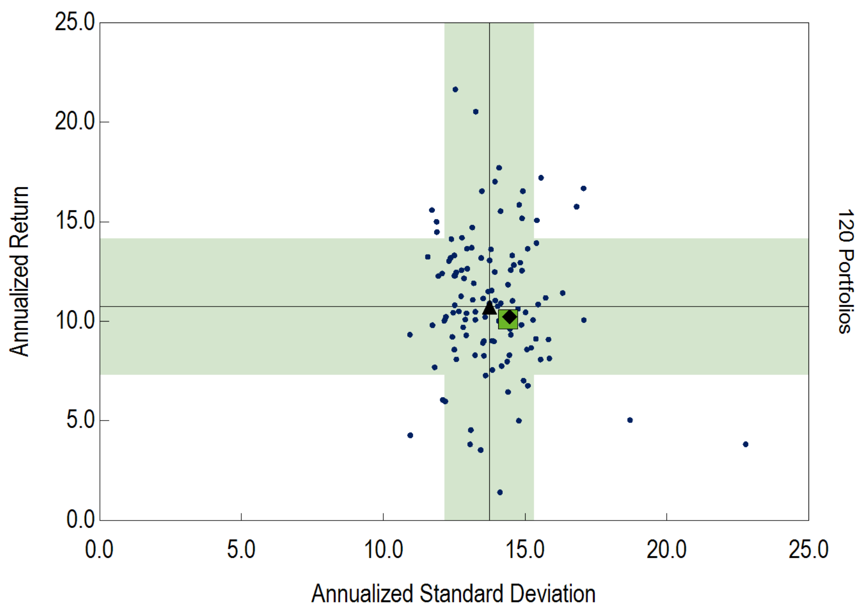


Return (Rank)	Quarter		Fiscal YTD		1 Year		2 Years		3 Years	
5th Percentile	7.74		24.91		34.99		32.98		16.11	
25th Percentile	5.21		17.51		24.25		24.53		12.00	
Median	2.96		13.86		20.32		21.21		9.58	
75th Percentile	0.76		10.93		15.38		18.61		7.68	
95th Percentile	-1.92		7.27		10.47		13.71		3.66	
# of Portfolios	131		131		131		128		123	
● Rhumbline Advisors Russell 2000 Growth	2.30	(60)	13.61	(52)	18.55	(57)	20.71	(55)	8.62	(62)
▲ Russell 2000 Growth	2.30	(60)	13.64	(52)	18.63	(56)	20.81	(54)	8.76	(62)

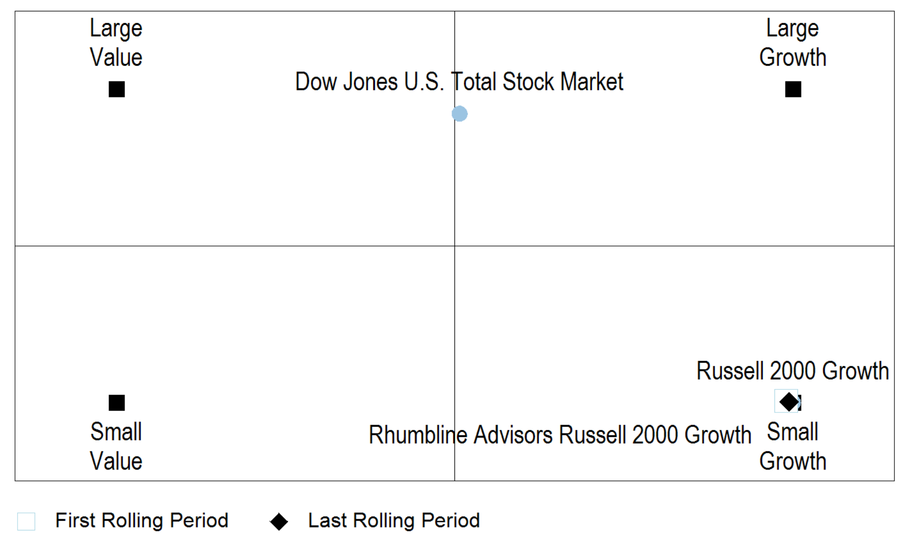
Los Angeles City Employees' Retirement System

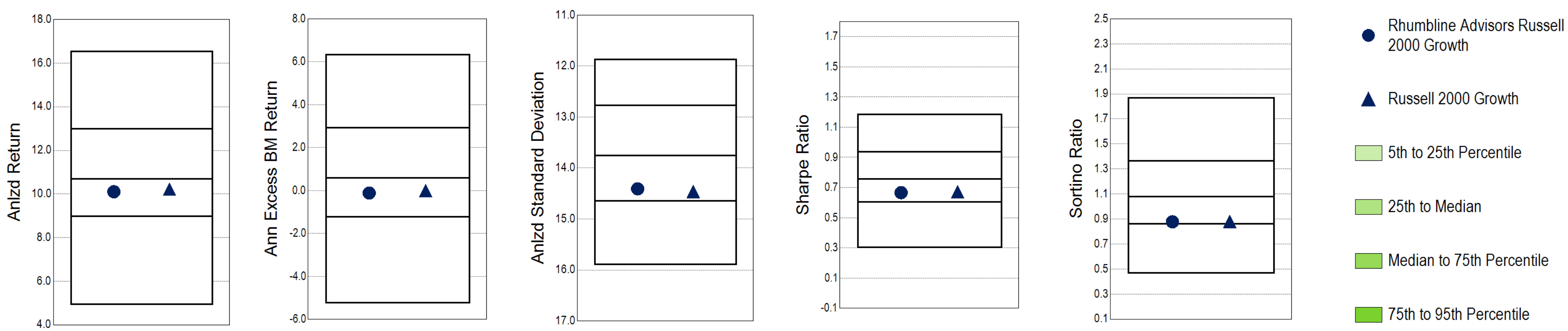
RHUMBLINE ADVISORS RUSSELL 2000 GROWTH

Since Inception Risk Return



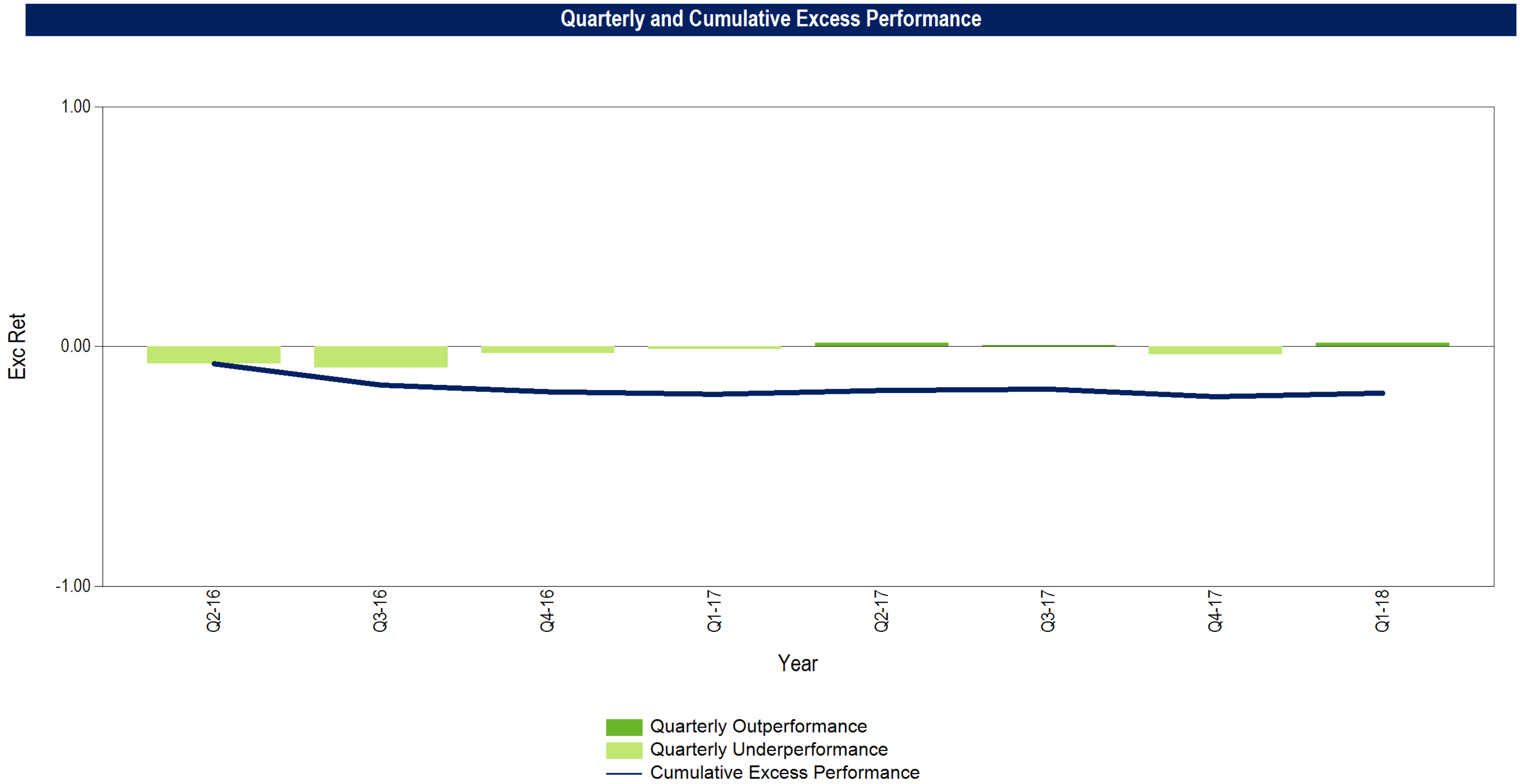
Since Inception Style Map





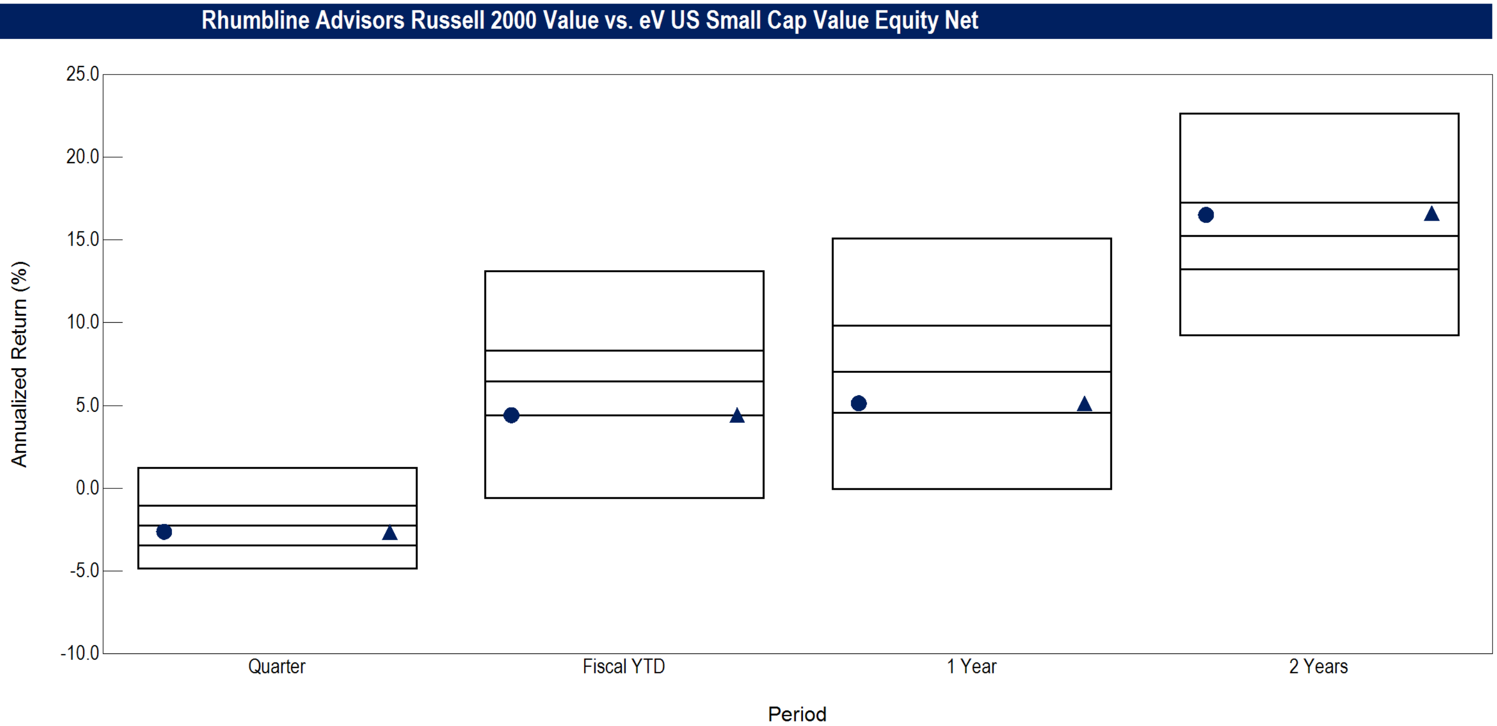
Los Angeles City Employees' Retirement System

RHUMBLINE ADVISORS RUSSELL 2000 VALUE



Los Angeles City Employees' Retirement System

RHUMBLINE ADVISORS RUSSELL 2000 VALUE

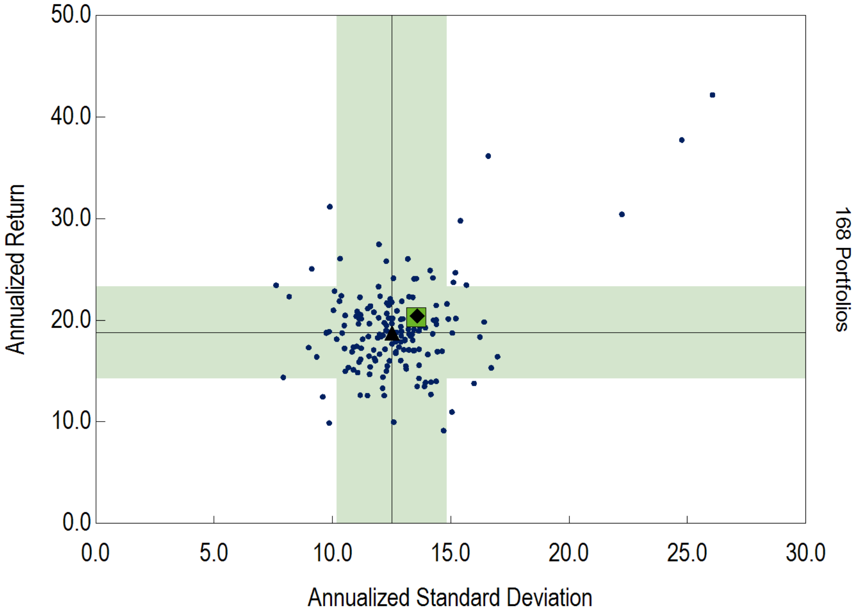


Return (Rank)	Quarter		Fiscal YTD		1 Year		2 Years	
5th Percentile	1.22		13.11		15.09		22.62	
25th Percentile	-1.02		8.35		9.88		17.29	
Median	-2.21		6.49		7.06		15.28	
75th Percentile	-3.42		4.46		4.59		13.28	
95th Percentile	-4.78		-0.55		0.00		9.29	
# of Portfolios	172		172		172		170	
● Rhumbline Advisors Russell 2000 Value	-2.63	(59)	4.42	(76)	5.13	(69)	16.51	(35)
▲ Russell 2000 Value	-2.64	(60)	4.43	(76)	5.13	(70)	16.62	(34)

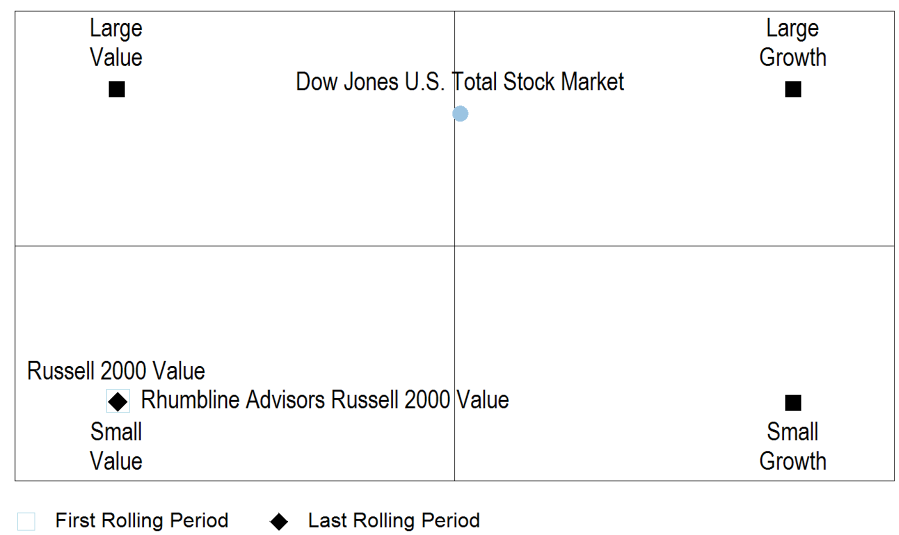
Los Angeles City Employees' Retirement System

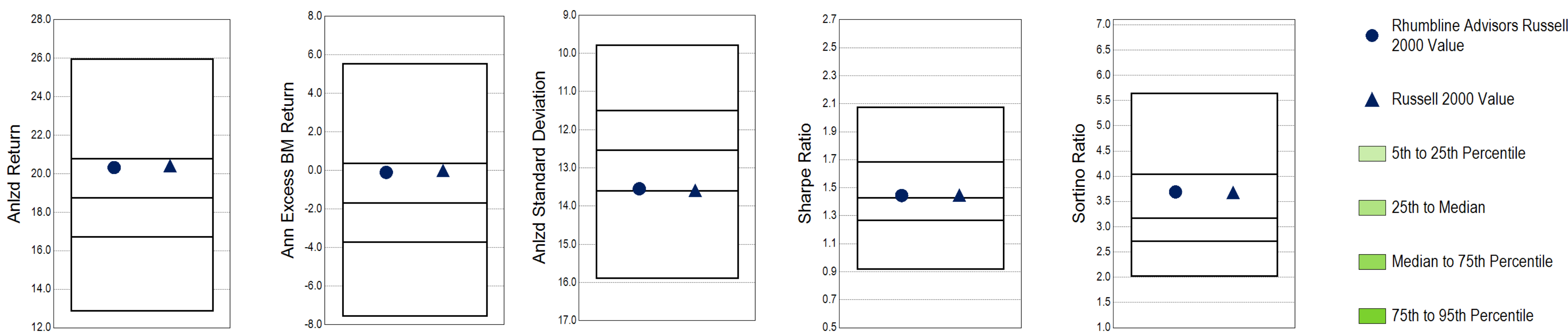
RHUMBLINE ADVISORS RUSSELL 2000 VALUE

Since Inception Risk Return



Since Inception Style Map



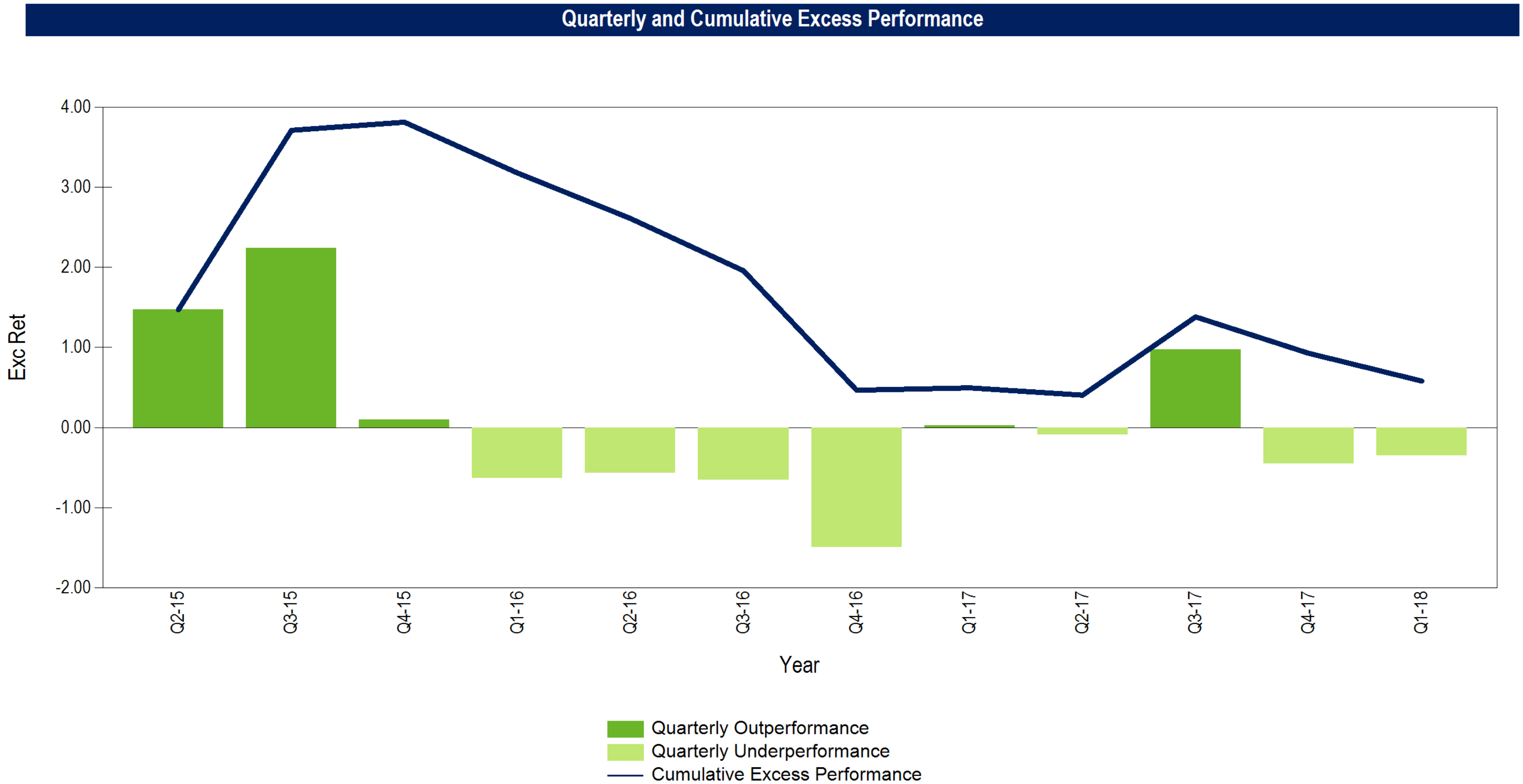


NON-U.S. EQUITY MANAGER PERFORMANCE

NEPC, LLC

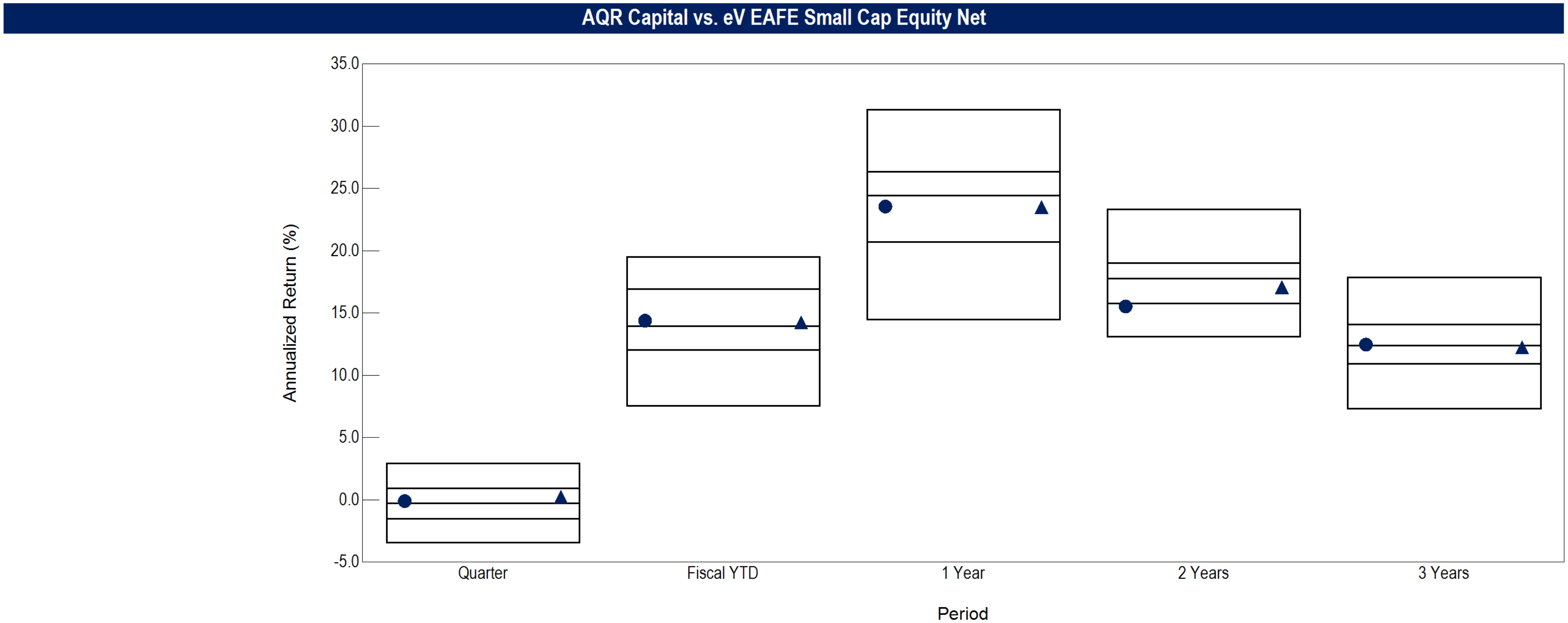
Los Angeles City Employees' Retirement System

AQR CAPITAL



Los Angeles City Employees' Retirement System

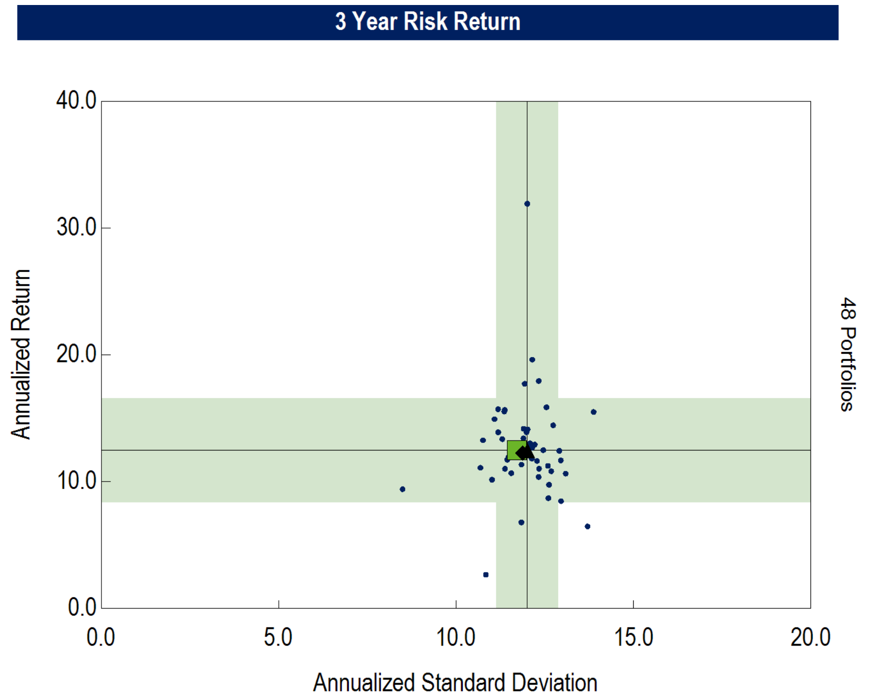
AQR CAPITAL

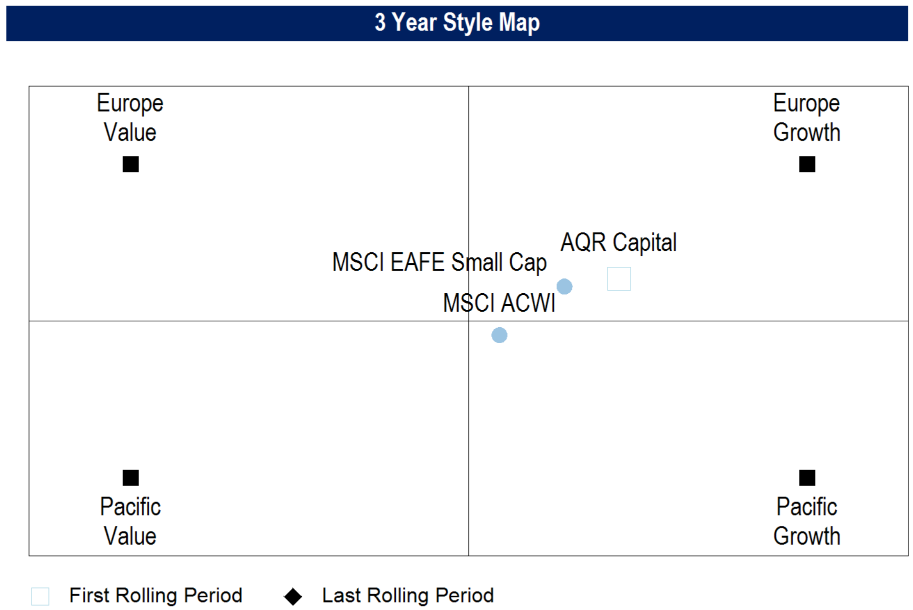


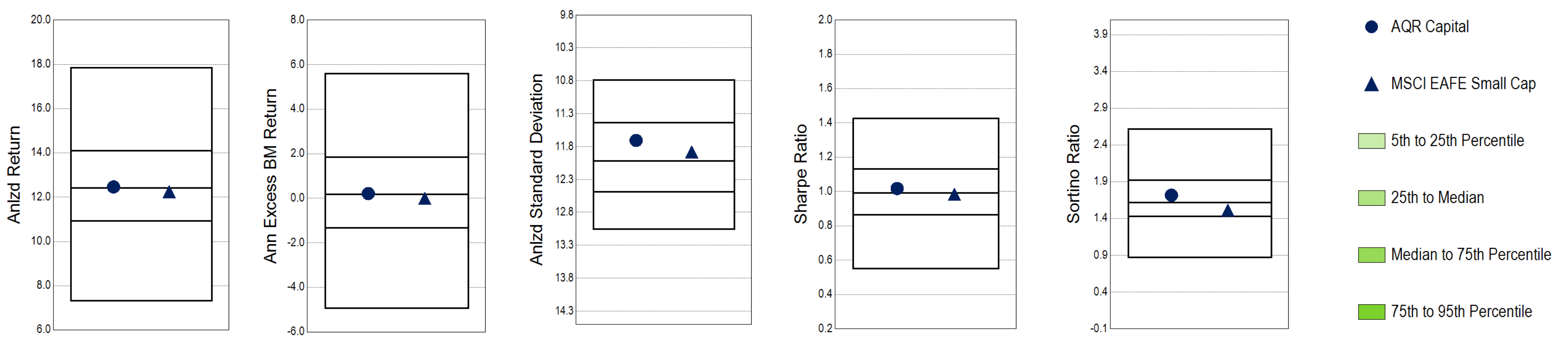
Return (Rank)	Quarter		Fiscal YTD		1 Year		2 Years		3 Years	
5th Percentile	2.92		19.48		31.32		23.31		17.85	
25th Percentile	0.97		16.97		26.37		19.07		14.11	
Median	-0.25		14.01		24.49		17.79		12.44	
75th Percentile	-1.48		12.06		20.74		15.80		10.95	
95th Percentile	-3.38		7.60		14.51		13.15		7.36	
# of Portfolios	52		52		52		52		48	
● AQR Capital	-0.10	(48)	14.38	(45)	23.55	(56)	15.52	(77)	12.46	(50)
▲ MSCI EAFE Small Cap	0.24	(40)	14.24	(47)	23.49	(56)	17.07	(63)	12.25	(54)

Los Angeles City Employees' Retirement System

AQR CAPITAL



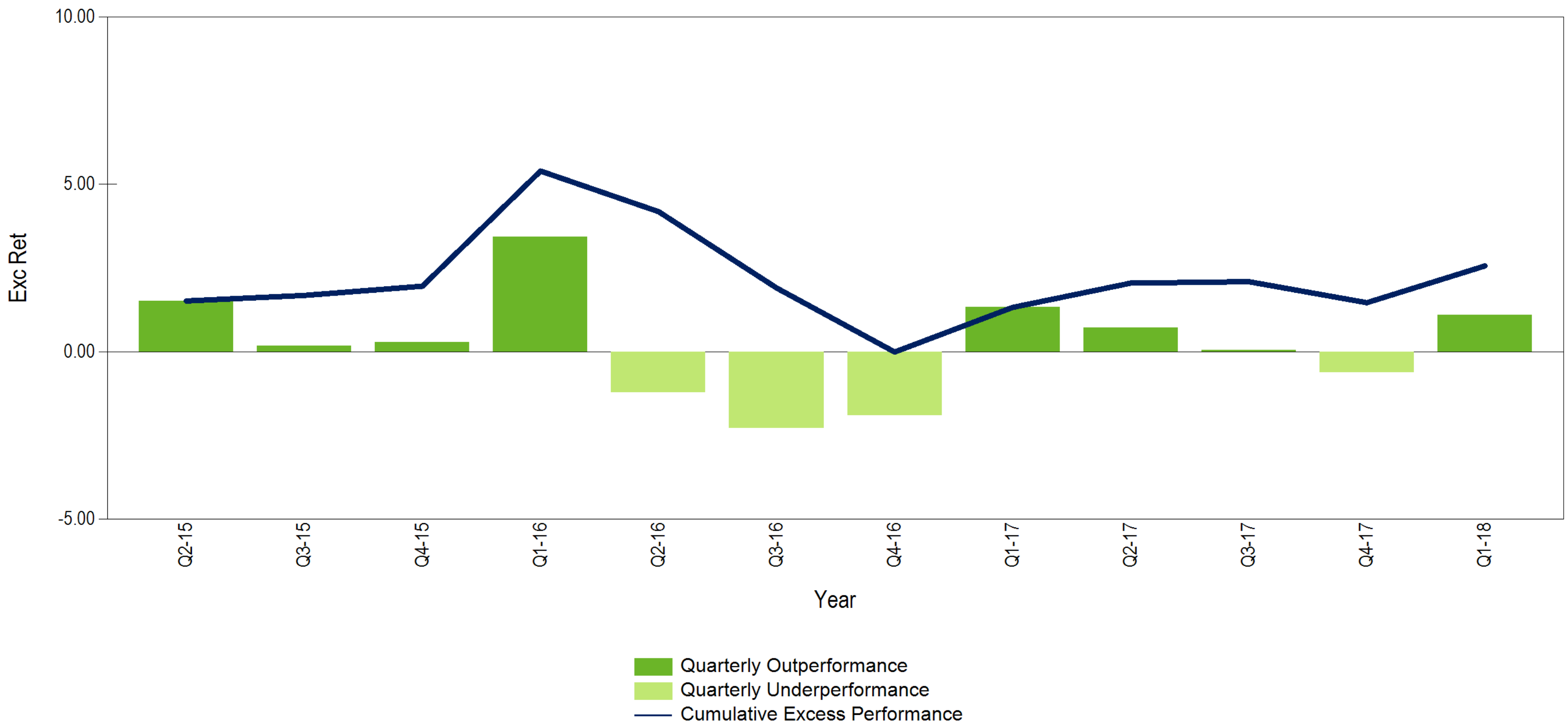




Los Angeles City Employees' Retirement System

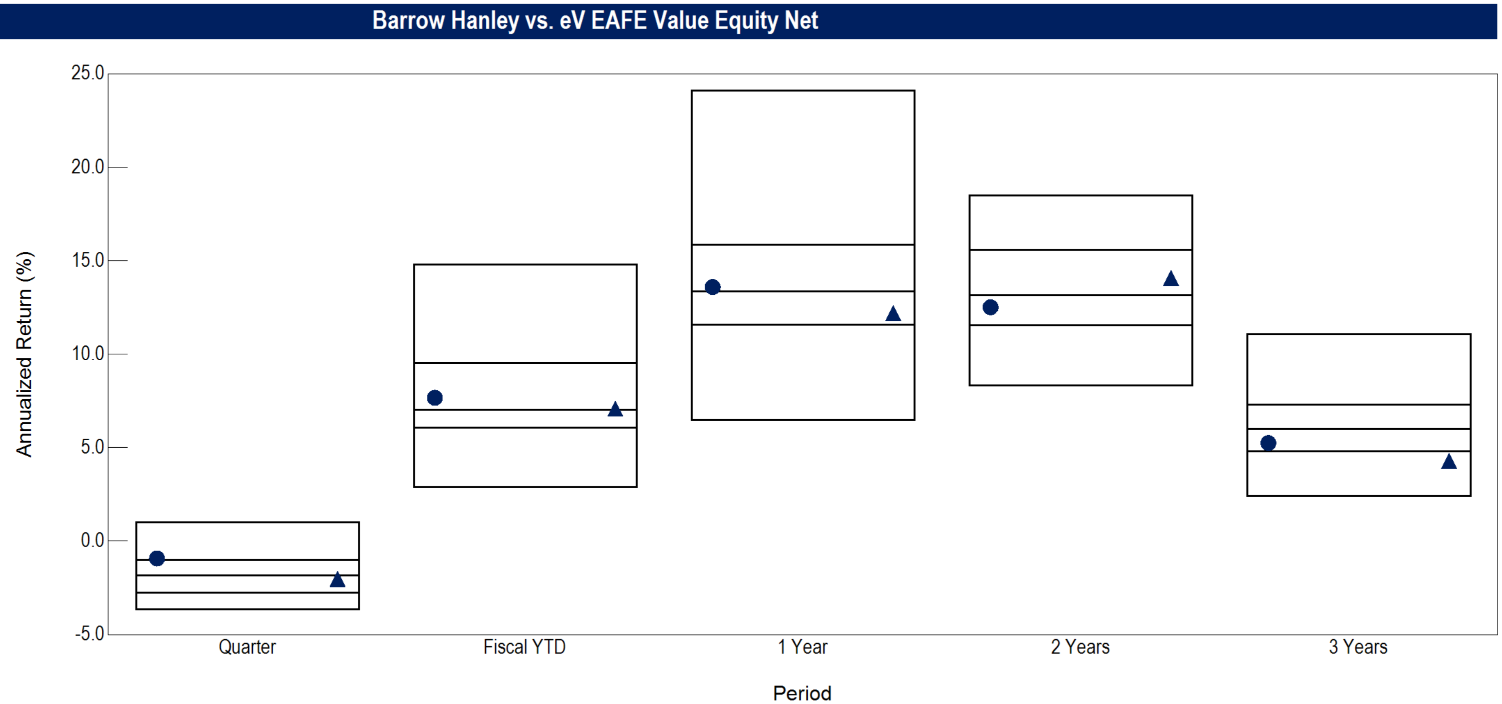
BARROW HANLEY

Quarterly and Cumulative Excess Performance



Los Angeles City Employees' Retirement System

BARROW HANLEY

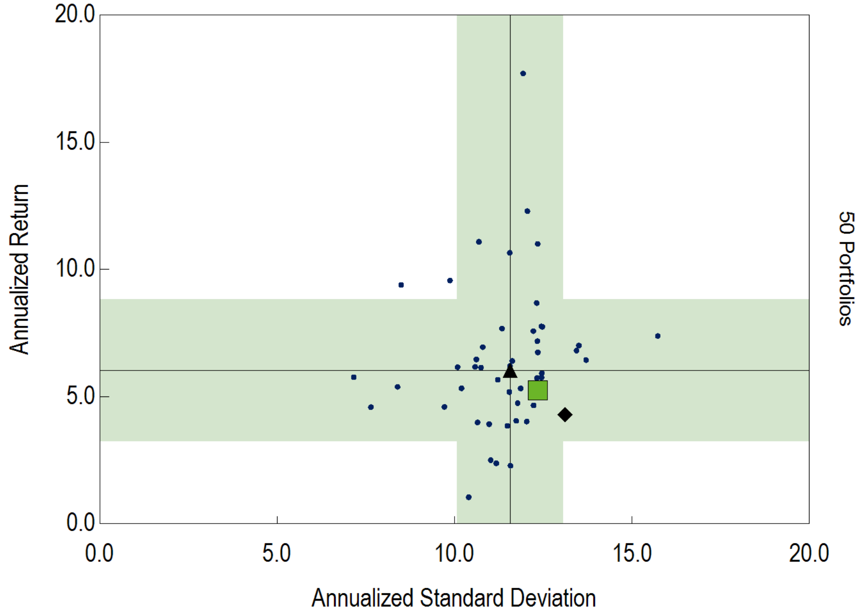


	Return (Rank)									
5th Percentile	1.01		14.79		24.11		18.49		11.05	
25th Percentile	-0.99		9.57		15.90		15.63		7.33	
Median	-1.81		7.06		13.41		13.17		6.03	
75th Percentile	-2.71		6.09		11.61		11.58		4.85	
95th Percentile	-3.61		2.92		6.53		8.36		2.44	
# of Portfolios	53		53		53		53		50	
● Barrow Hanley	-0.93	(23)	7.66	(47)	13.59	(50)	12.51	(57)	5.24	(71)
▲ MSCI EAFE Value	-2.03	(58)	7.08	(50)	12.19	(69)	14.07	(41)	4.29	(83)

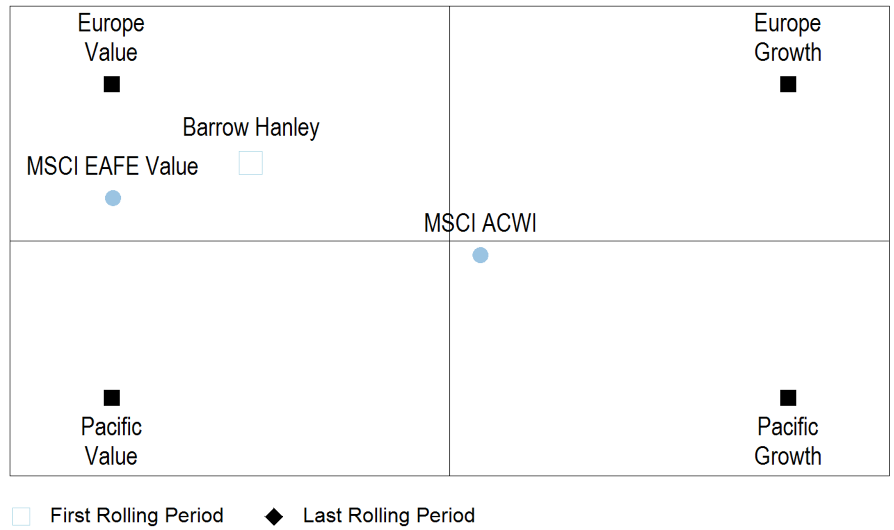
Los Angeles City Employees' Retirement System

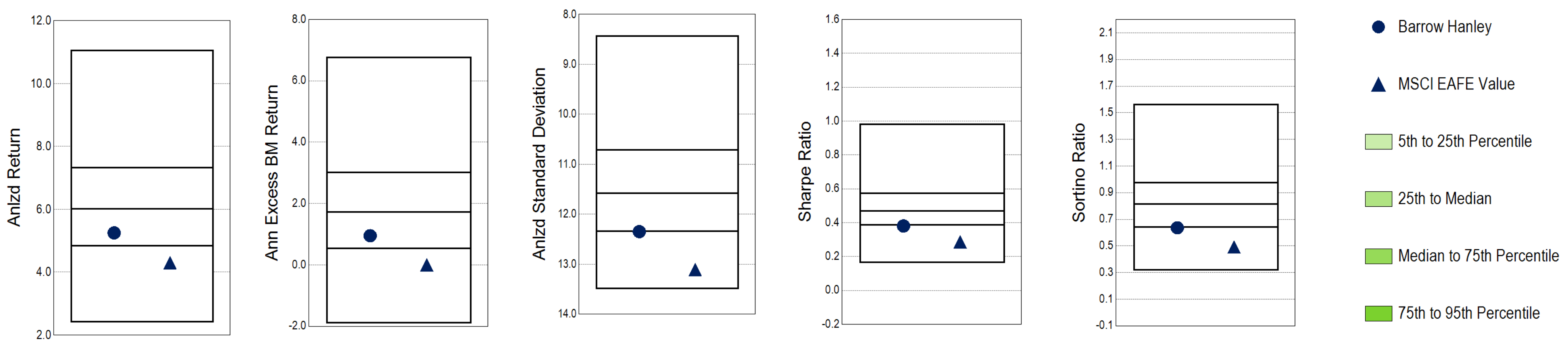
BARROW HANLEY

3 Year Risk Return

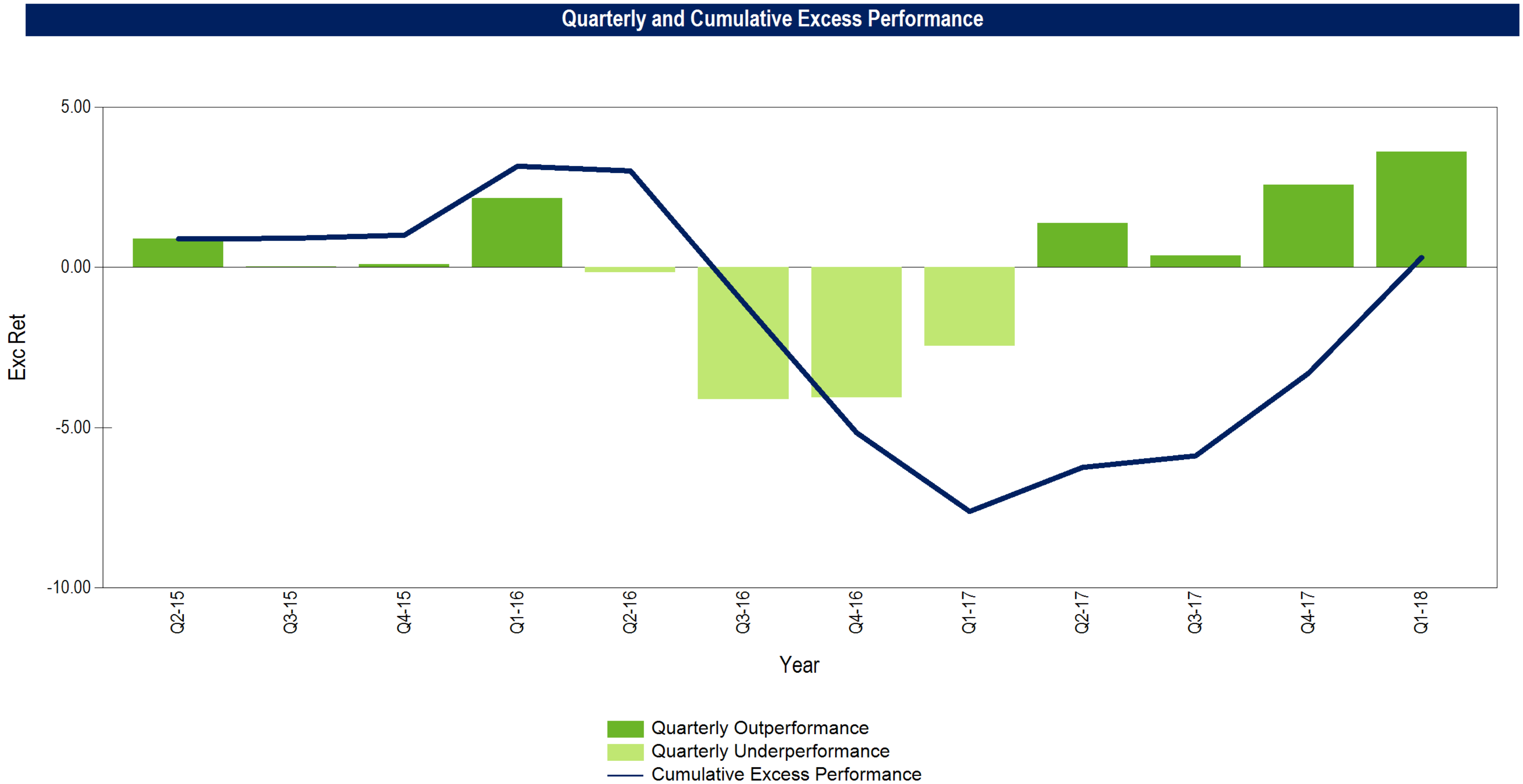


3 Year Style Map



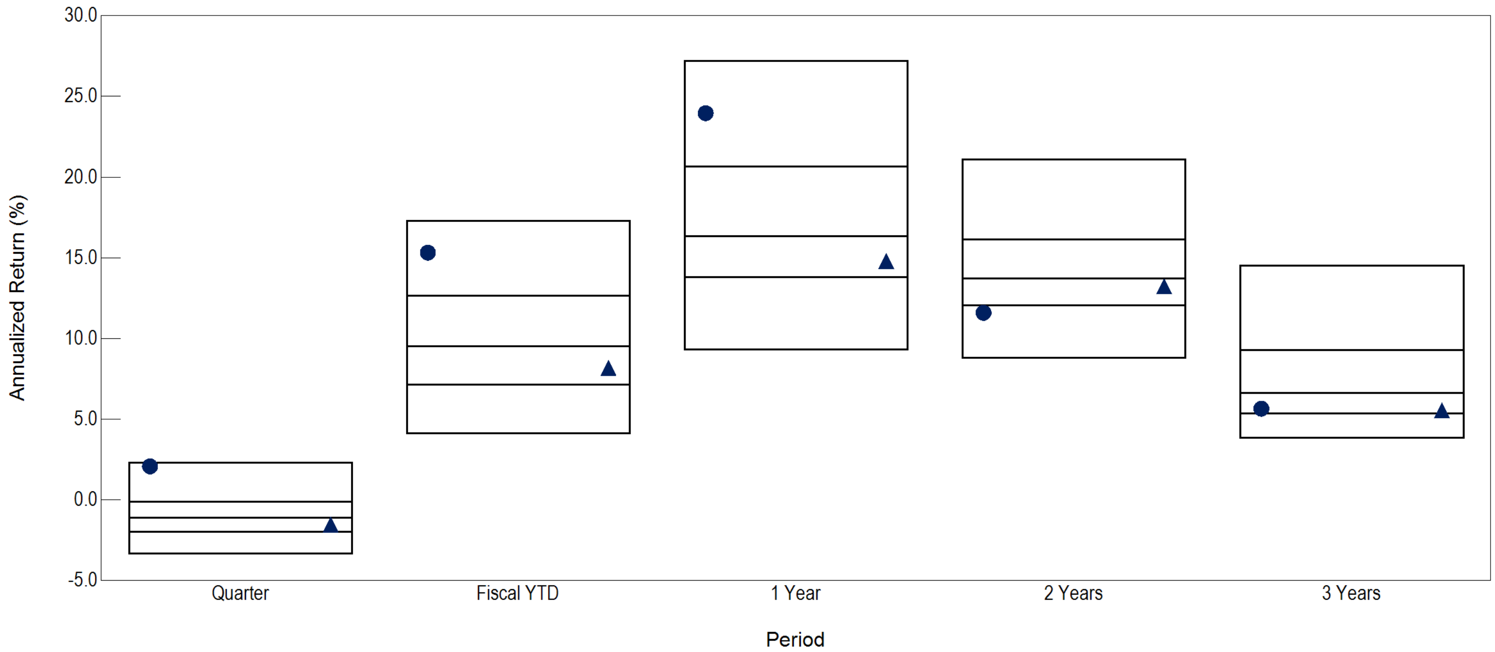


LAZARD ASSET MANAGEMENT



LAZARD ASSET MANAGEMENT

Lazard Asset Management vs. eV All EAFE Equity Net

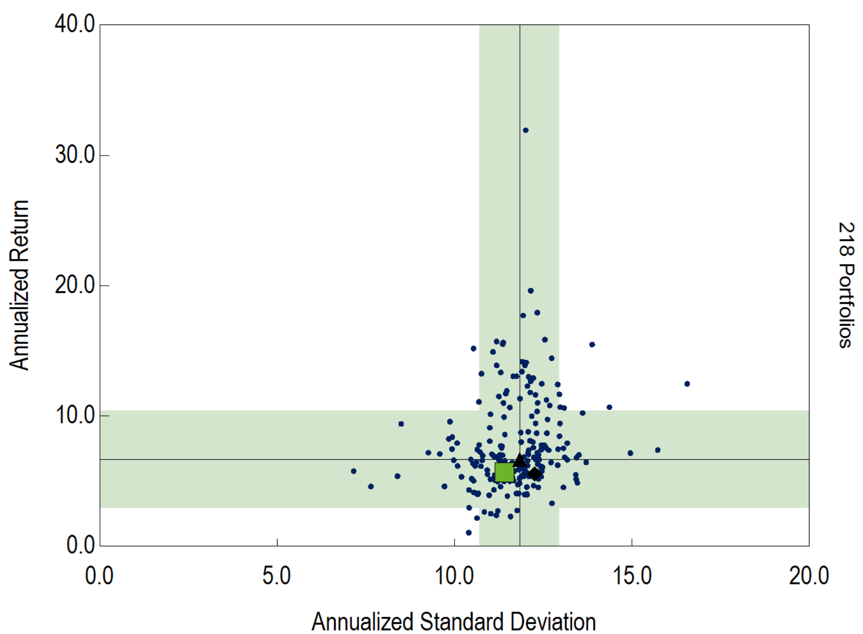


	Return (Rank)									
5th Percentile	2.32		17.29		27.19		21.10		14.50	
25th Percentile	-0.07		12.68		20.71		16.17		9.32	
Median	-1.05		9.57		16.39		13.74		6.67	
75th Percentile	-1.92		7.18		13.85		12.10		5.40	
95th Percentile	-3.28		4.17		9.34		8.84		3.91	
# of Portfolios	237		235		235		231		218	
● Lazard Asset Management	2.08	(6)	15.32	(11)	23.96	(16)	11.59	(79)	5.65	(70)
▲ MSCI EAFE	-1.53	(64)	8.18	(65)	14.80	(68)	13.23	(57)	5.55	(72)

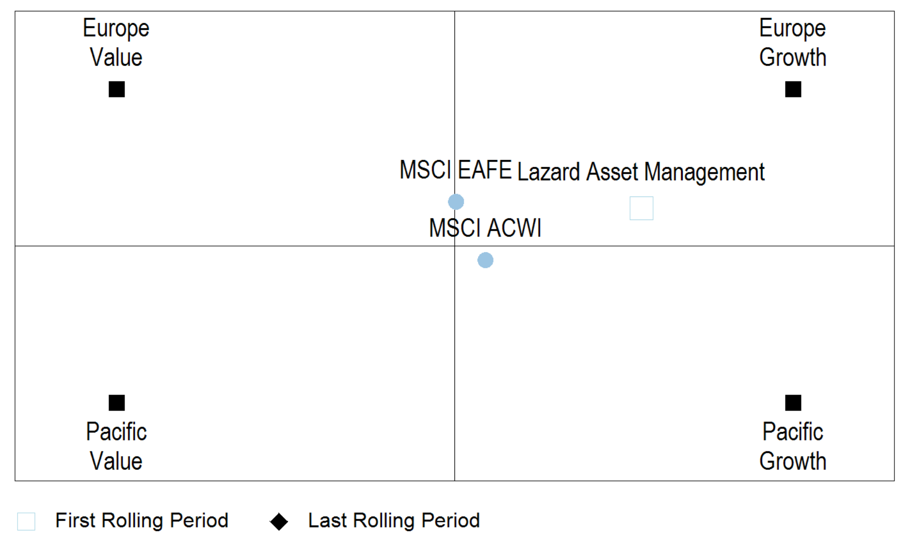
Los Angeles City Employees' Retirement System

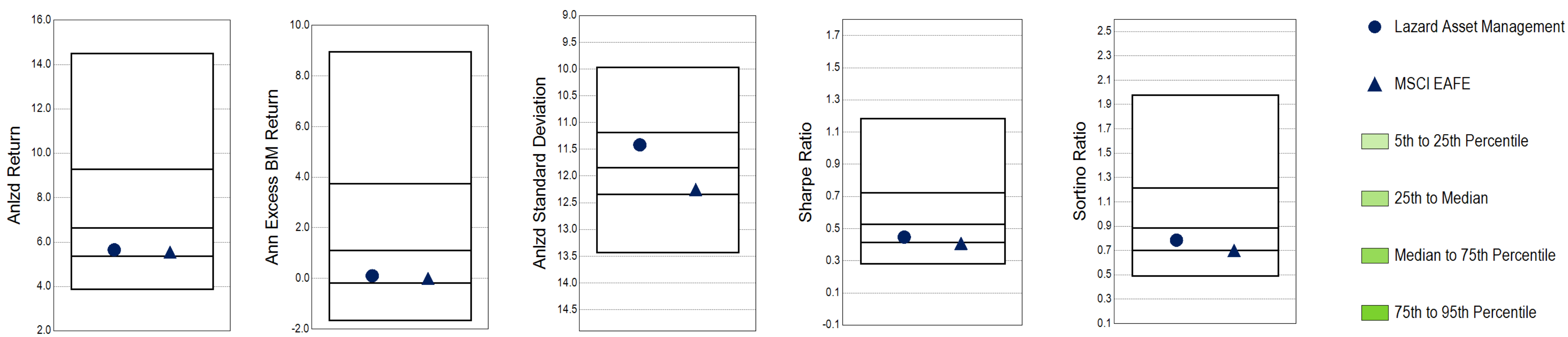
LAZARD ASSET MANAGEMENT

3 Year Risk Return

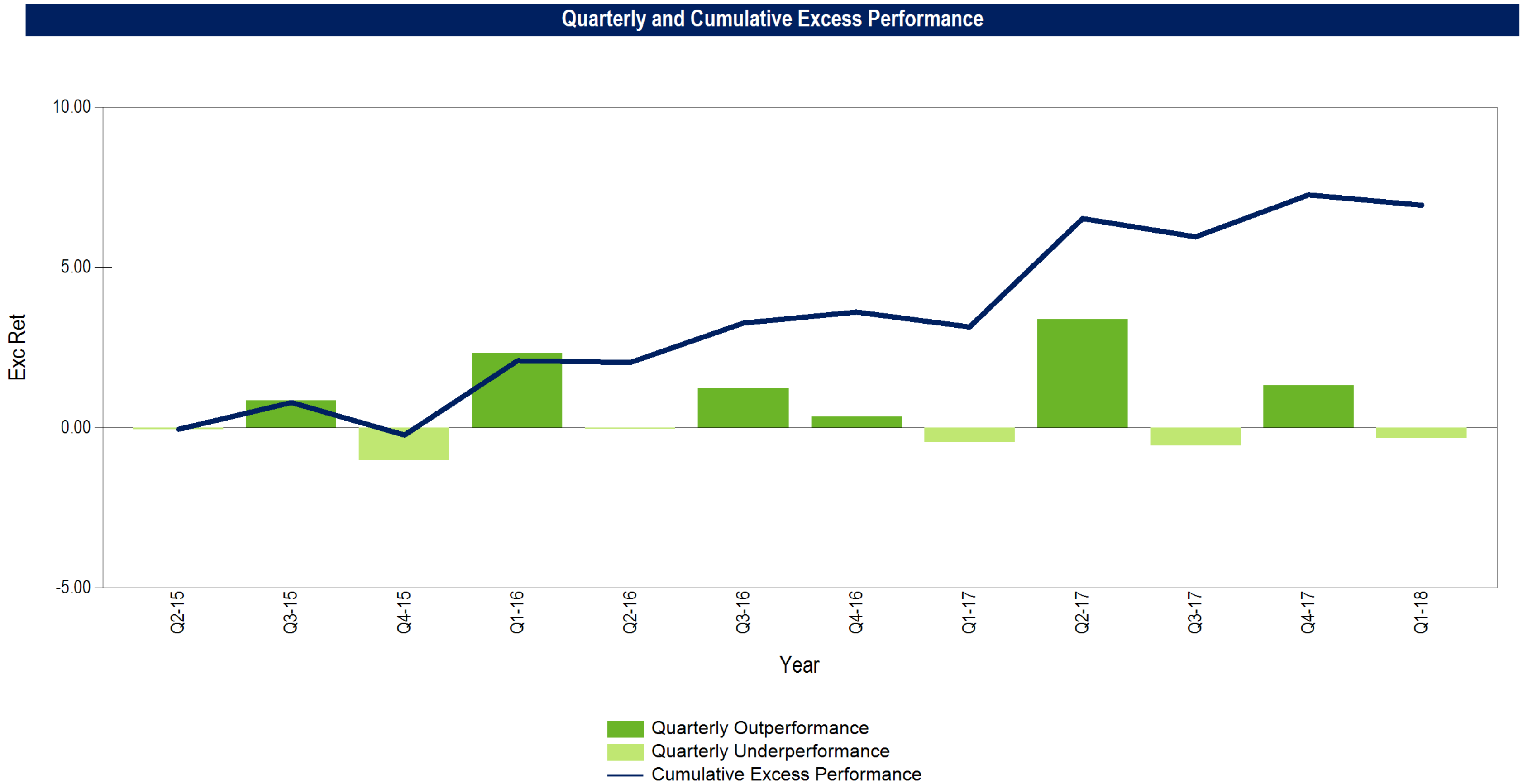


3 Year Style Map





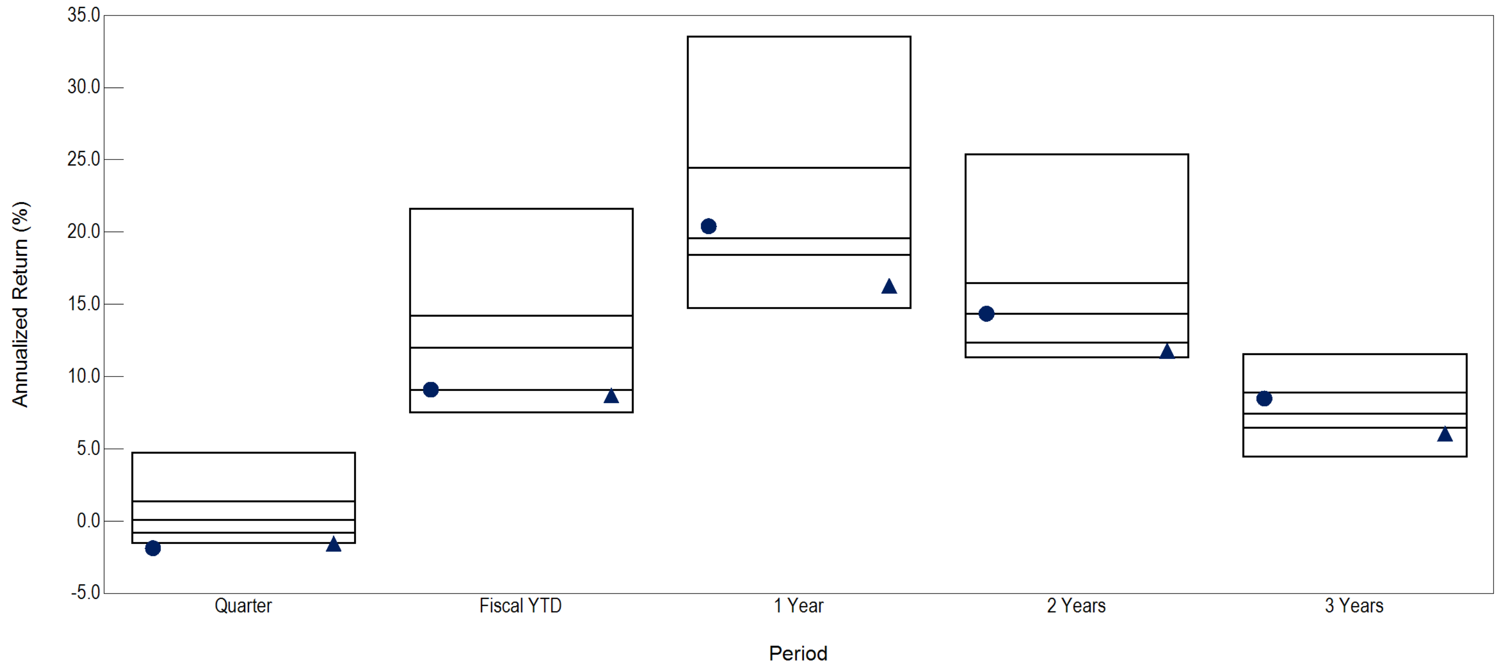
MFS INSTITUTIONAL ADVISORS



Los Angeles City Employees' Retirement System

MFS INSTITUTIONAL ADVISORS

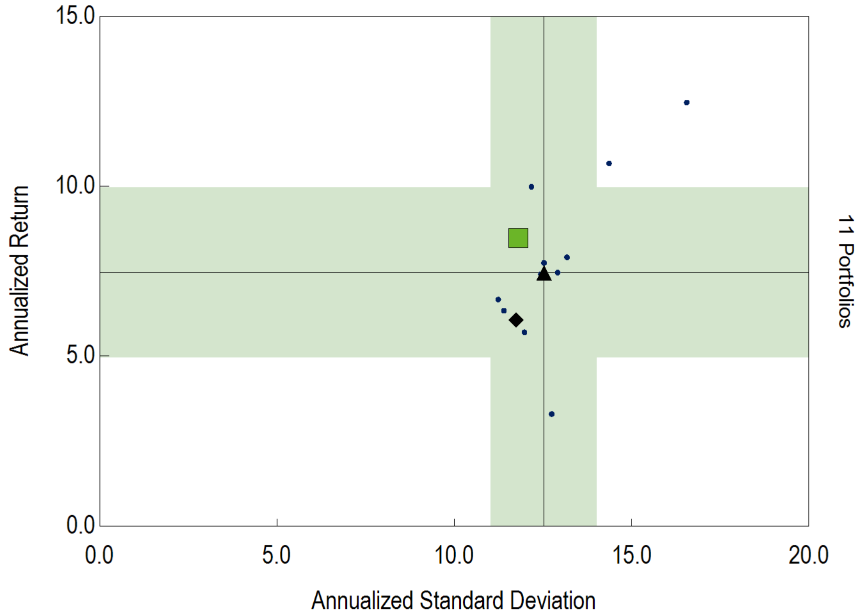
MFS Institutional Advisors vs. eV EAFE All Cap Growth Net



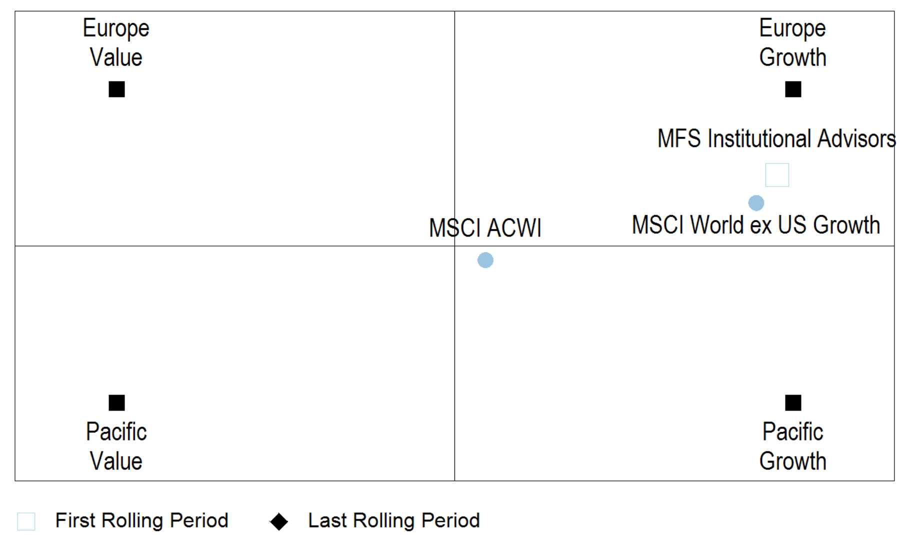
Return (Rank)	Quarter		Fiscal YTD		1 Year		2 Years		3 Years	
5th Percentile	4.71		21.60		33.52		25.39		11.57	
25th Percentile	1.40		14.26		24.48		16.51		8.95	
Median	0.10		12.05		19.59		14.40		7.46	
75th Percentile	-0.75		9.12		18.47		12.39		6.50	
95th Percentile	-1.47		7.58		14.76		11.39		4.50	
# of Portfolios	11		11		11		11		11	
● MFS Institutional Advisors	-1.88	(99)	9.09	(76)	20.40	(42)	14.35	(51)	8.47	(28)
▲ MSCI World ex US Growth	-1.56	(96)	8.69	(83)	16.28	(87)	11.79	(87)	6.06	(85)

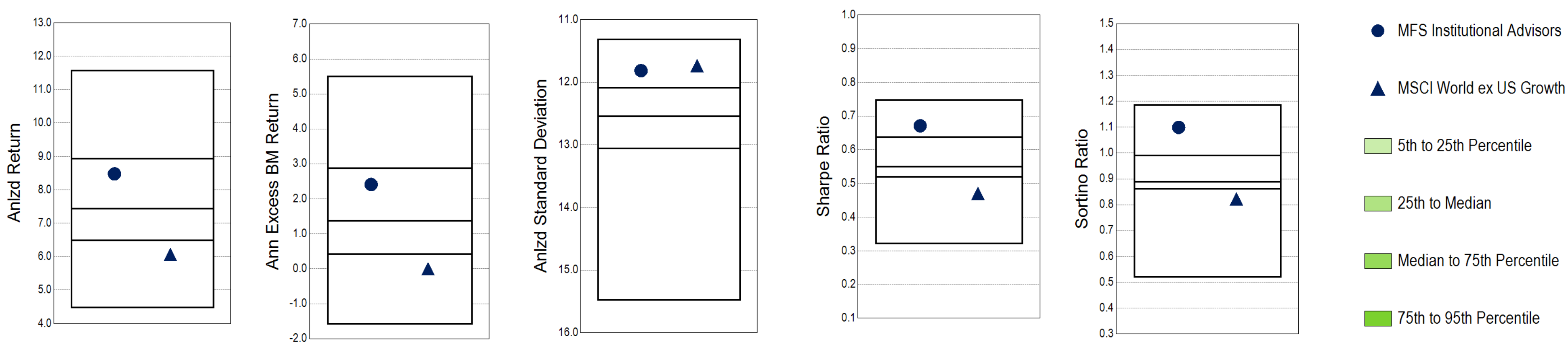
MFS INSTITUTIONAL ADVISORS

3 Year Risk Return



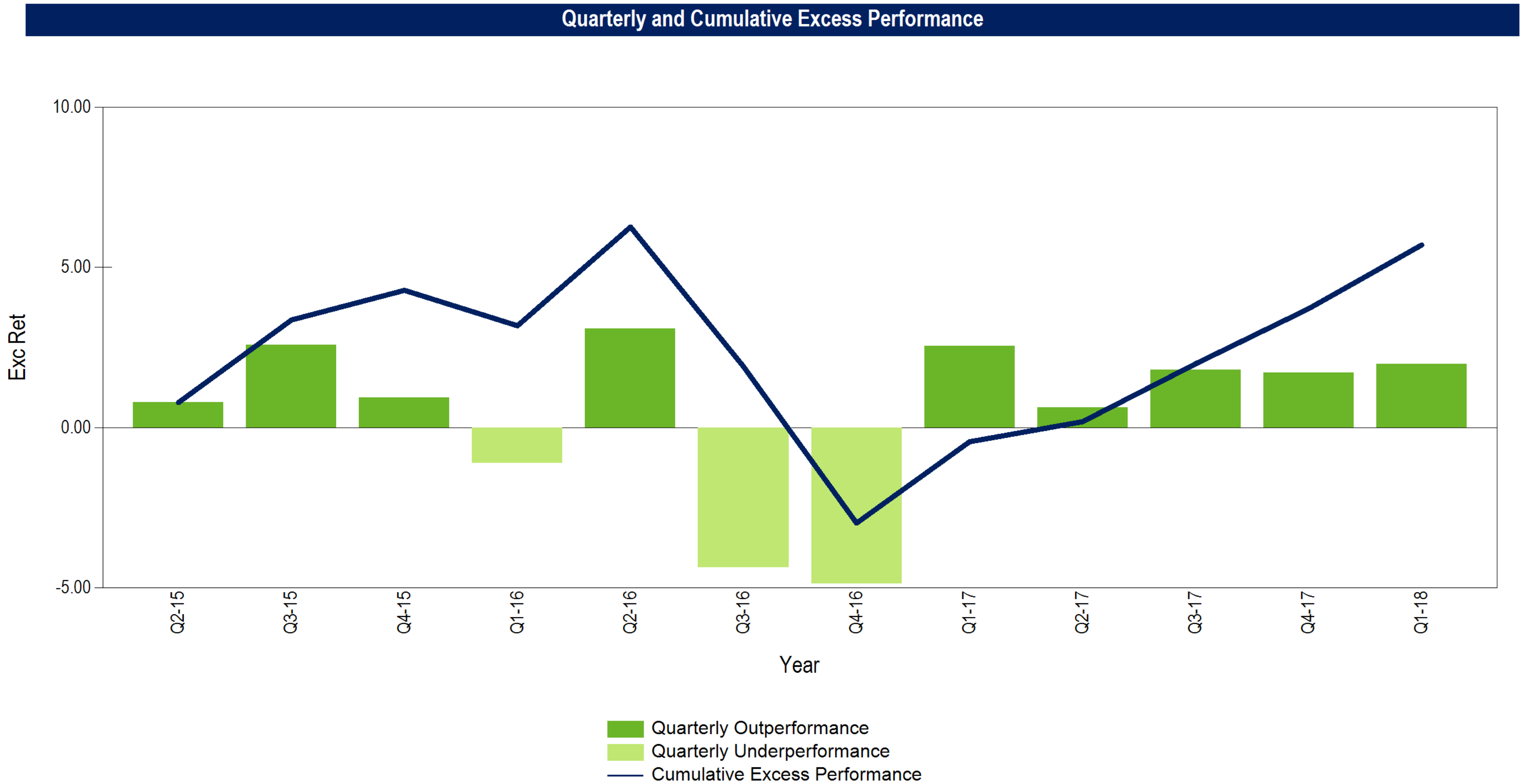
3 Year Style Map





Los Angeles City Employees' Retirement System

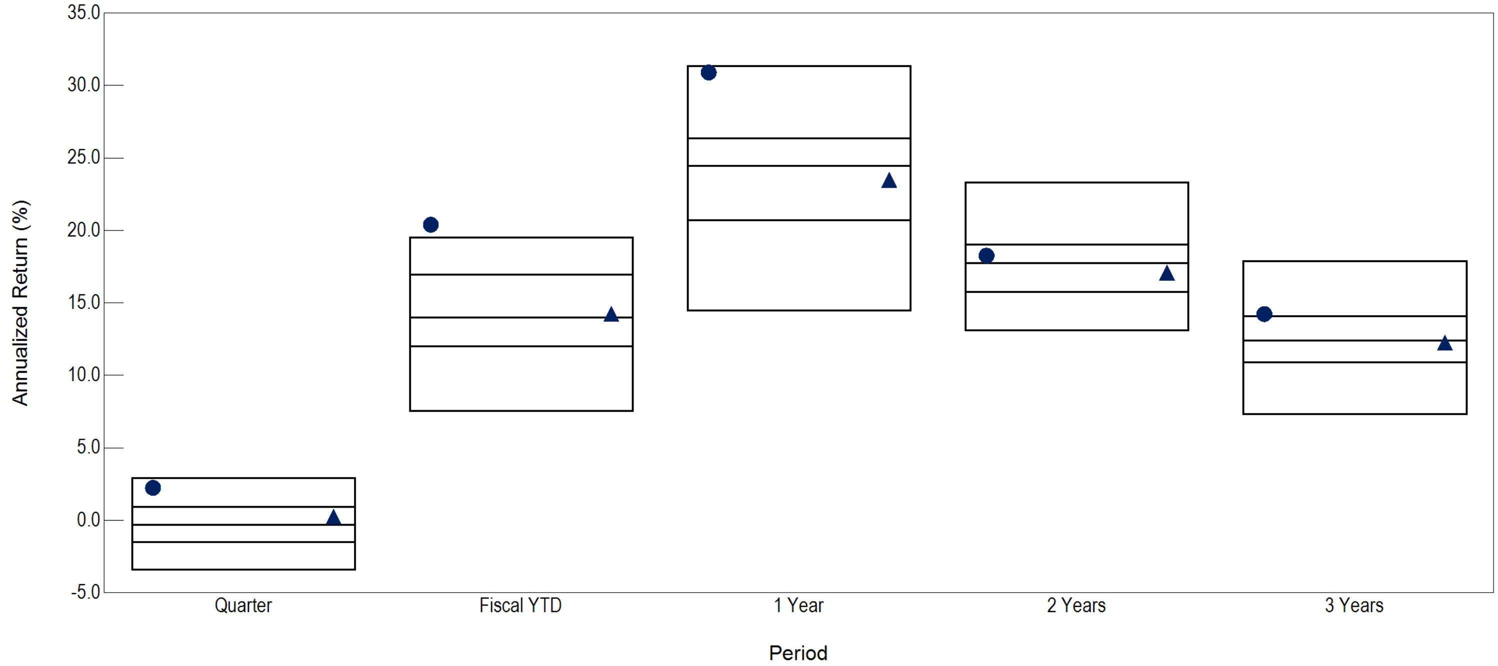
OBERWEIS ASSET MGMT



Los Angeles City Employees' Retirement System

OBERWEIS ASSET MGMT

Oberweis Asset Mgmt vs. eV EAFE Small Cap Equity Net

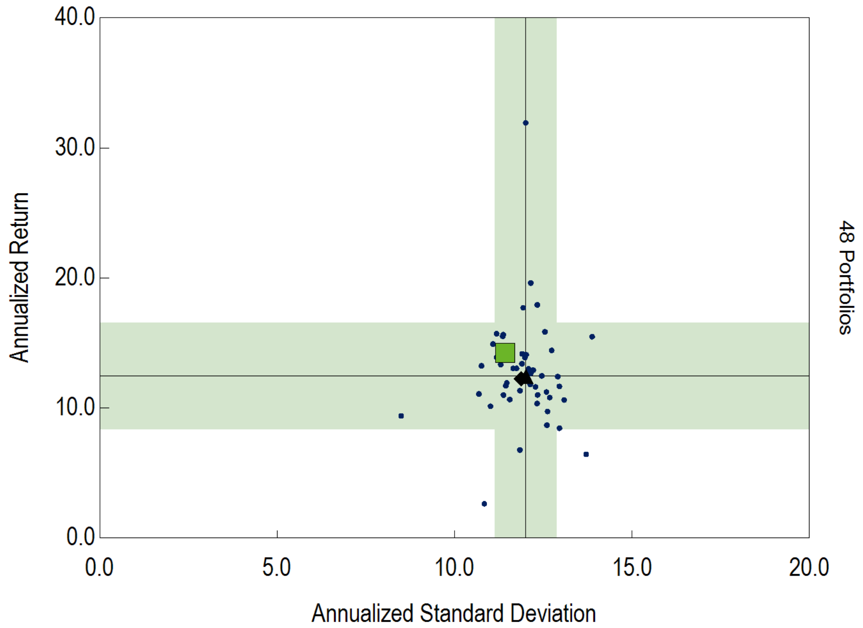


Return (Rank)	Quarter		Fiscal YTD		1 Year		2 Years		3 Years	
5th Percentile	2.92		19.48		31.32		23.31		17.85	
25th Percentile	0.97		16.97		26.37		19.07		14.11	
Median	-0.25		14.01		24.49		17.79		12.44	
75th Percentile	-1.48		12.06		20.74		15.80		10.95	
95th Percentile	-3.38		7.60		14.51		13.15		7.36	
# of Portfolios	52		52		52		52		48	
● Oberweis Asset Mgmt	2.23	(10)	20.38	(4)	30.89	(7)	18.25	(44)	14.22	(23)
▲ MSCI EAFE Small Cap	0.24	(40)	14.24	(47)	23.49	(56)	17.07	(63)	12.25	(54)

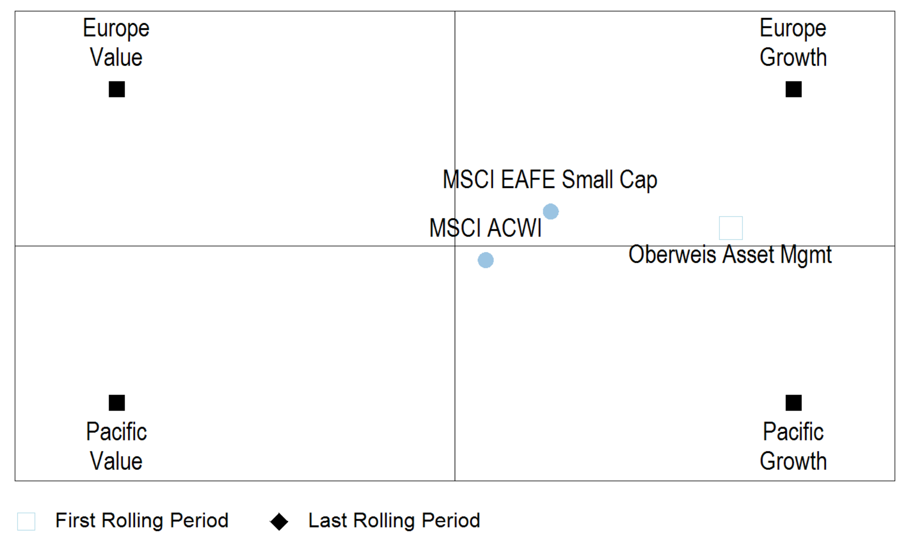
Los Angeles City Employees' Retirement System

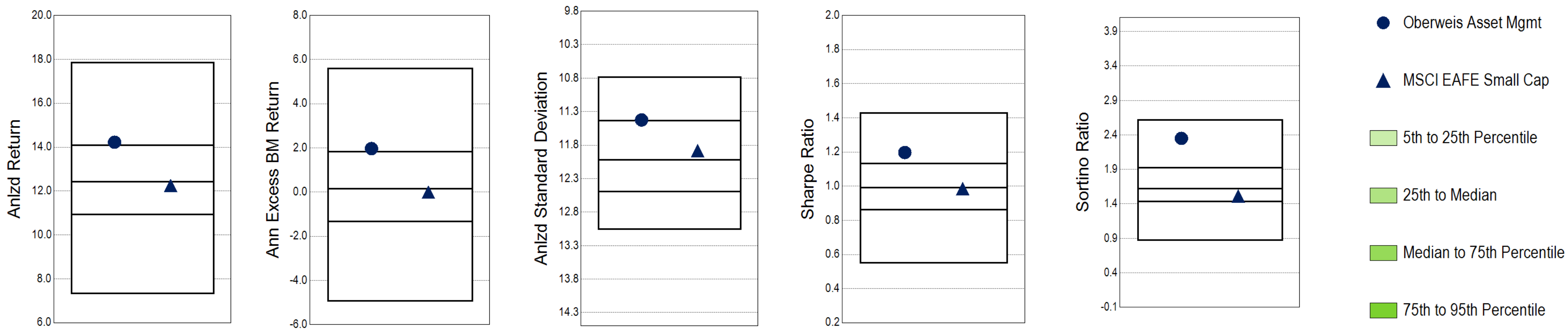
OBERWEIS ASSET MGMT

3 Year Risk Return



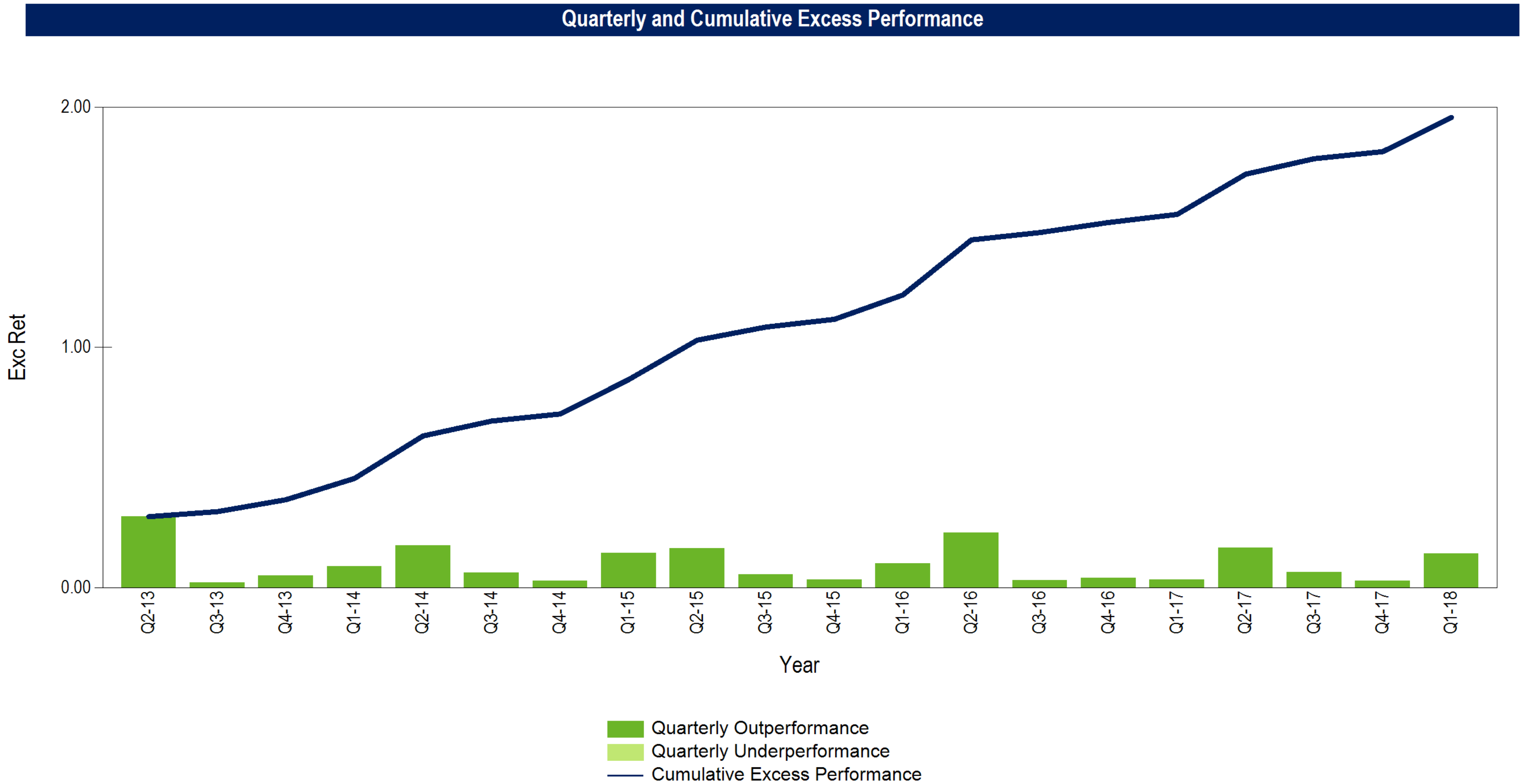
3 Year Style Map





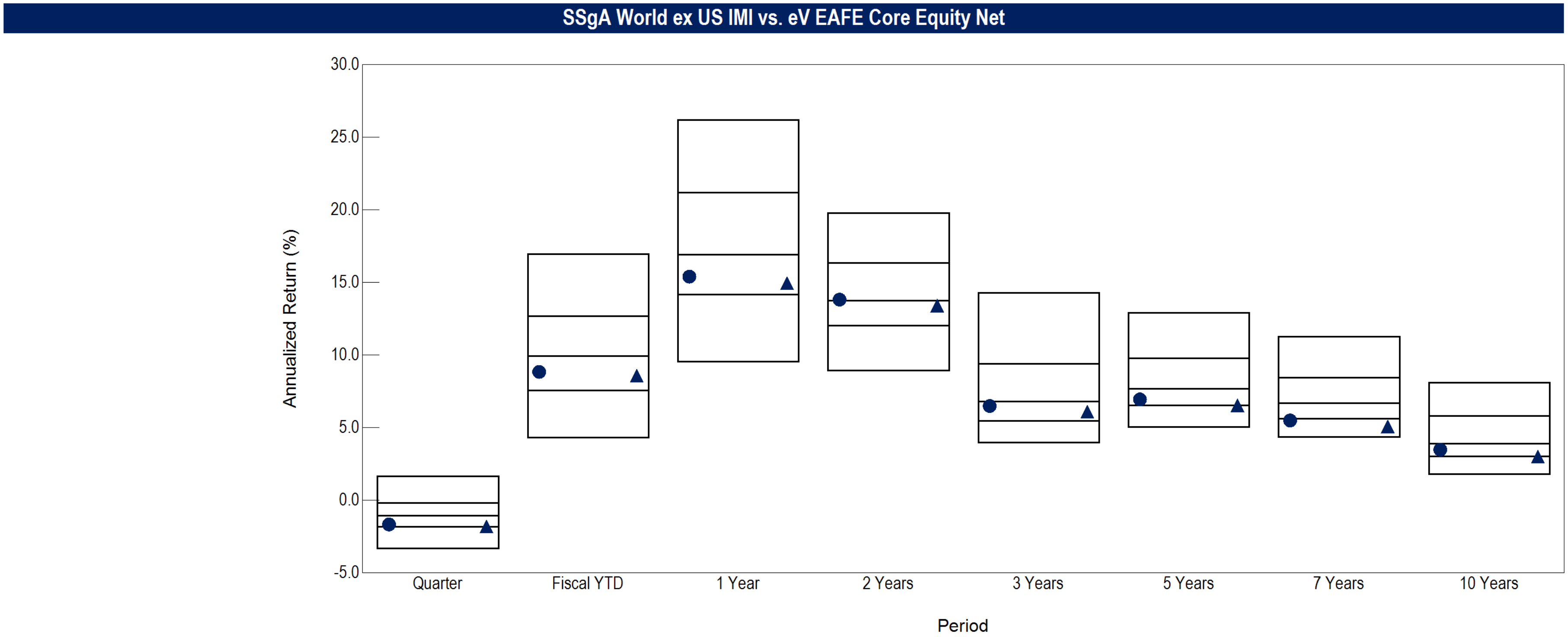
Los Angeles City Employees' Retirement System

SSGA WORLD EX US IMI



Los Angeles City Employees' Retirement System

SSGA WORLD EX US IMI

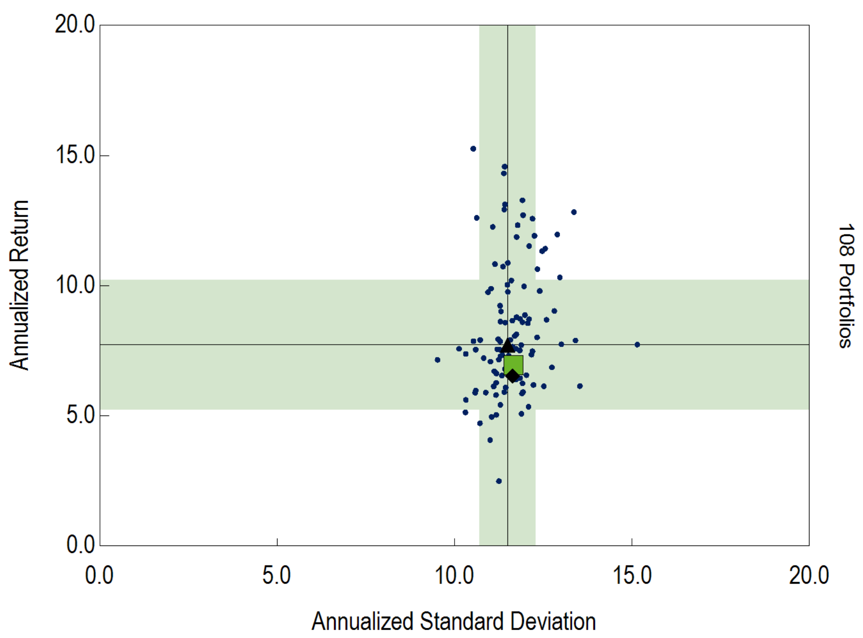


	Return (Rank)															
5th Percentile	1.65		16.97		26.20		19.79		14.29		12.89		11.25		8.08	
25th Percentile	-0.16		12.71		21.23		16.40		9.43		9.82		8.48		5.84	
Median	-1.04		9.98		16.93		13.80		6.84		7.73		6.74		3.92	
75th Percentile	-1.81		7.59		14.20		12.05		5.49		6.56		5.66		3.04	
95th Percentile	-3.27		4.34		9.60		8.97		4.00		5.09		4.39		1.82	
# of Portfolios	140		138		138		136		129		108		93		80	
● SSgA World ex US IMI	-1.67	(71)	8.84	(64)	15.40	(69)	13.81	(50)	6.49	(60)	6.94	(71)	5.49	(79)	3.48	(62)
▲ MSCI World ex USA IMI NR USD	-1.81	(76)	8.58	(66)	14.95	(72)	13.40	(58)	6.10	(65)	6.53	(76)	5.07	(88)	3.00	(77)

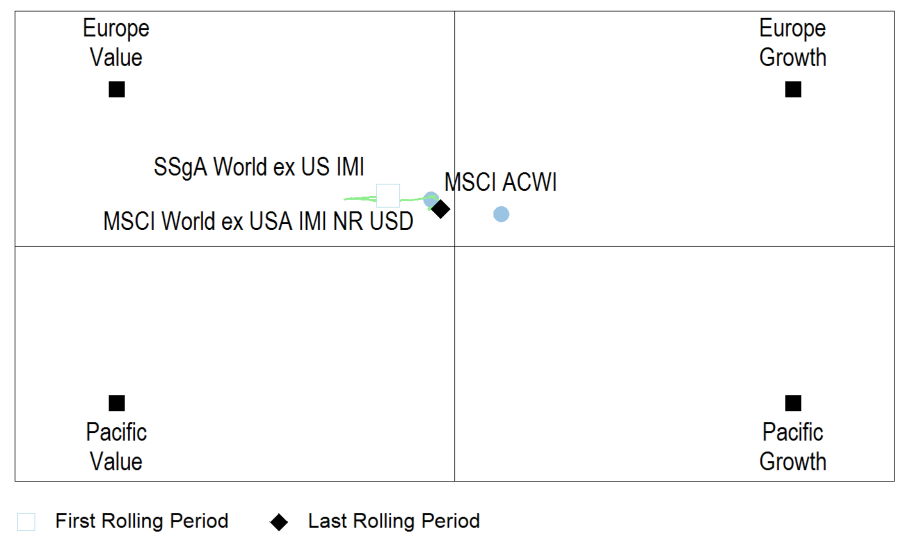
Los Angeles City Employees' Retirement System

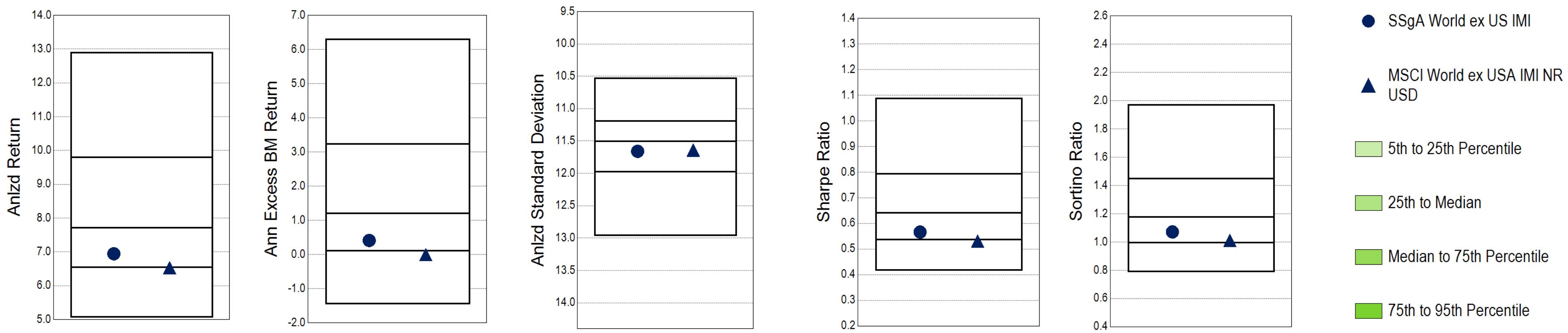
SSGA WORLD EX US IMI

5 Year Risk Return



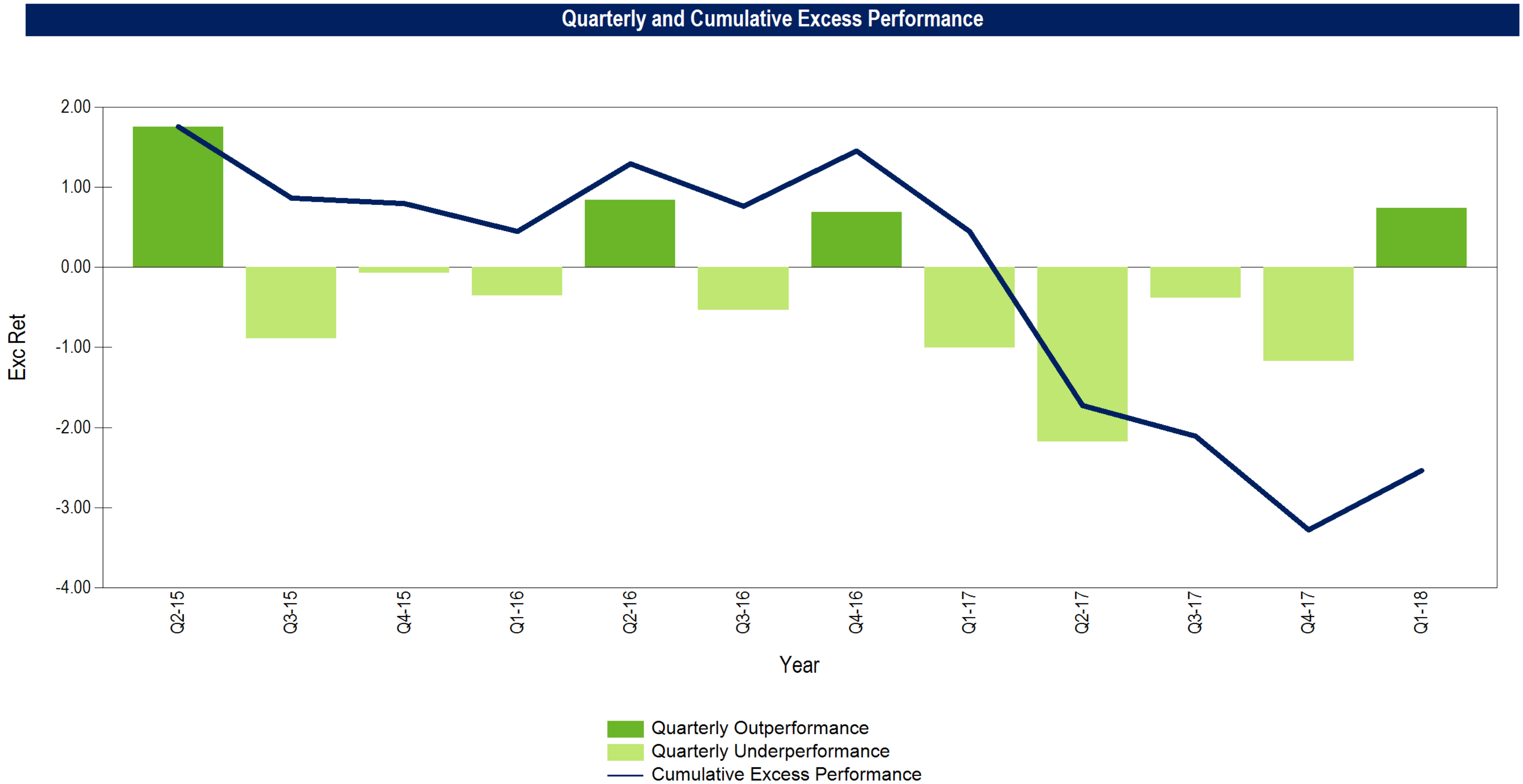
5 Year Style Map





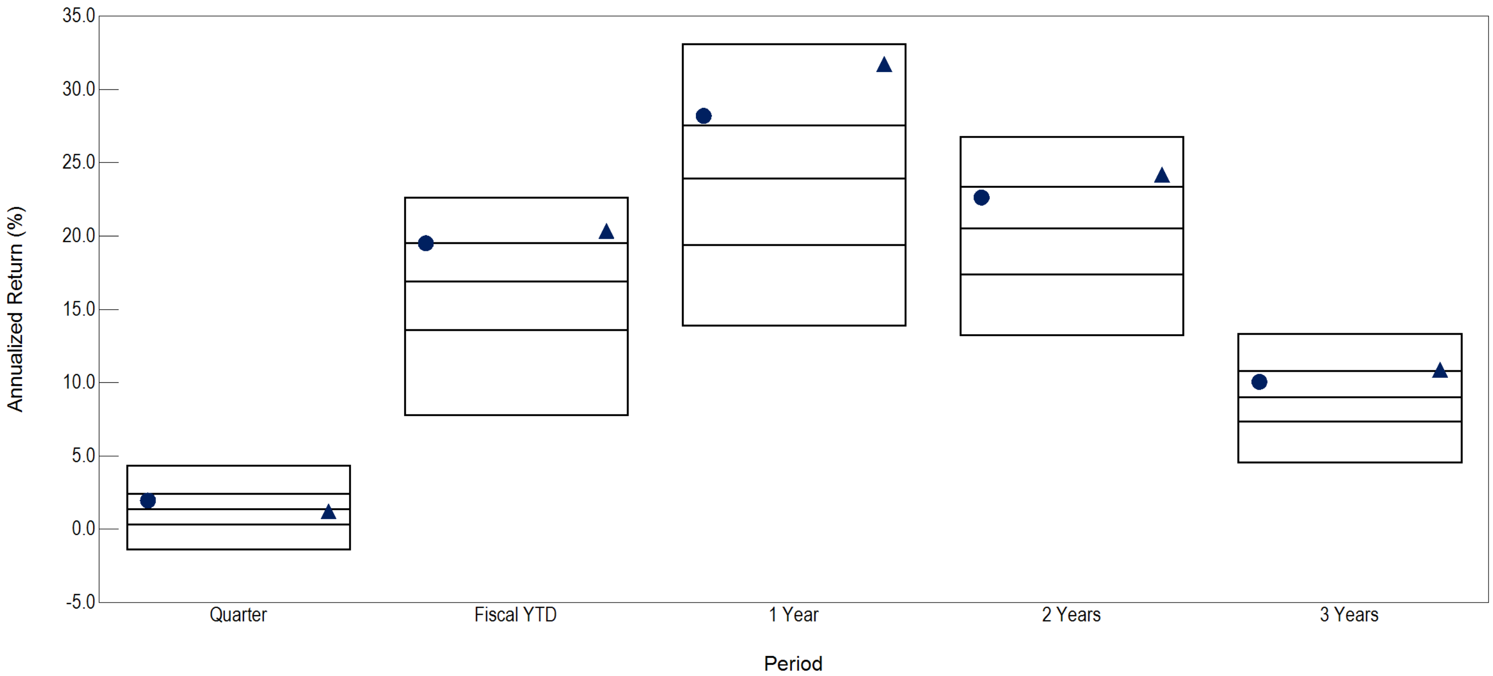
Los Angeles City Employees' Retirement System

AXIOM EMERGING MARKETS



AXIOM EMERGING MARKETS

Axiom Emerging Markets vs. eV Emg Mkts Equity Net

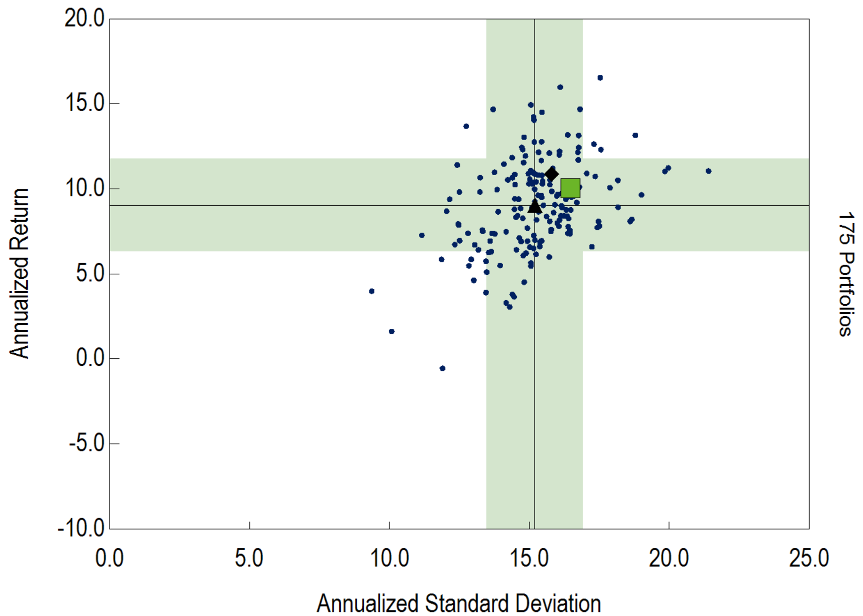


	Return (Rank)									
5th Percentile	4.34		22.61		33.07		26.78		13.33	
25th Percentile	2.45		19.58		27.58		23.42		10.83	
Median	1.39		16.96		23.96		20.58		9.04	
75th Percentile	0.38		13.63		19.43		17.44		7.37	
95th Percentile	-1.36		7.82		13.93		13.28		4.59	
# of Portfolios	195		194		192		187		175	
● Axiom Emerging Markets	1.96	(38)	19.51	(27)	28.20	(23)	22.63	(33)	10.06	(36)
▲ MSCI Emerging Markets Growth NR USD	1.22	(56)	20.36	(19)	31.73	(11)	24.19	(20)	10.89	(24)

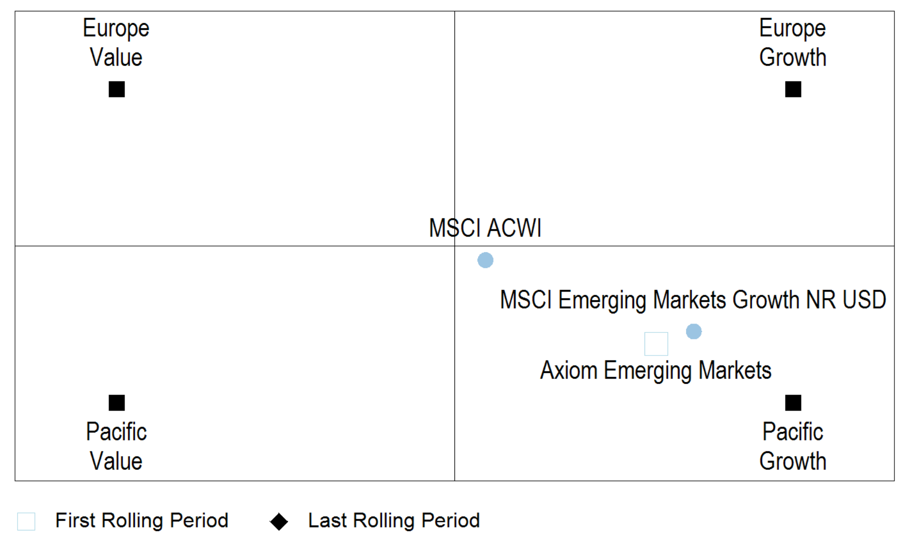
Los Angeles City Employees' Retirement System

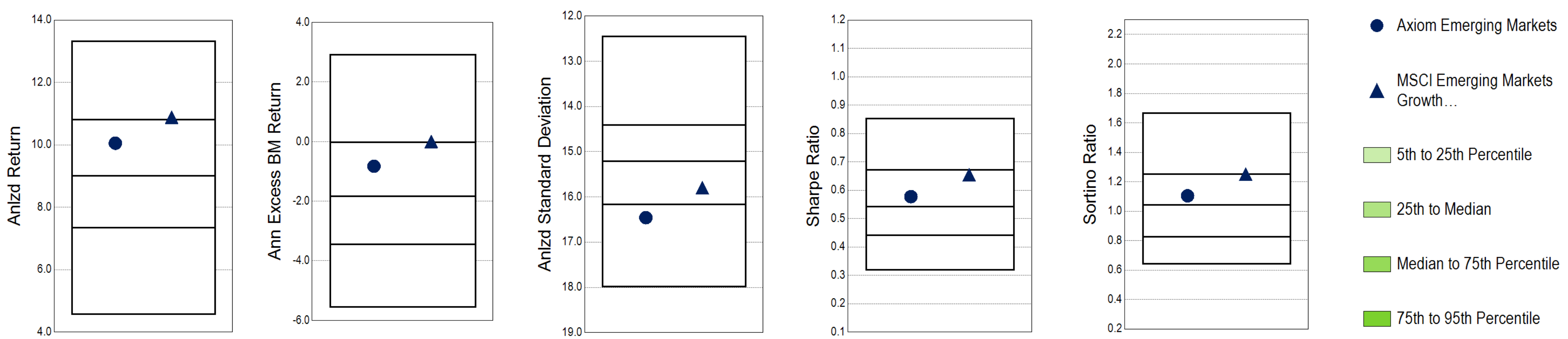
AXIOM EMERGING MARKETS

3 Year Risk Return



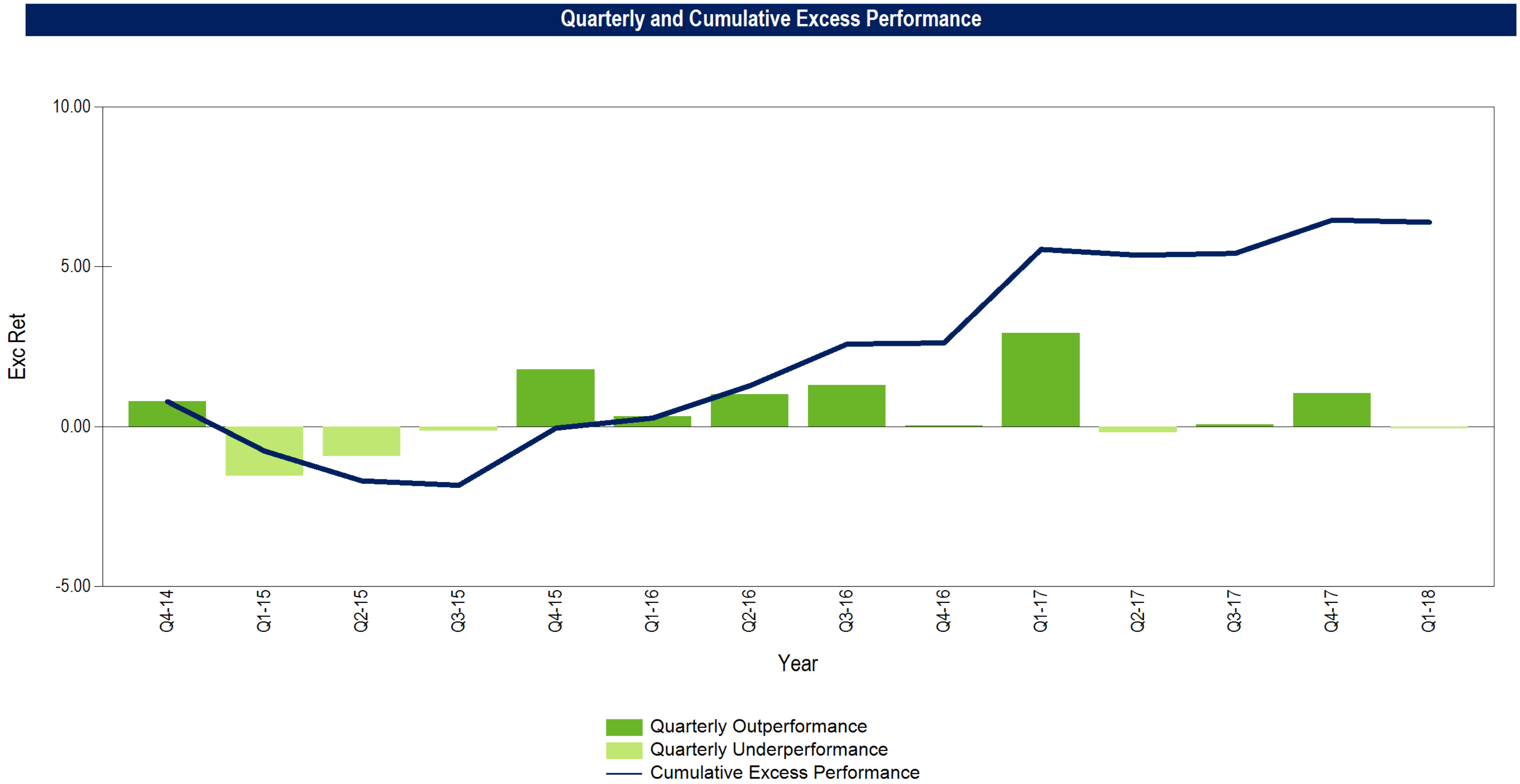
3 Year Style Map





Los Angeles City Employees' Retirement System

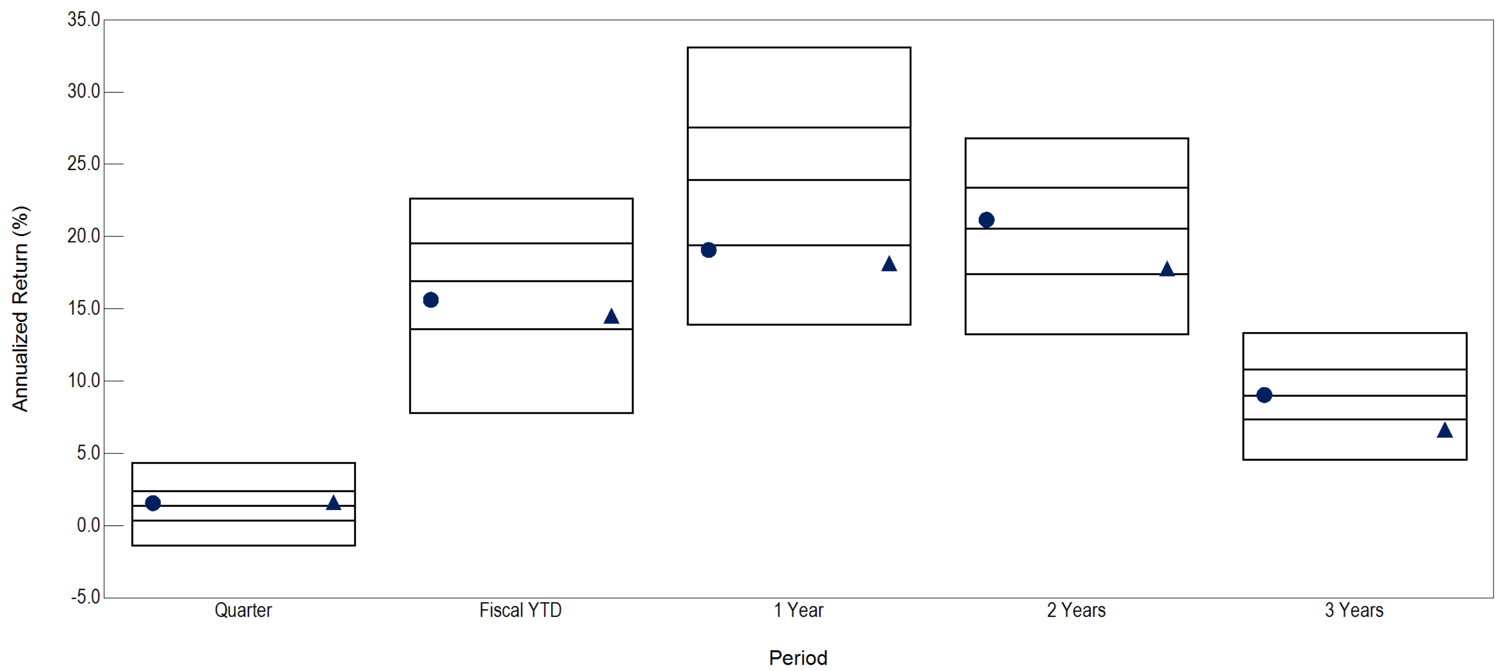
DFA EMERGING MARKETS



Los Angeles City Employees' Retirement System

DFA EMERGING MARKETS

DFA Emerging Markets vs. eV Emg Mkts Equity Net

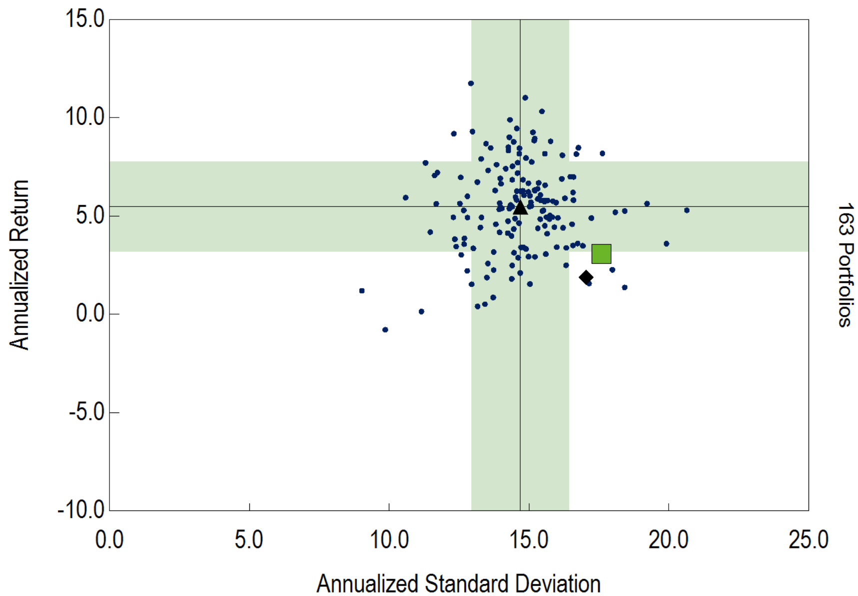


Return (Rank)										
5th Percentile	4.34		22.61		33.07		26.78		13.33	
25th Percentile	2.45		19.58		27.58		23.42		10.83	
Median	1.39		16.96		23.96		20.58		9.04	
75th Percentile	0.38		13.63		19.43		17.44		7.37	
95th Percentile	-1.36		7.82		13.93		13.28		4.59	
# of Portfolios	195		194		192		187		175	
● DFA Emerging Markets	1.55	(47)	15.62	(59)	19.07	(78)	21.16	(45)	9.04	(50)
▲ MSCI Emerging Markets Value NR USD	1.62	(46)	14.51	(67)	18.14	(83)	17.78	(74)	6.65	(84)

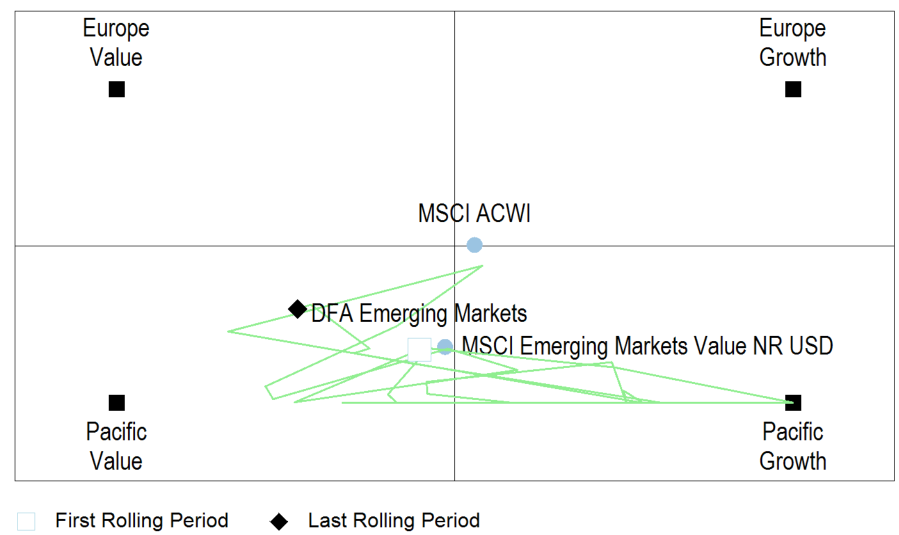
Los Angeles City Employees' Retirement System

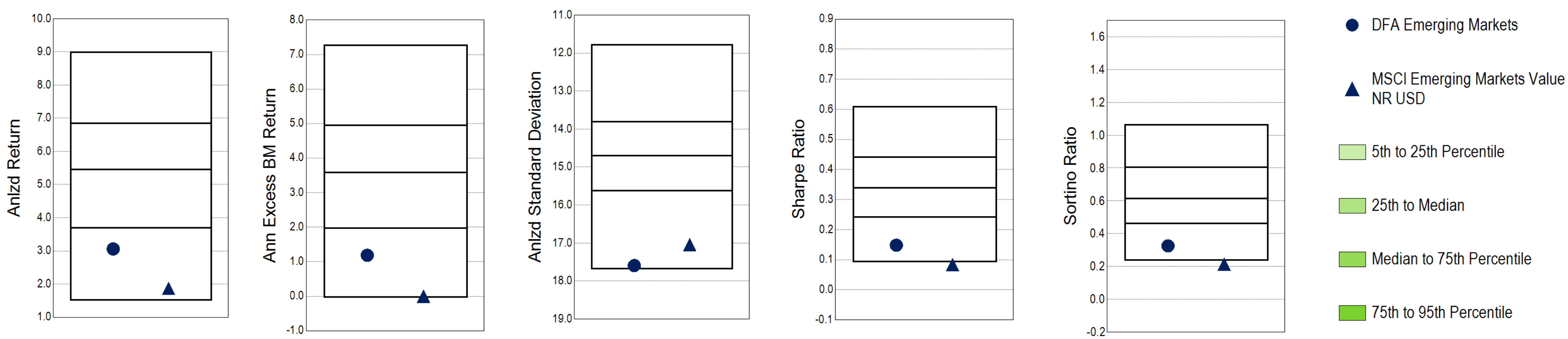
DFA EMERGING MARKETS

Since Inception Risk Return

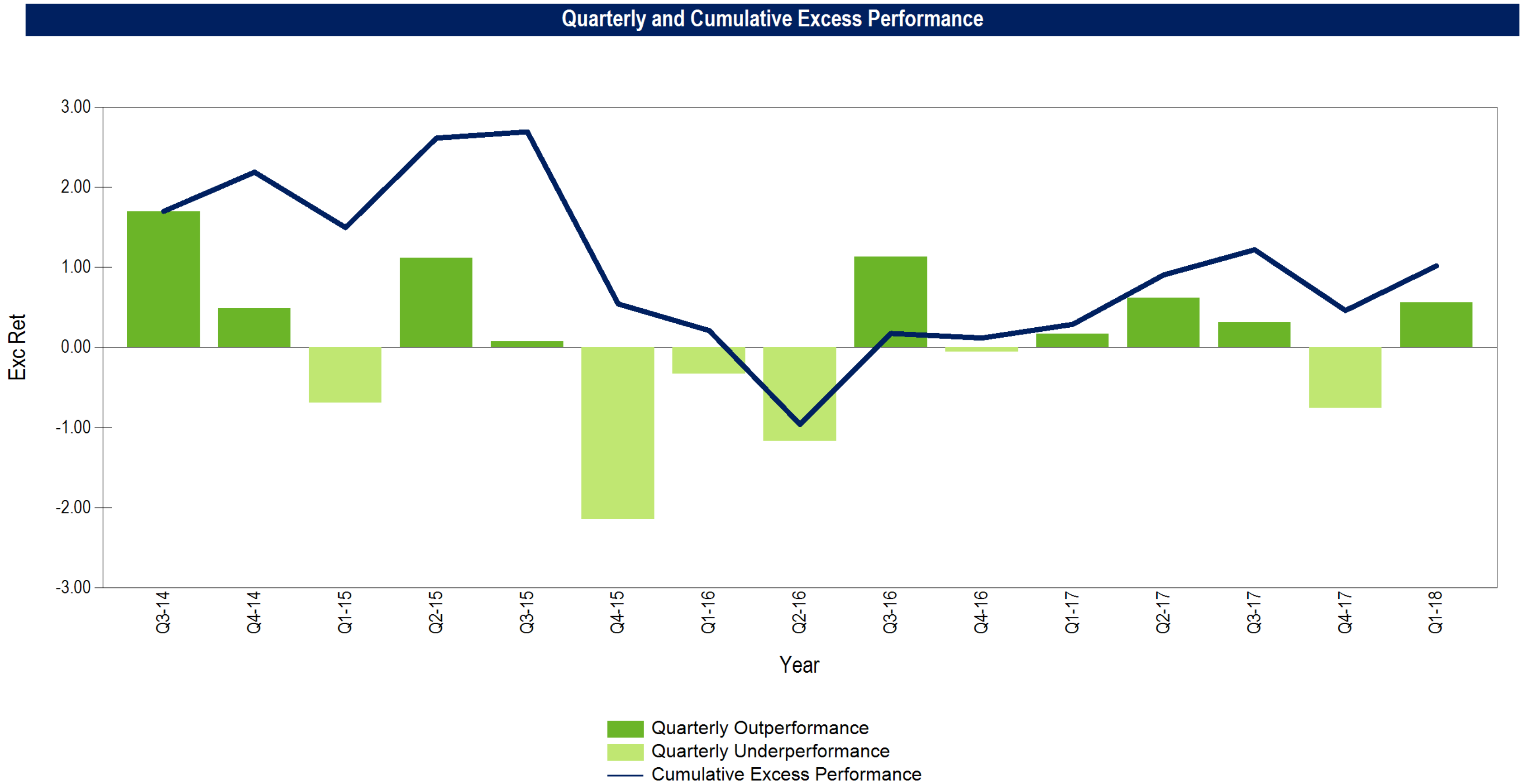


Since Inception Style Map



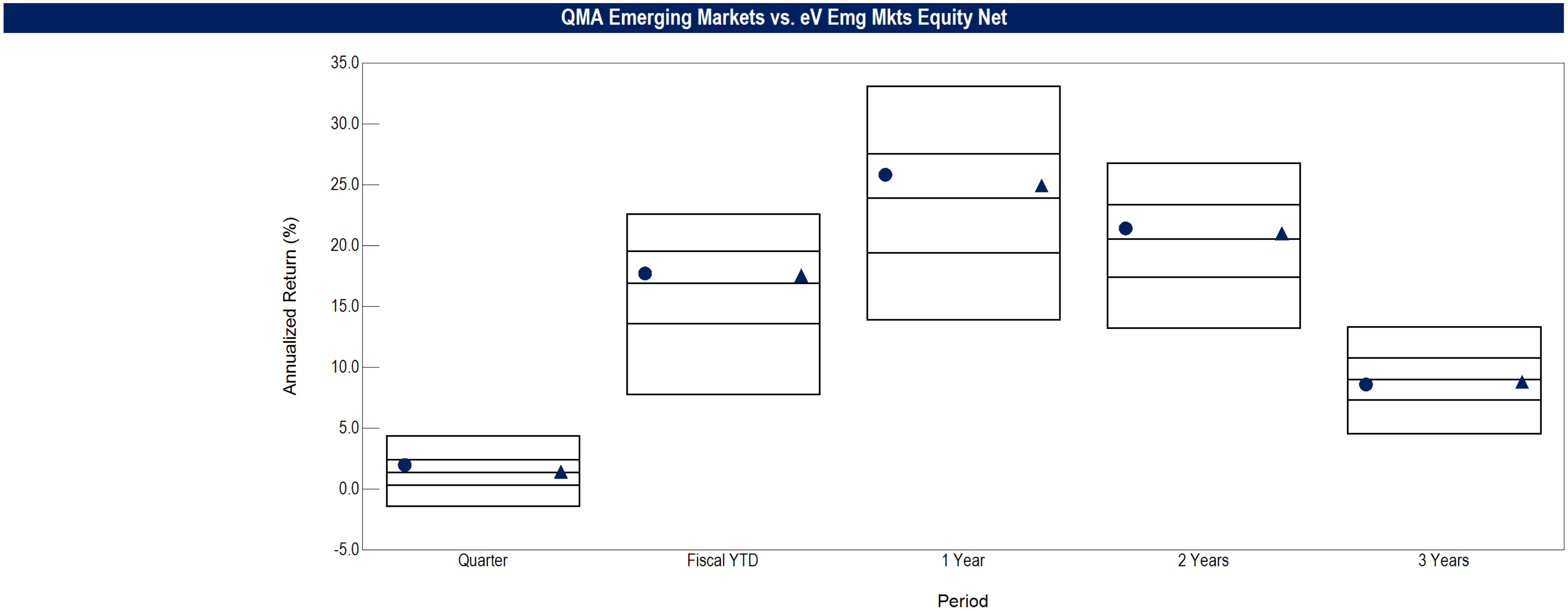


QMA EMERGING MARKETS



Los Angeles City Employees' Retirement System

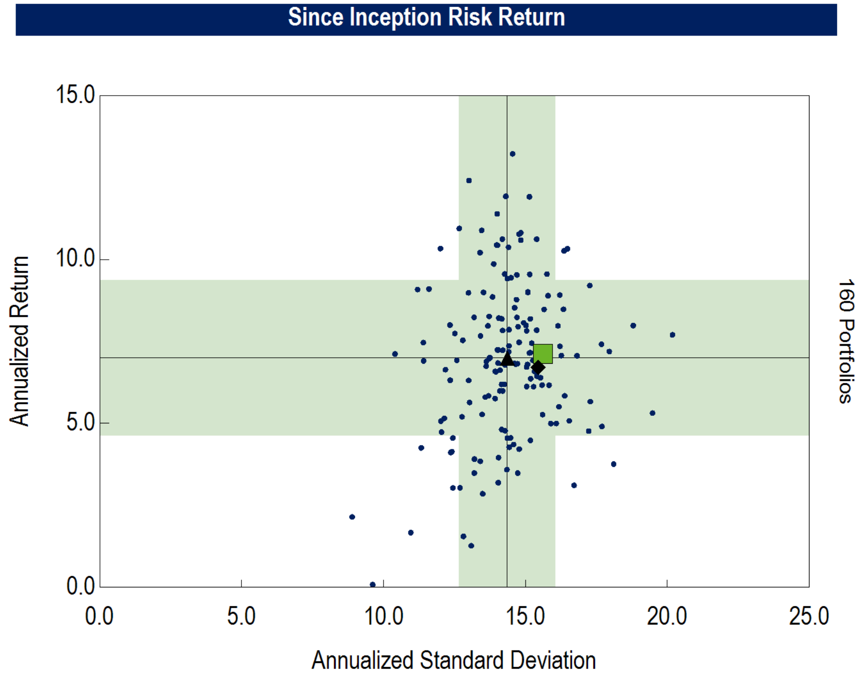
QMA EMERGING MARKETS

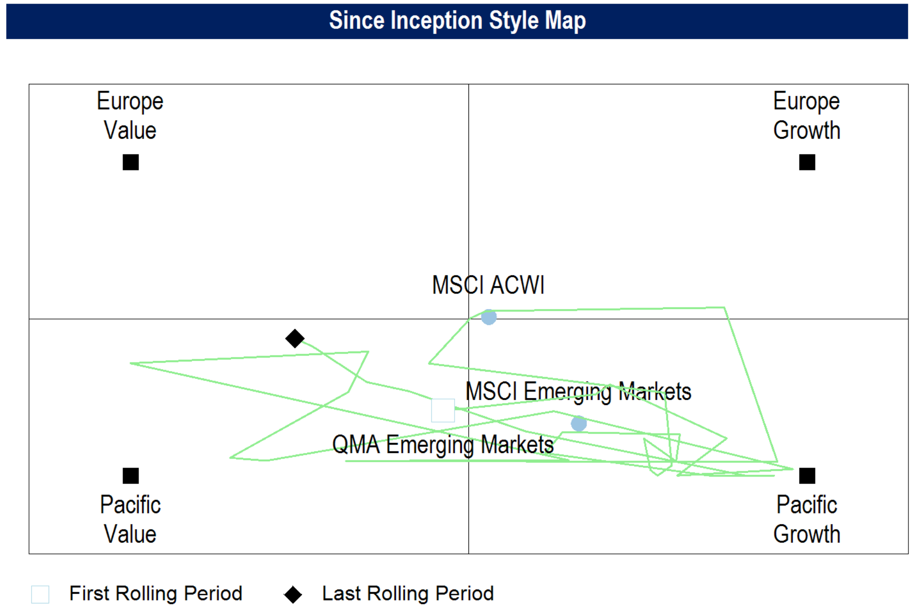


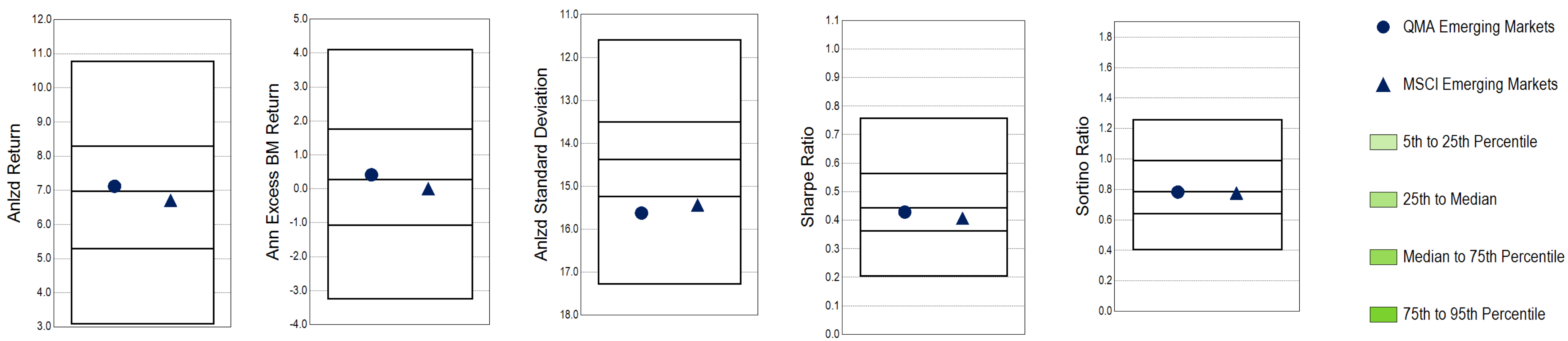
	Return (Rank)									
5th Percentile	4.34		22.61		33.07		26.78		13.33	
25th Percentile	2.45		19.58		27.58		23.42		10.83	
Median	1.39		16.96		23.96		20.58		9.04	
75th Percentile	0.38		13.63		19.43		17.44		7.37	
95th Percentile	-1.36		7.82		13.93		13.28		4.59	
# of Portfolios	195		194		192		187		175	
● QMA Emerging Markets	1.97	(38)	17.71	(44)	25.82	(34)	21.42	(44)	8.59	(57)
▲ MSCI Emerging Markets	1.42	(50)	17.56	(45)	24.93	(42)	21.01	(46)	8.81	(54)

Los Angeles City Employees' Retirement System

QMA EMERGING MARKETS





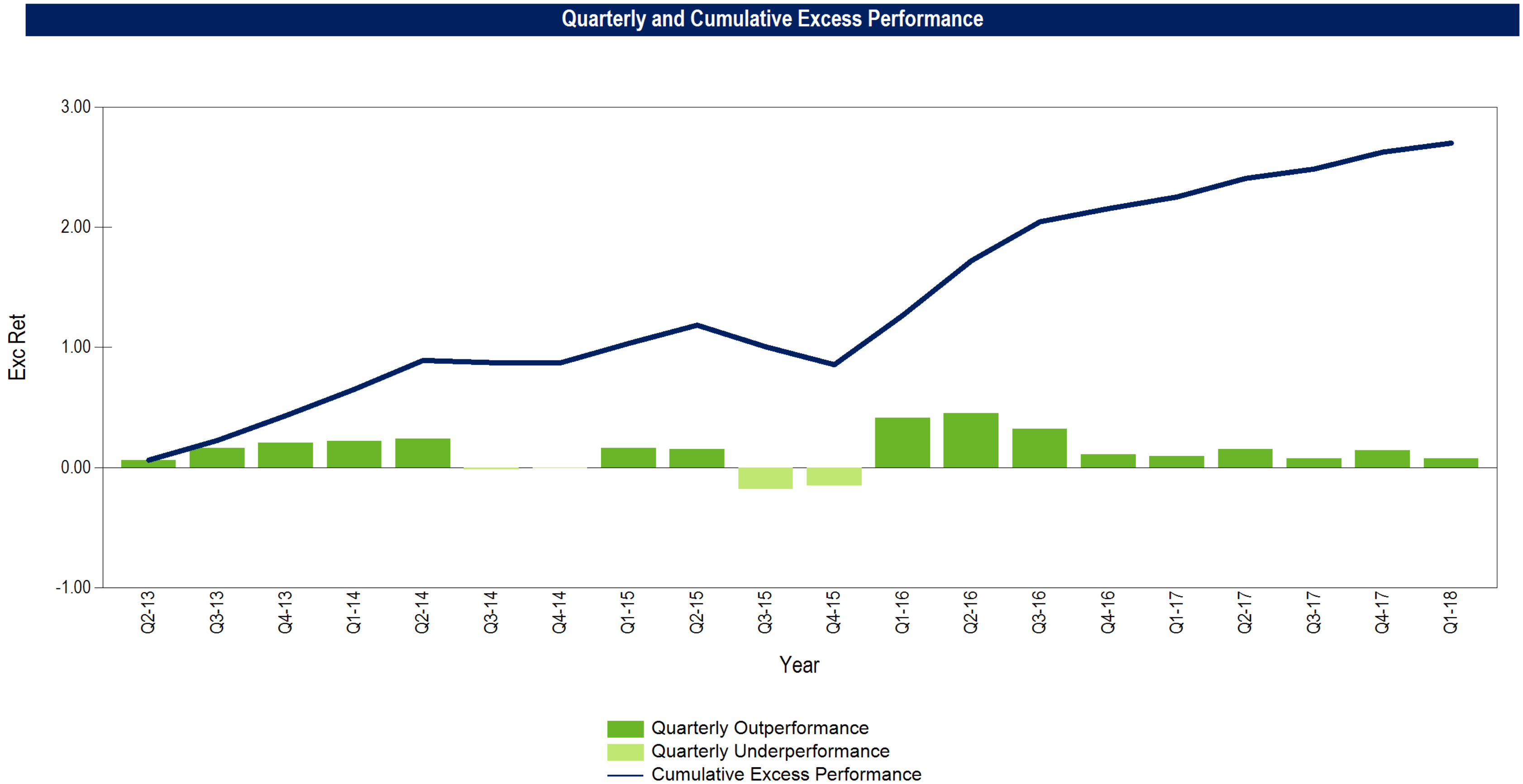


CORE FIXED INCOME MANAGER PERFORMANCE

NEPC, LLC

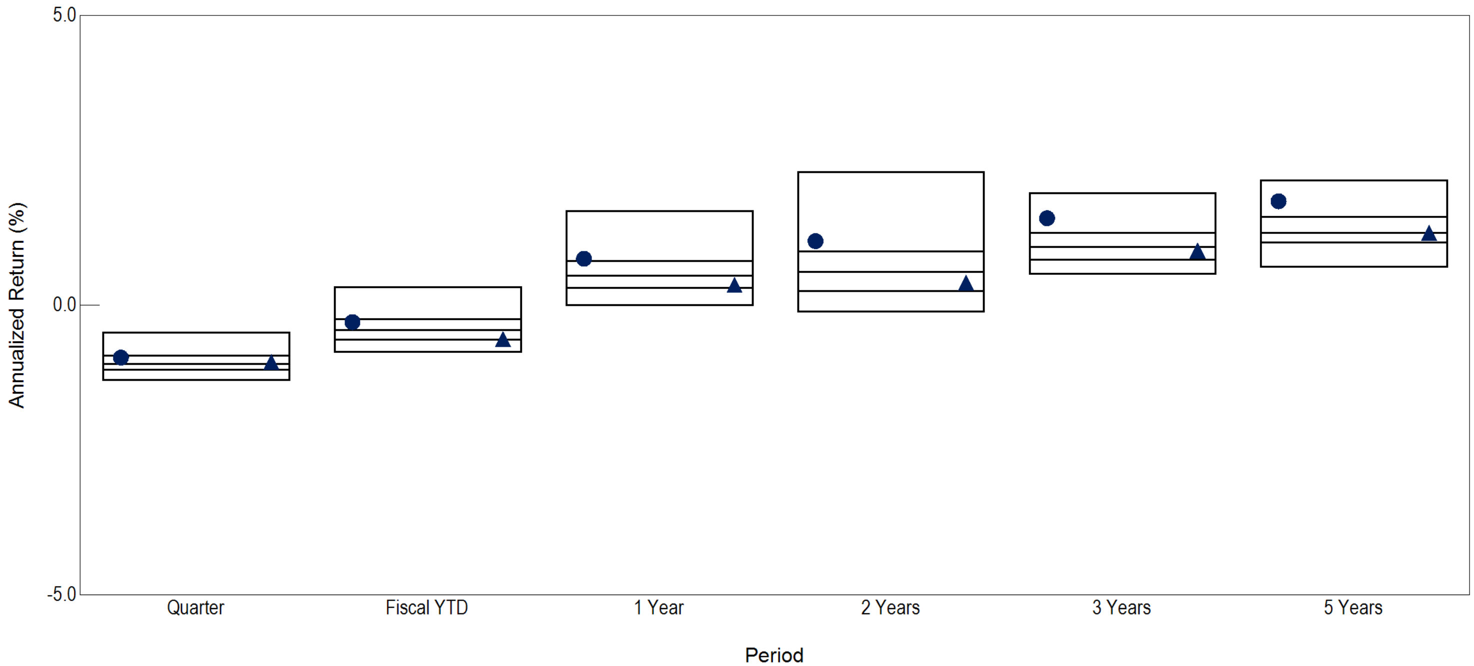
Los Angeles City Employees' Retirement System

BAIRD ADVISORS



BAIRD ADVISORS

Baird Advisors vs. eV US Interm Duration Fixed Inc Net

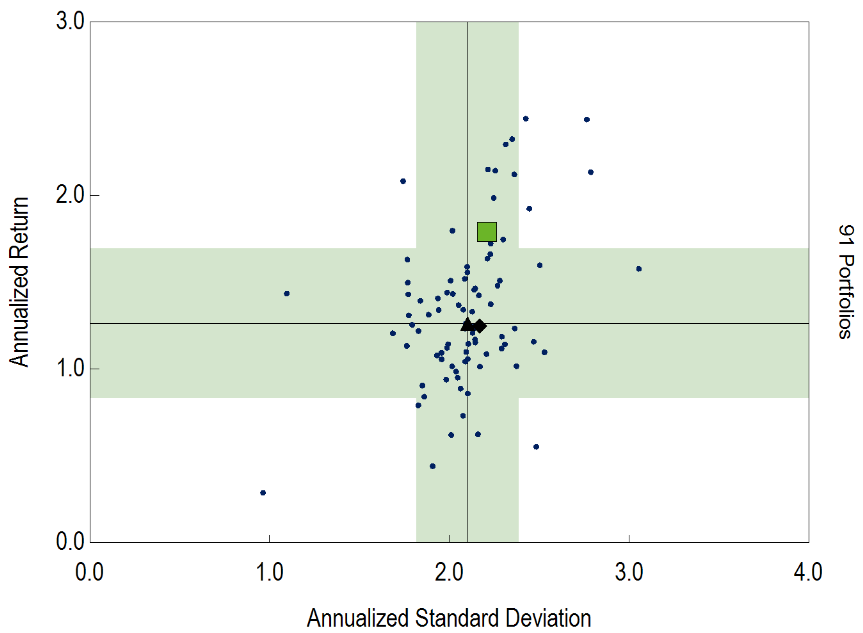


	Return (Rank)											
5th Percentile	-0.47		0.30		1.62		2.29		1.94		2.15	
25th Percentile	-0.86		-0.24		0.77		0.94		1.26		1.54	
Median	-1.00		-0.42		0.52		0.59		1.02		1.26	
75th Percentile	-1.11		-0.59		0.31		0.26		0.79		1.10	
95th Percentile	-1.28		-0.80		0.01		-0.09		0.55		0.68	
# of Portfolios	100		99		96		96		96		91	
● Baird Advisors	-0.91	(28)	-0.29	(35)	0.80	(24)	1.10	(19)	1.50	(13)	1.79	(13)
▲ BBgBarc US Govt/Credit Int TR	-0.98	(44)	-0.59	(74)	0.35	(69)	0.39	(63)	0.94	(57)	1.25	(52)

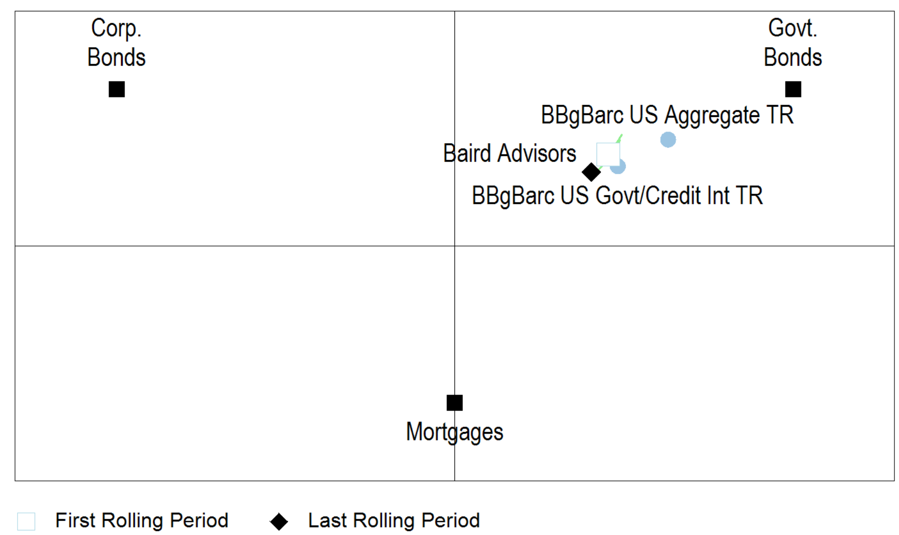
Los Angeles City Employees' Retirement System

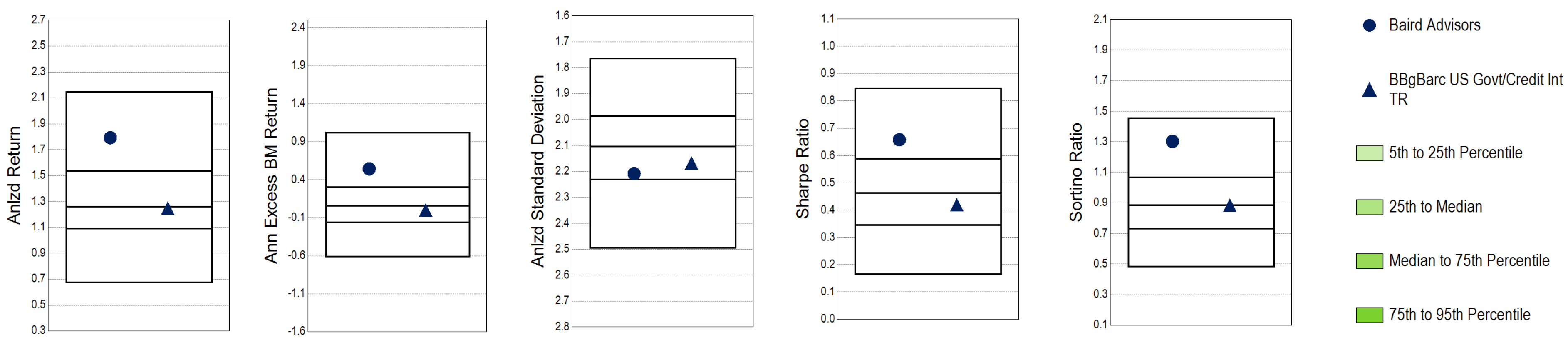
BAIRD ADVISORS

5 Year Risk Return



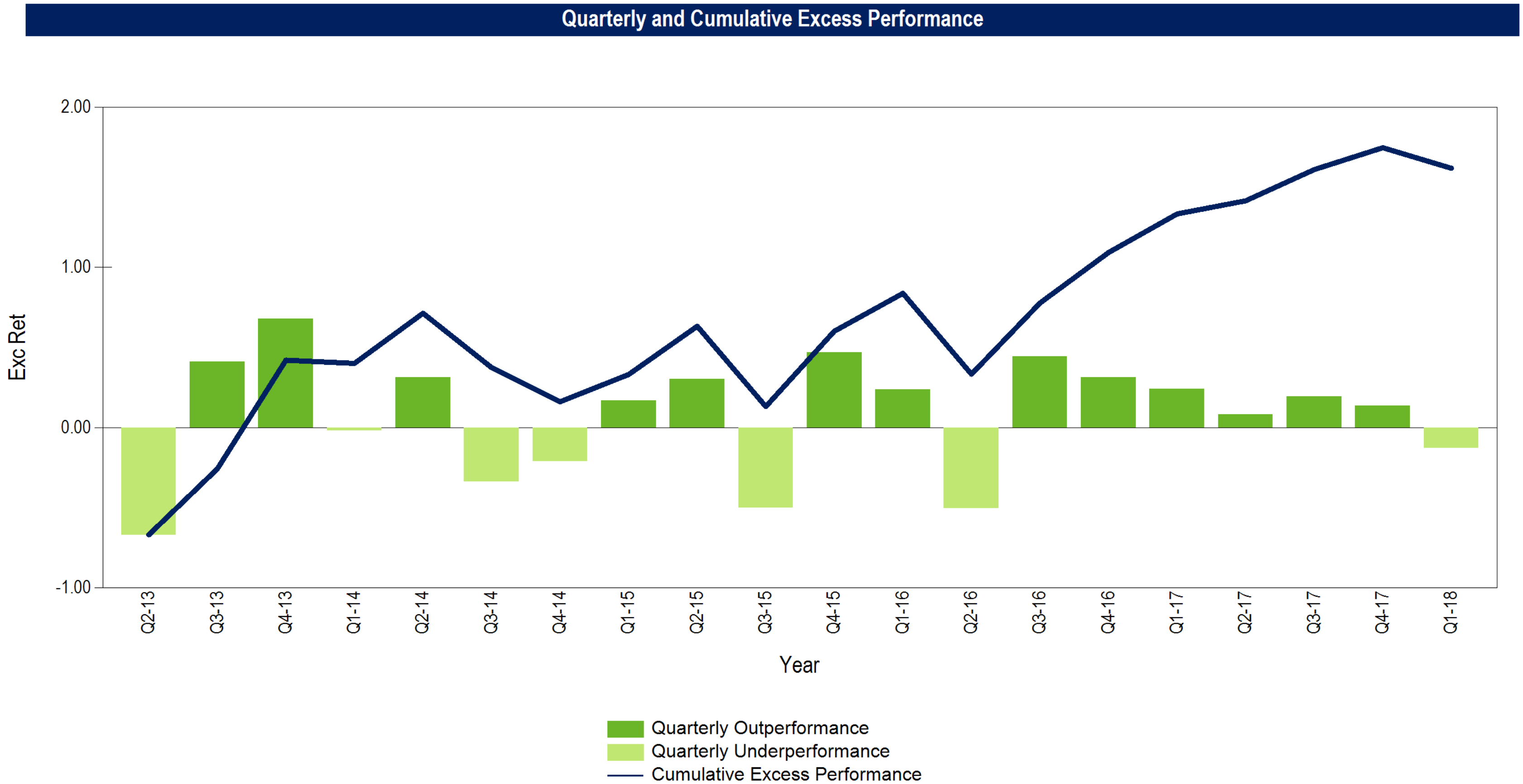
5 Year Style Map





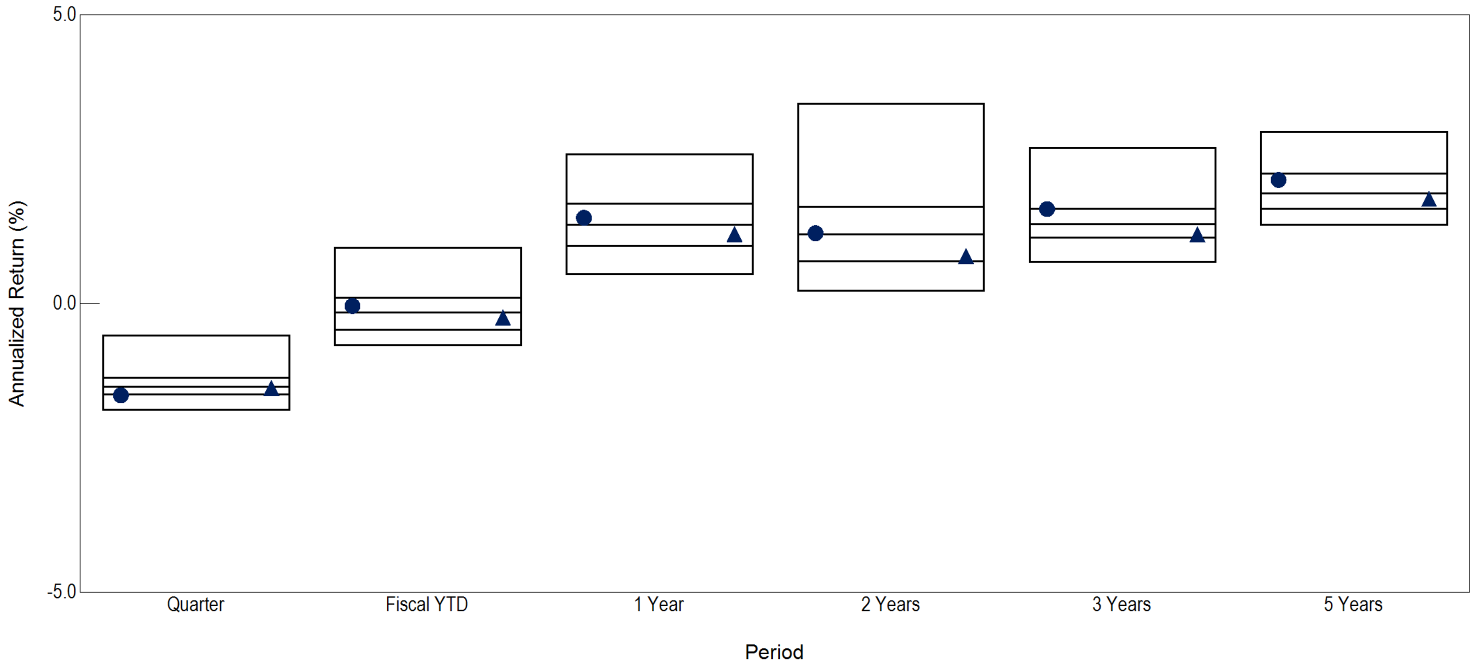
Los Angeles City Employees' Retirement System

LM CAPITAL



LM CAPITAL

Core Fixed Income Managers vs. eV US Core Fixed Inc Net

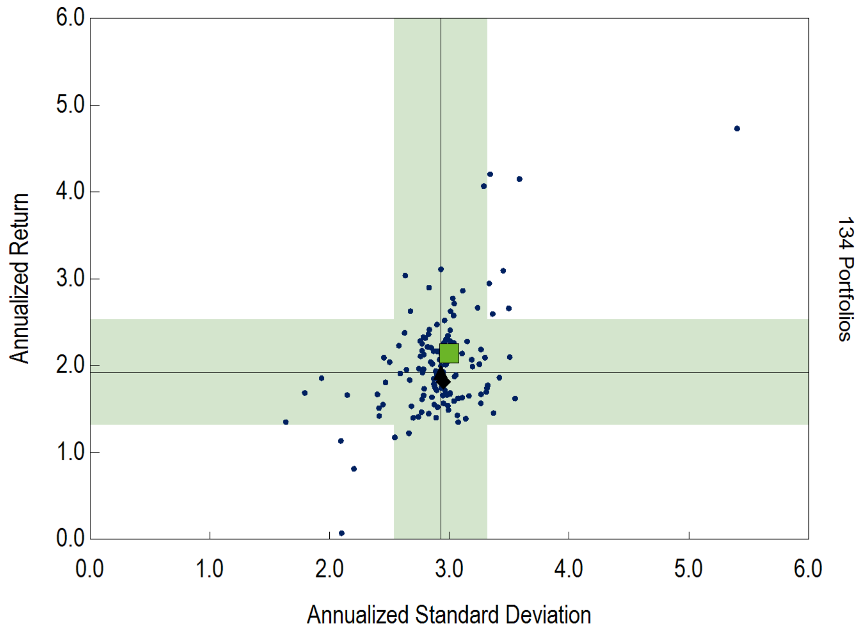


Return (Rank)	Quarter		Fiscal YTD		1 Year		2 Years		3 Years		5 Years	
5th Percentile	-0.56		0.96		2.58		3.46		2.70		2.98	
25th Percentile	-1.27		0.12		1.74		1.68		1.66		2.26	
Median	-1.43		-0.14		1.38		1.21		1.39		1.92	
75th Percentile	-1.57		-0.44		1.02		0.75		1.16		1.66	
95th Percentile	-1.82		-0.71		0.53		0.23		0.73		1.38	
# of Portfolios	146		143		140		137		136		134	
● **LM Capital**	-1.59	(78)	-0.04	(41)	1.49	(41)	1.22	(49)	1.64	(28)	2.14	(33)
▲ **Core Fixed Income Blend**	-1.46	(57)	-0.24	(61)	1.20	(66)	0.82	(71)	1.20	(71)	1.82	(61)

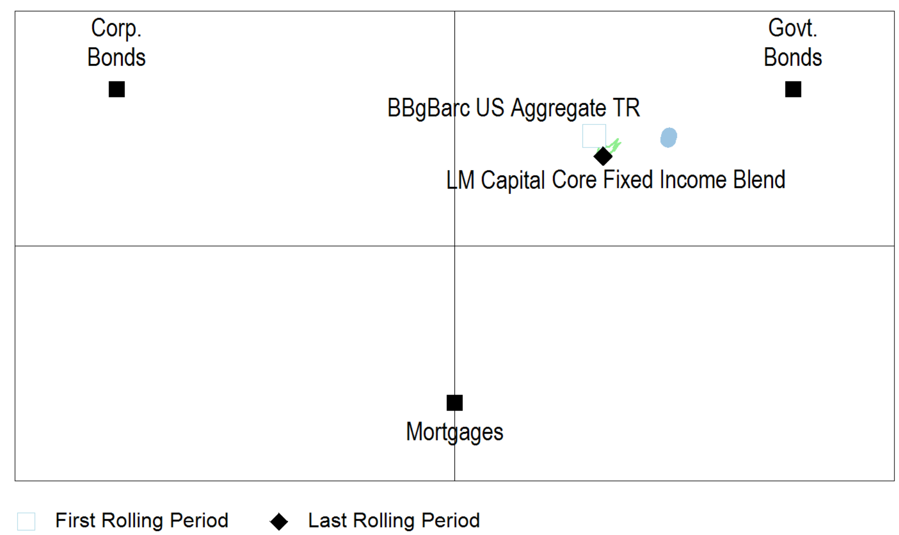
Los Angeles City Employees' Retirement System

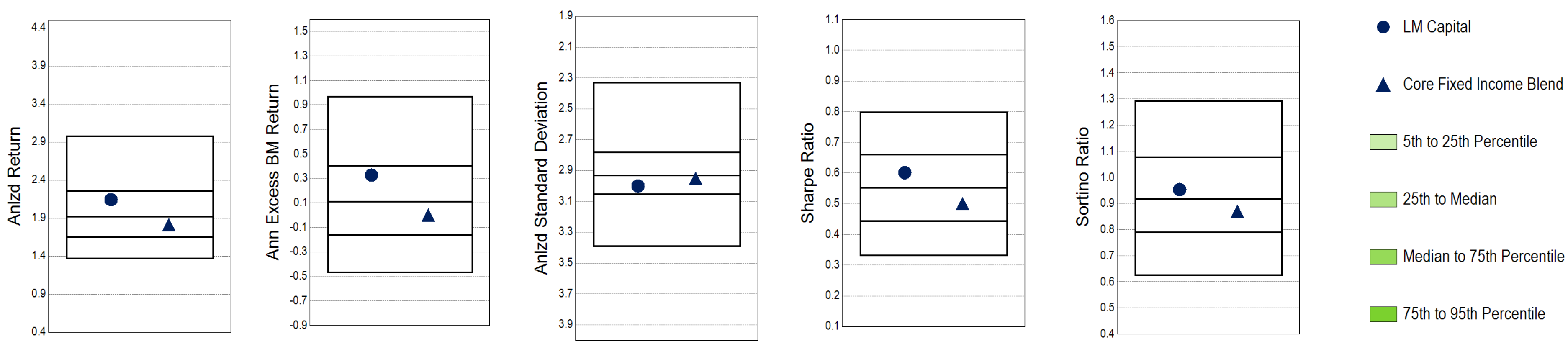
LM CAPITAL

5 Year Risk Return

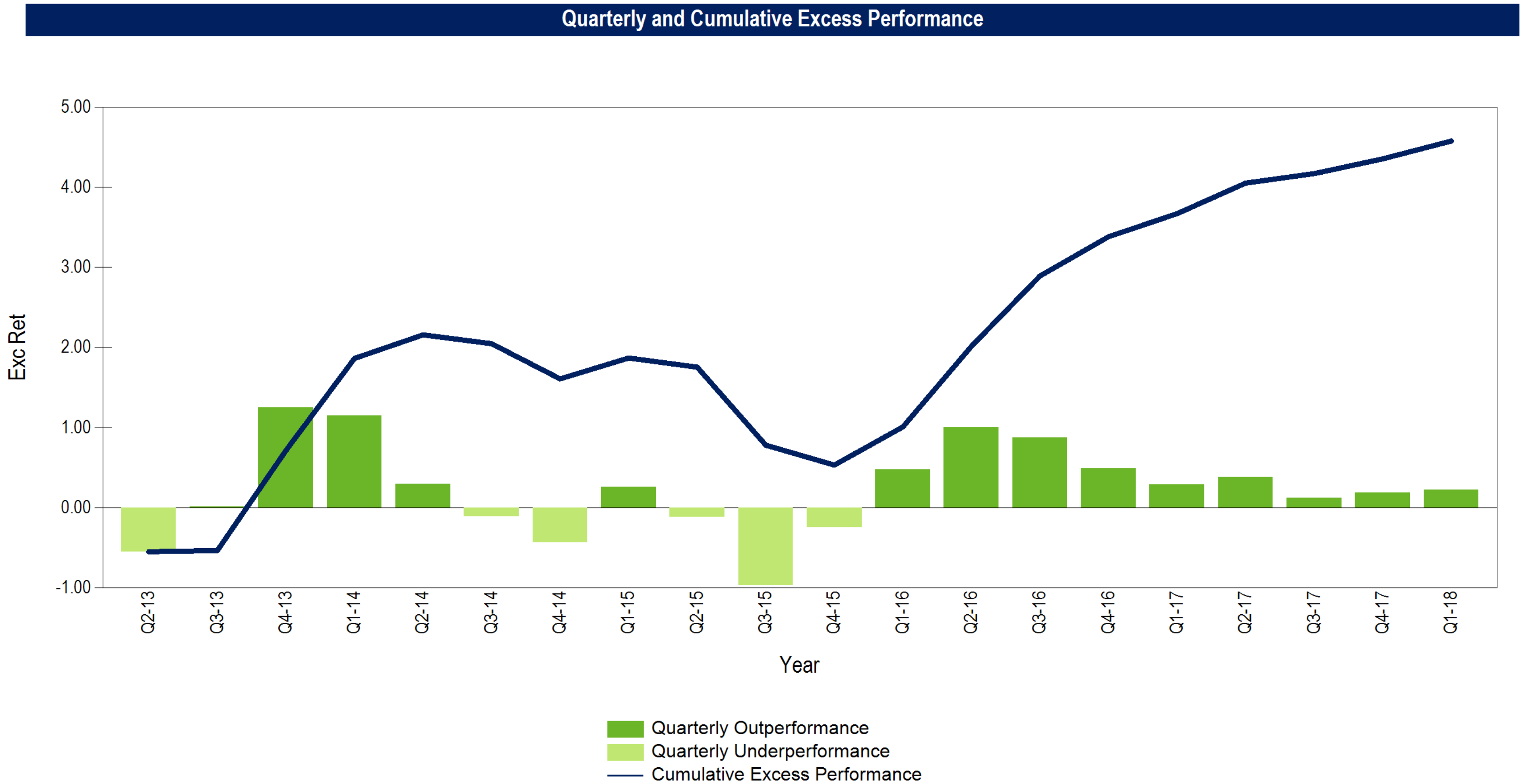


5 Year Style Map





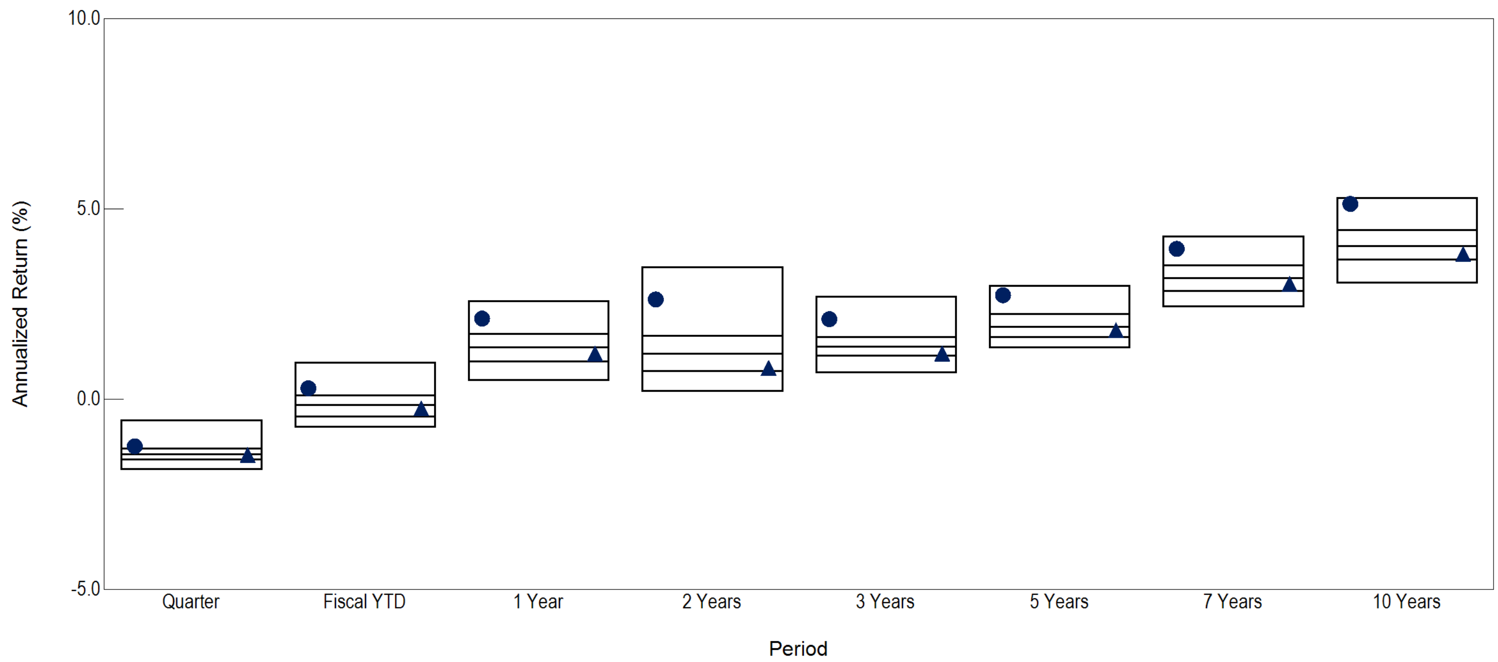
LOOMIS SAYLES



Los Angeles City Employees' Retirement System

LOOMIS SAYLES

Loomis Sayles vs. eV US Core Fixed Inc Net

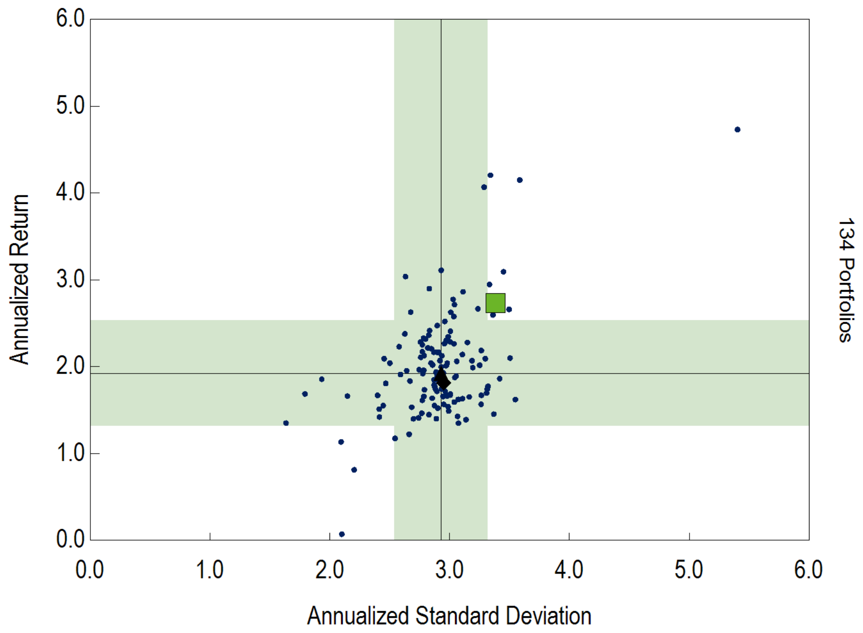


	Return (Rank)															
5th Percentile	-0.56		0.96		2.58		3.46		2.70		2.98		4.28		5.28	
25th Percentile	-1.27		0.12		1.74		1.68		1.66		2.26		3.53		4.46	
Median	-1.43		-0.14		1.38		1.21		1.39		1.92		3.20		4.04	
75th Percentile	-1.57		-0.44		1.02		0.75		1.16		1.66		2.86		3.68	
95th Percentile	-1.82		-0.71		0.53		0.23		0.73		1.38		2.45		3.09	
# of Portfolios	146		143		140		137		136		134		126		112	
● Loomis Sayles	-1.24	(22)	0.29	(20)	2.12	(13)	2.62	(8)	2.10	(11)	2.73	(9)	3.95	(10)	5.13	(7)
▲ Core Fixed Income Blend	-1.46	(57)	-0.24	(61)	1.20	(66)	0.82	(71)	1.20	(71)	1.82	(61)	3.03	(64)	3.82	(66)

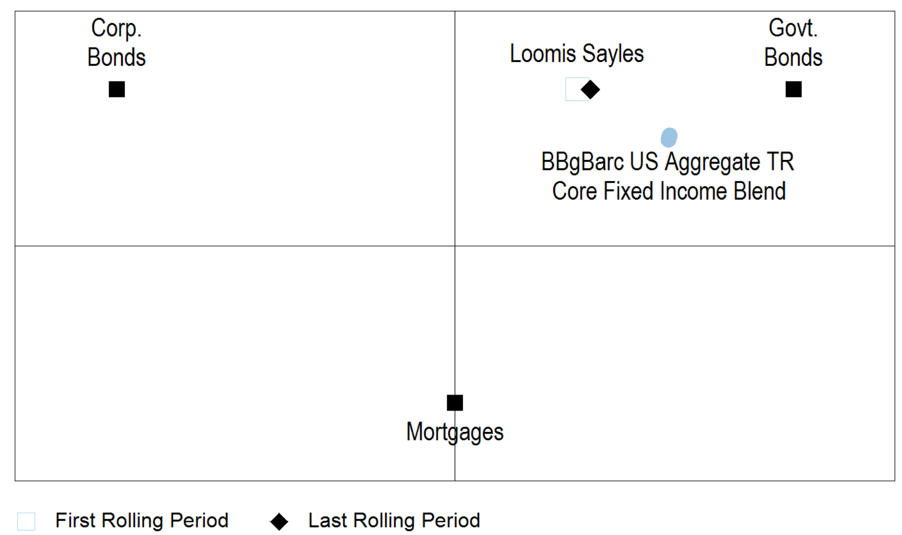
Los Angeles City Employees' Retirement System

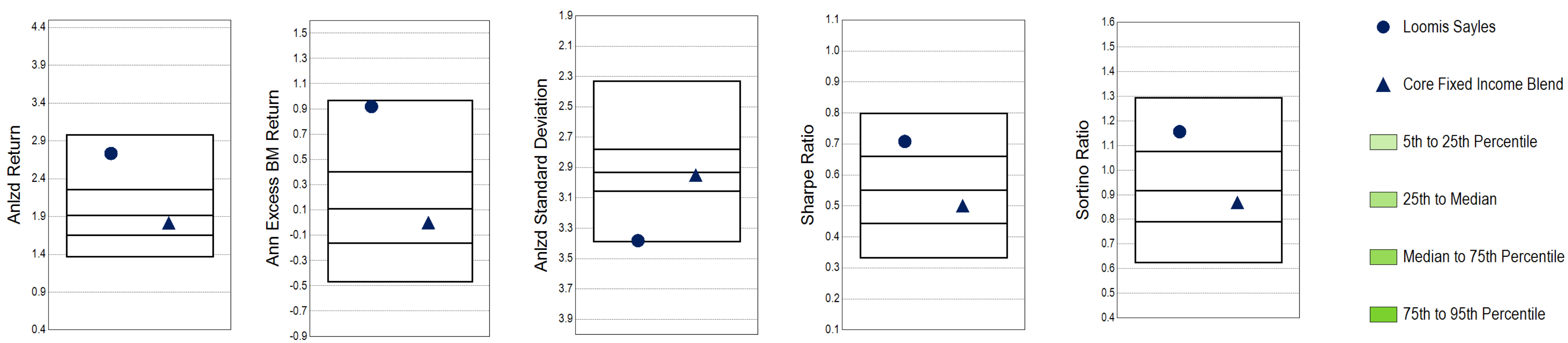
LOOMIS SAYLES

5 Year Risk Return

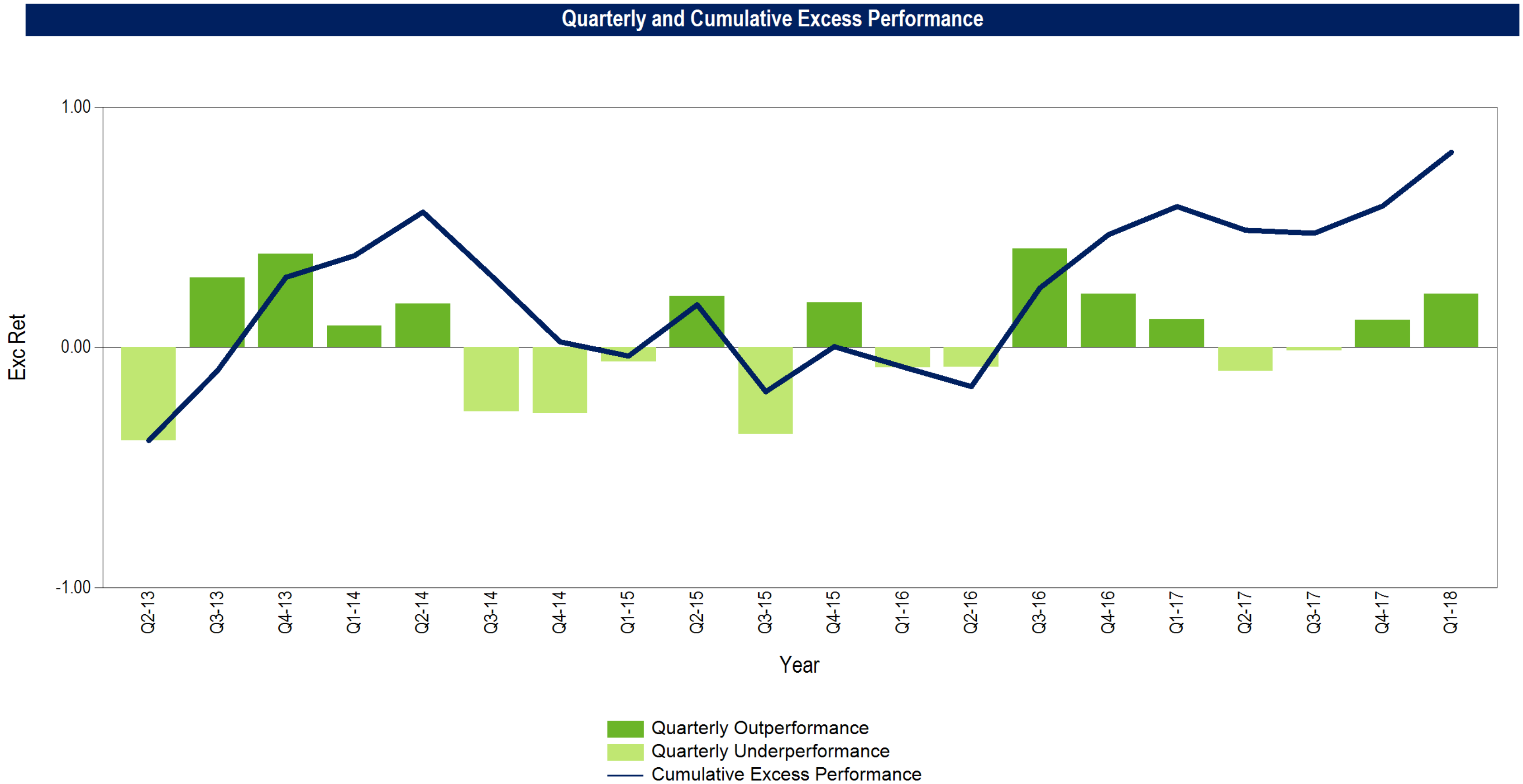


5 Year Style Map



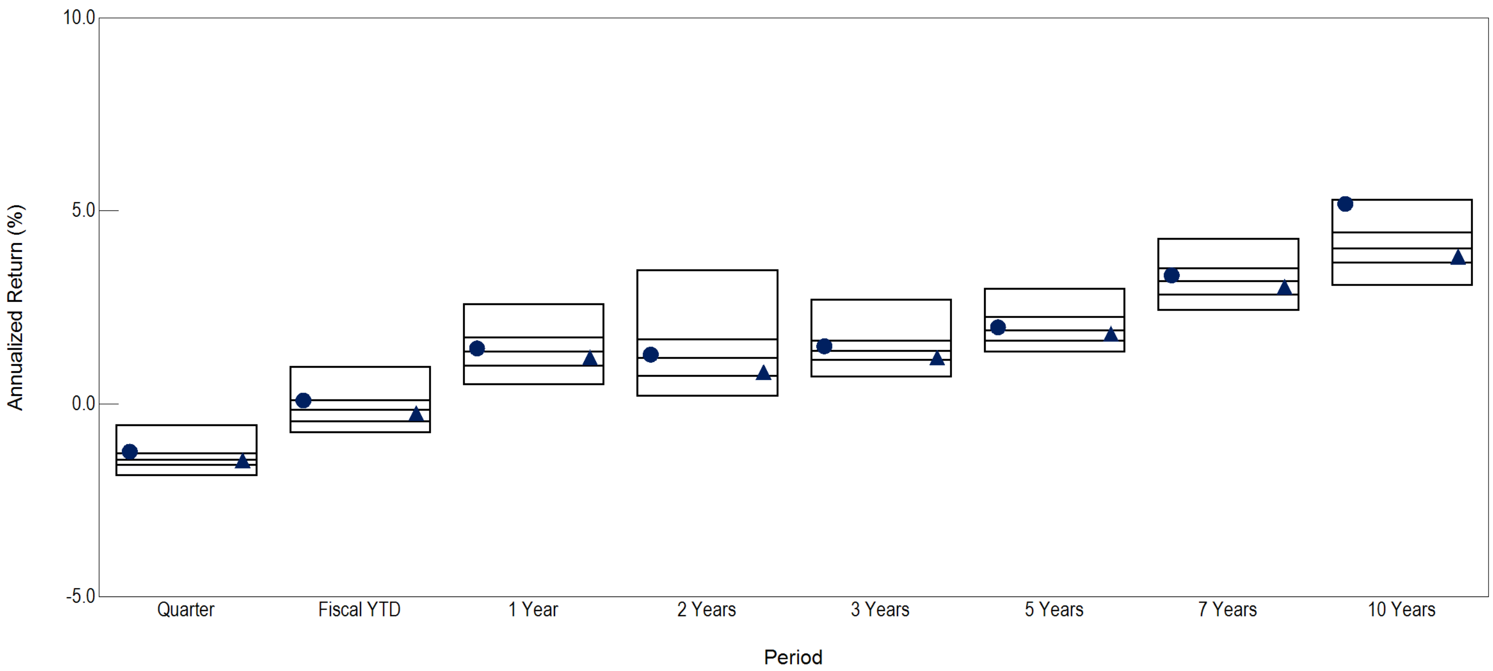


NEUBERGER BERMAN



NEUBERGER BERMAN

Neuberger Berman vs. eV US Core Fixed Inc Net

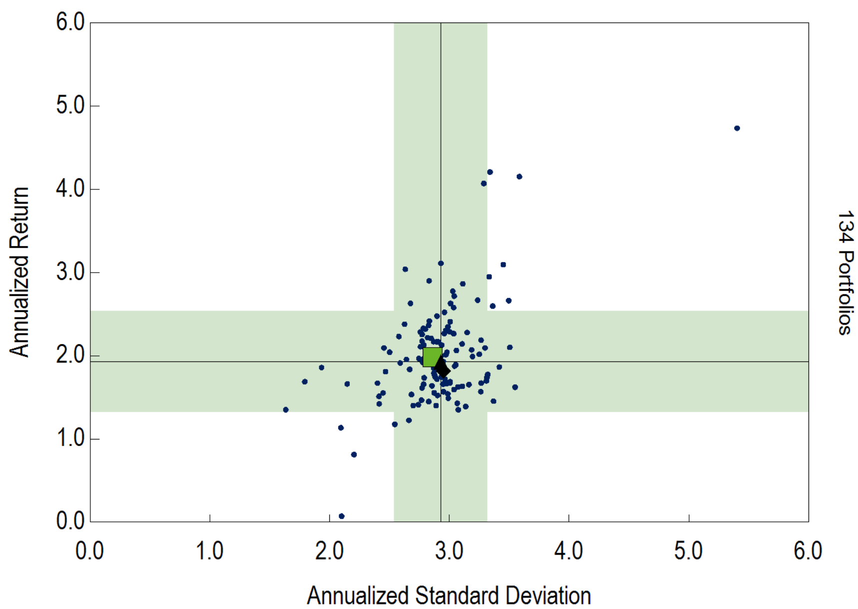


	Return (Rank)															
5th Percentile	-0.56		0.96		2.58		3.46		2.70		2.98		4.28		5.28	
25th Percentile	-1.27		0.12		1.74		1.68		1.66		2.26		3.53		4.46	
Median	-1.43		-0.14		1.38		1.21		1.39		1.92		3.20		4.04	
75th Percentile	-1.57		-0.44		1.02		0.75		1.16		1.66		2.86		3.68	
95th Percentile	-1.82		-0.71		0.53		0.23		0.73		1.38		2.45		3.09	
# of Portfolios	146		143		140		137		136		134		126		112	
● **Neuberger Berman**	-1.24	(22)	0.09	(29)	1.44	(44)	1.28	(45)	1.49	(41)	1.98	(46)	3.33	(41)	5.18	(6)
▲ **Core Fixed Income Blend**	-1.46	(57)	-0.24	(61)	1.20	(66)	0.82	(71)	1.20	(71)	1.82	(61)	3.03	(64)	3.82	(66)

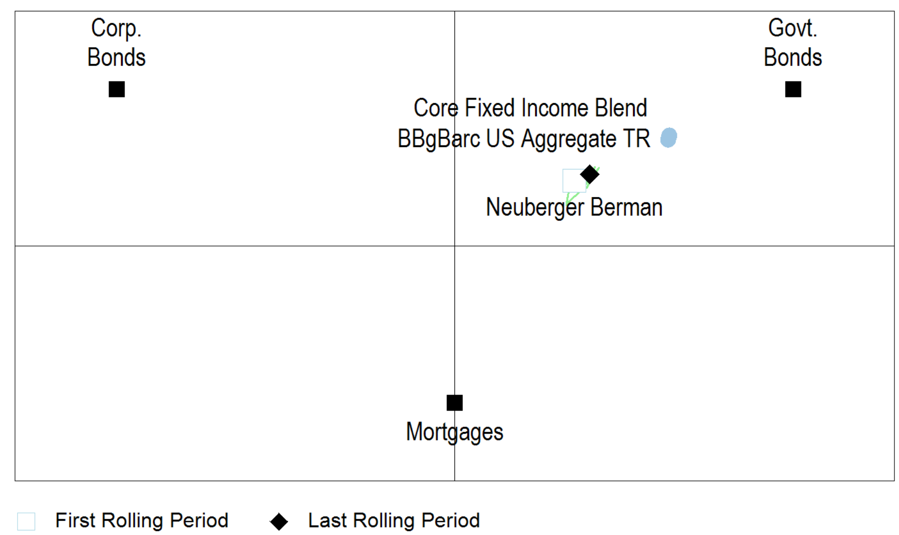
Los Angeles City Employees' Retirement System

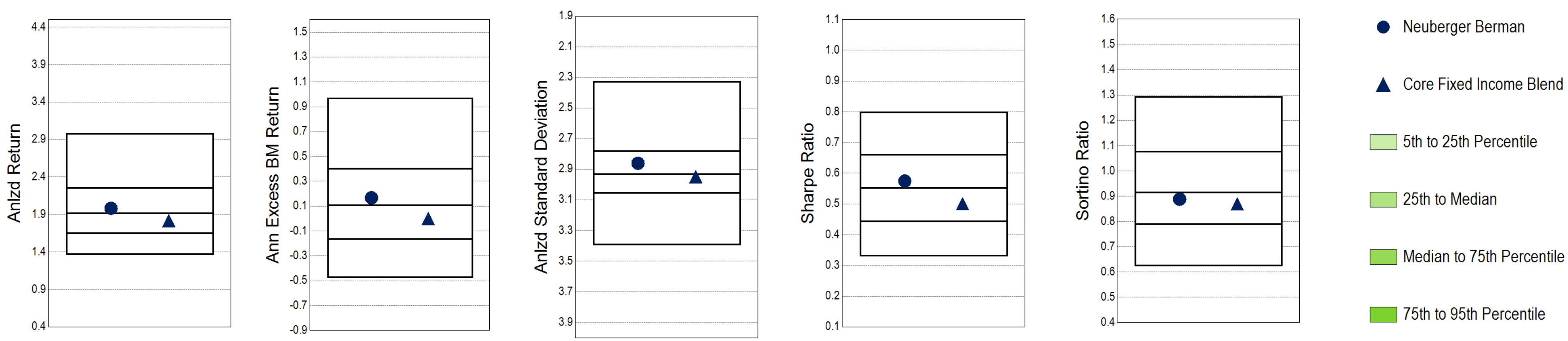
NEUBERGER BERMAN

5 Year Risk Return



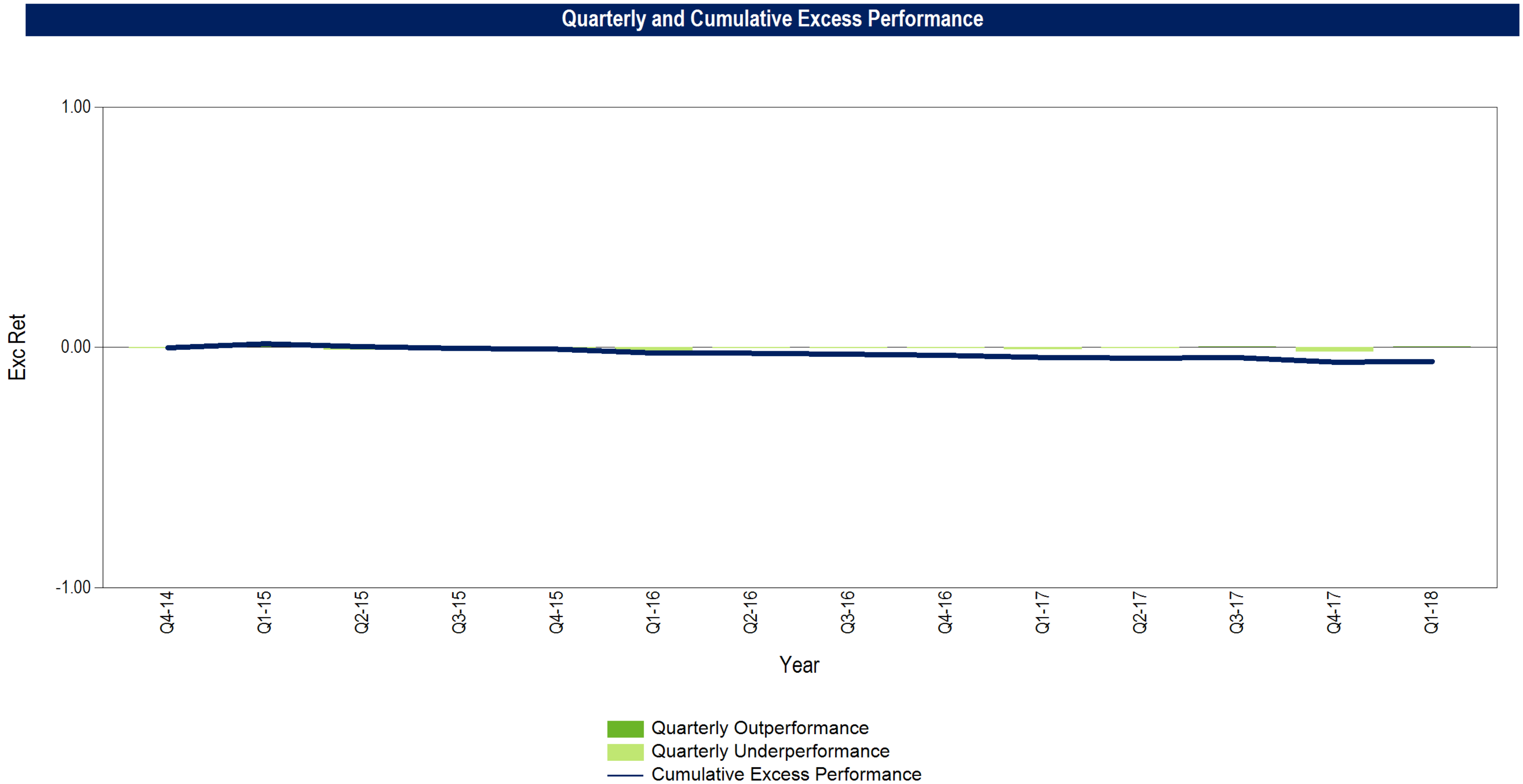
5 Year Style Map





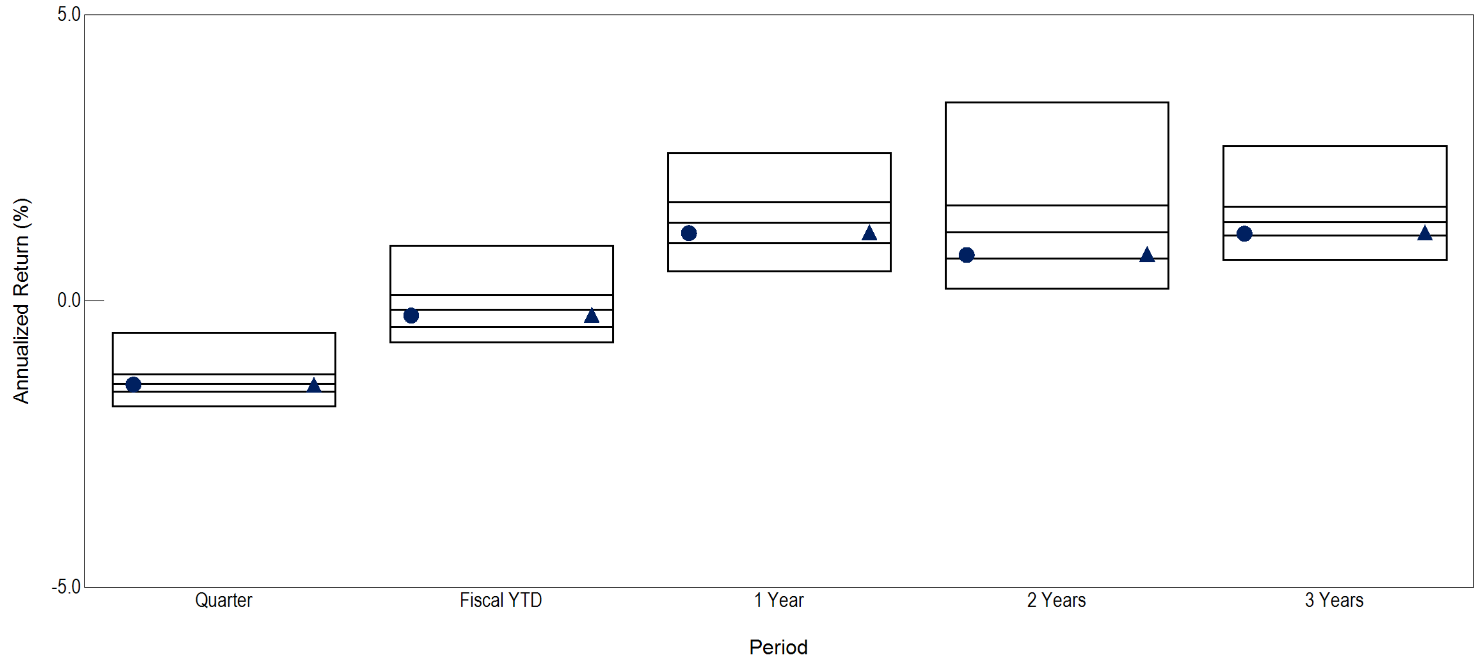
Los Angeles City Employees' Retirement System

SSGA U.S. AGGREGATE BOND



SSGA U.S. AGGREGATE BOND

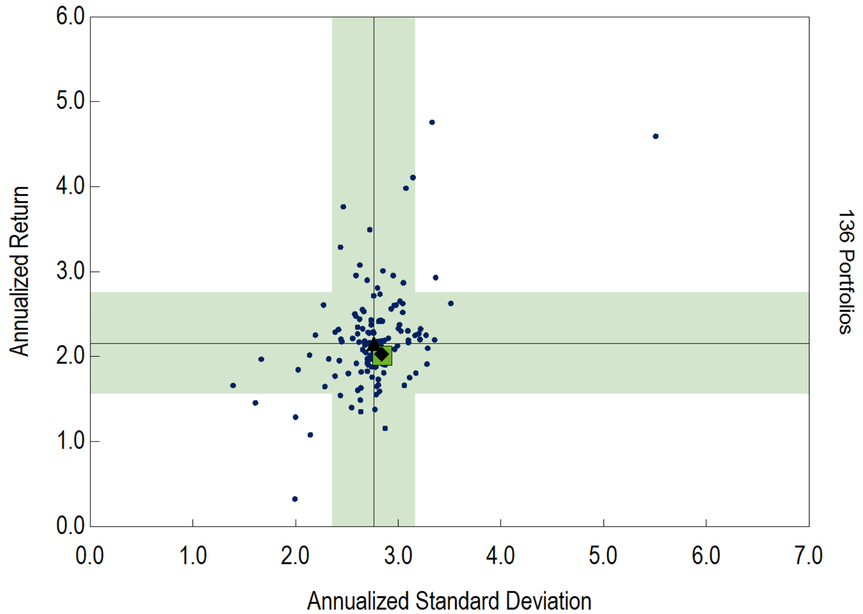
SSgA U.S. Aggregate Bond vs. eV US Core Fixed Inc Net



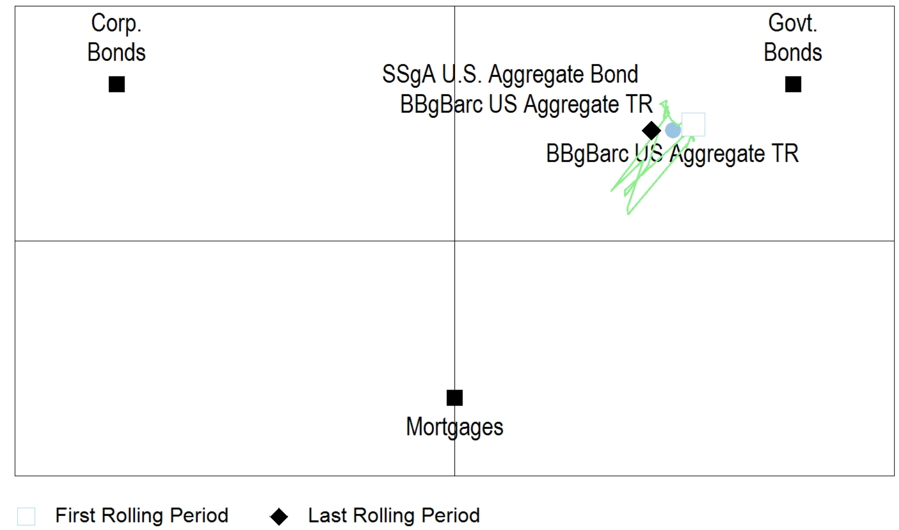
	Return (Rank)									
5th Percentile	-0.56		0.96		2.58		3.46		2.70	
25th Percentile	-1.27		0.12		1.74		1.68		1.66	
Median	-1.43		-0.14		1.38		1.21		1.39	
75th Percentile	-1.57		-0.44		1.02		0.75		1.16	
95th Percentile	-1.82		-0.71		0.53		0.23		0.73	
# of Portfolios	146		143		140		137		136	
● SSgA U.S. Aggregate Bond	-1.46	(56)	-0.25	(62)	1.19	(67)	0.80	(72)	1.17	(74)
▲ BBgBarc US Aggregate TR	-1.46	(57)	-0.24	(61)	1.20	(66)	0.82	(71)	1.20	(71)

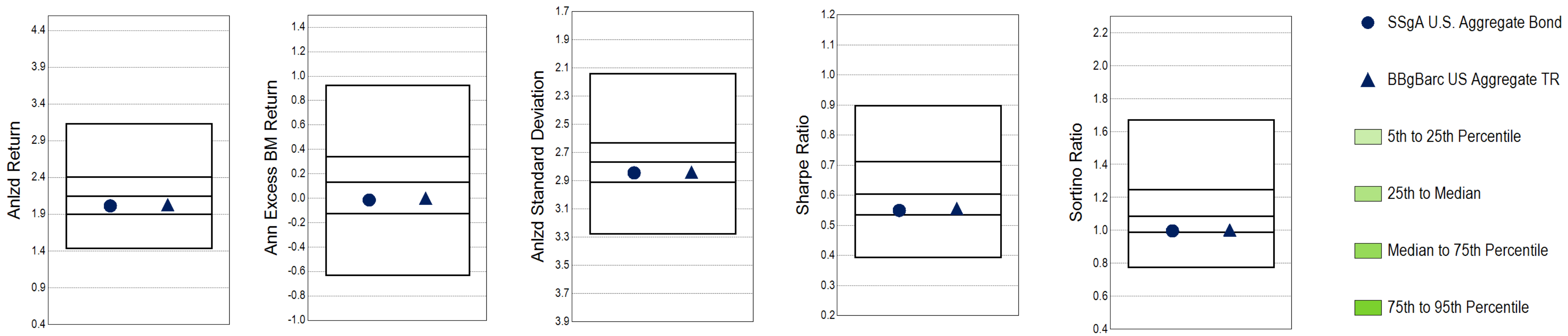
SSGA U.S. AGGREGATE BOND

Since Inception Risk Return



Since Inception Style Map



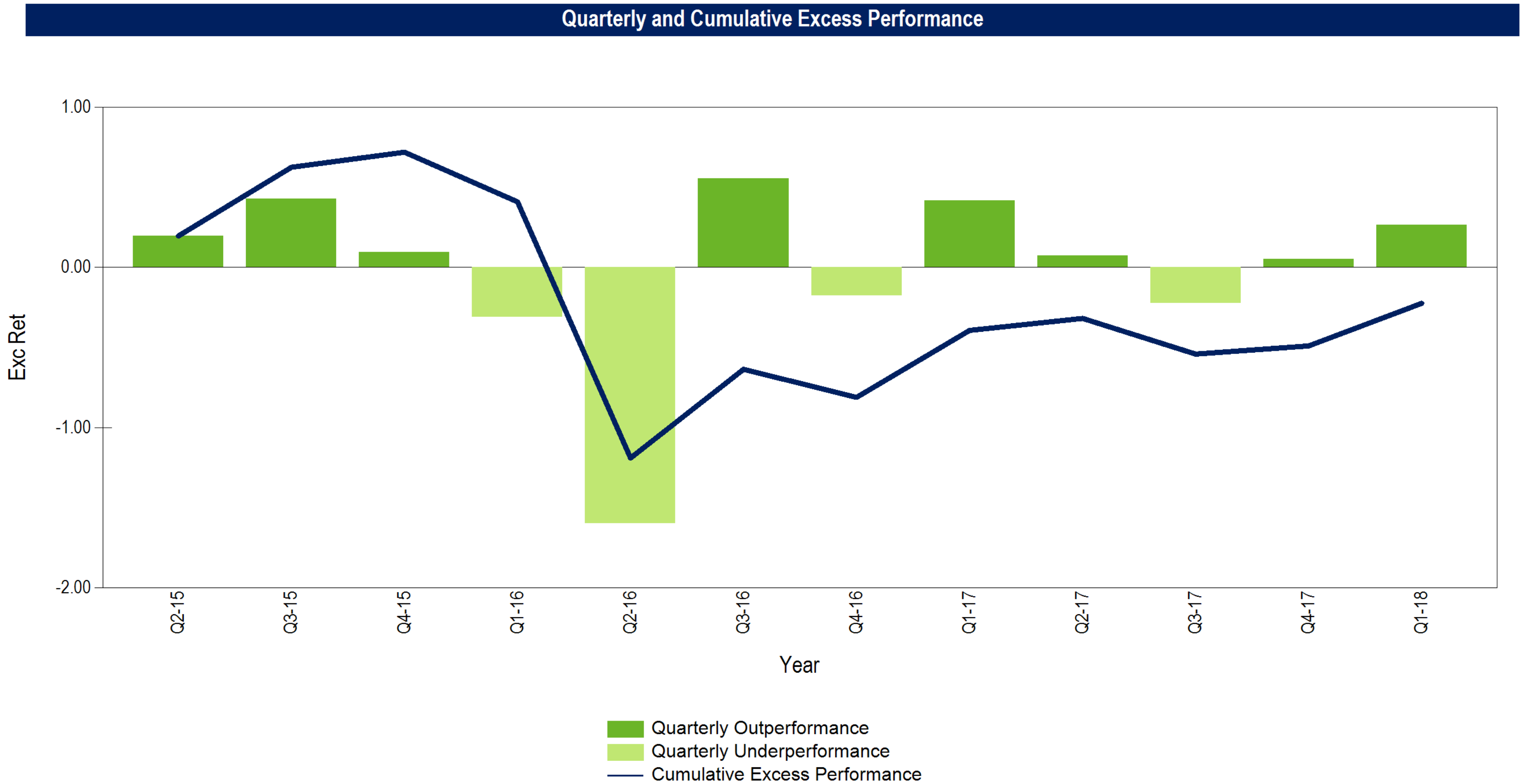


CREDIT OPPORTUNITIES MANAGER PERFORMANCE

NEPC, LLC

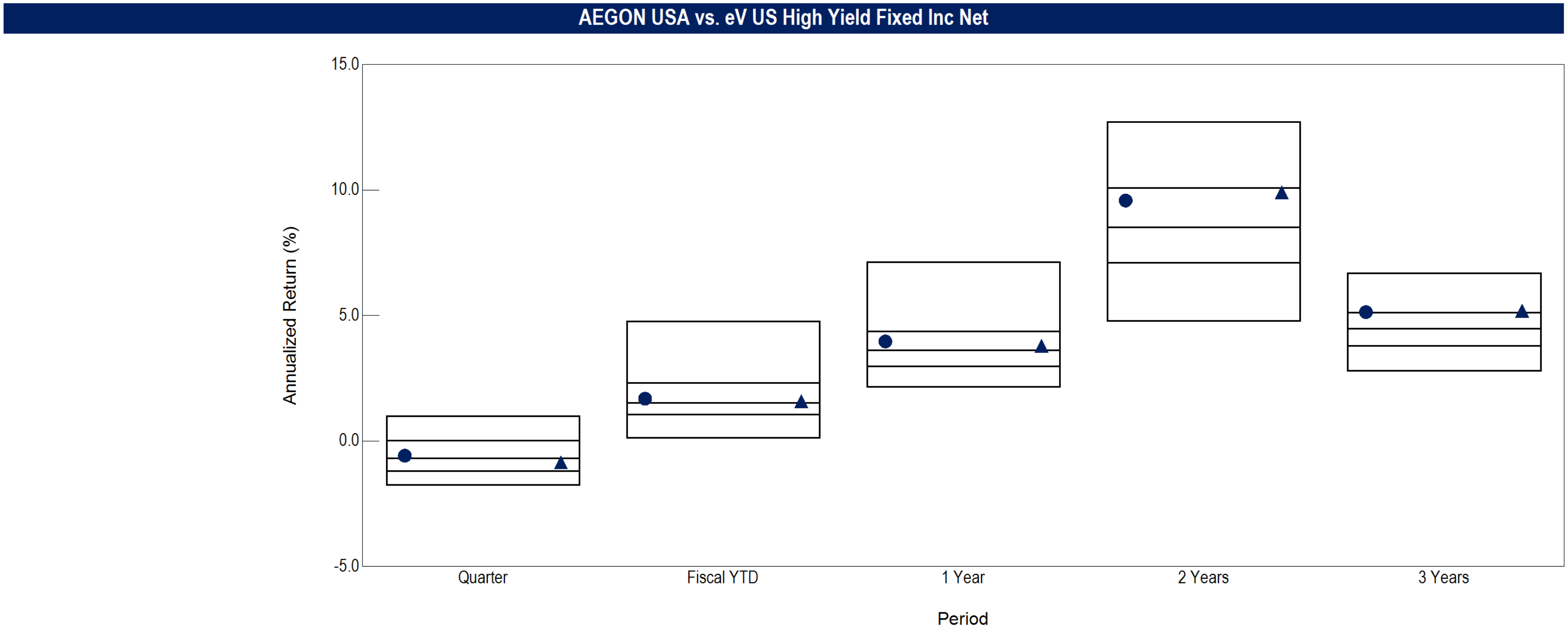
Los Angeles City Employees' Retirement System

AEGON USA



Los Angeles City Employees' Retirement System

AEGON USA

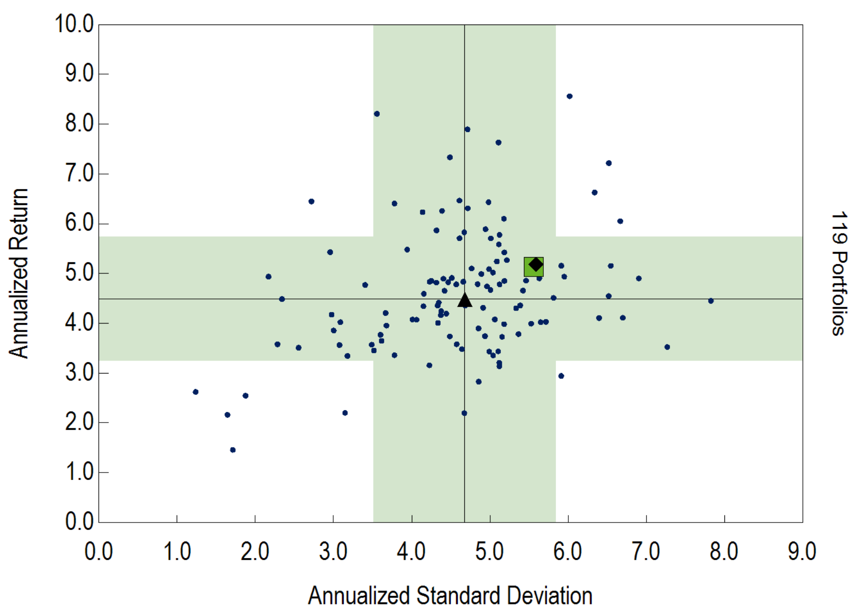


	Return (Rank)									
5th Percentile	0.99		4.76		7.13		12.72		6.68	
25th Percentile	0.04		2.33		4.38		10.10		5.14	
Median	-0.67		1.54		3.62		8.54		4.49	
75th Percentile	-1.19		1.06		3.00		7.11		3.82	
95th Percentile	-1.72		0.15		2.17		4.80		2.81	
# of Portfolios	129		128		128		123		119	
● AEGON USA	-0.59	(45)	1.68	(44)	3.96	(38)	9.58	(33)	5.13	(26)
▲ BBgBarc US High Yield 2% Issuer Cap TR	-0.86	(56)	1.58	(49)	3.78	(44)	9.90	(28)	5.18	(24)

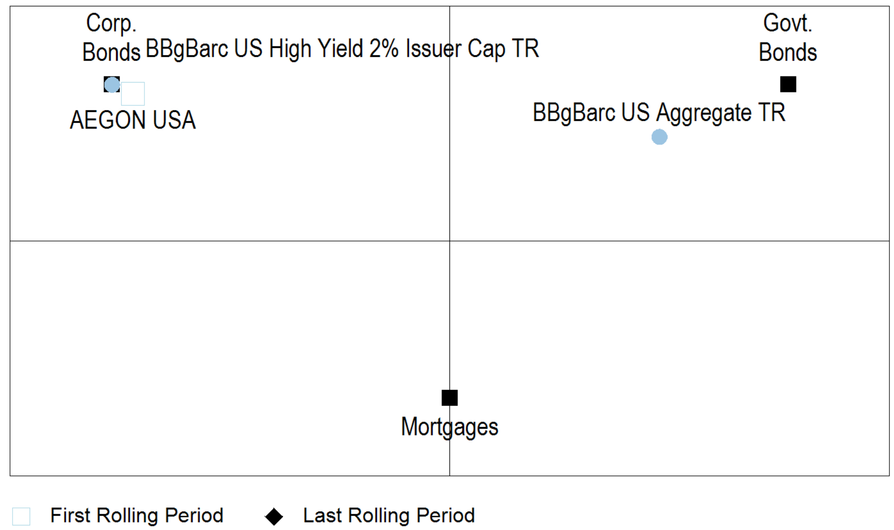
Los Angeles City Employees' Retirement System

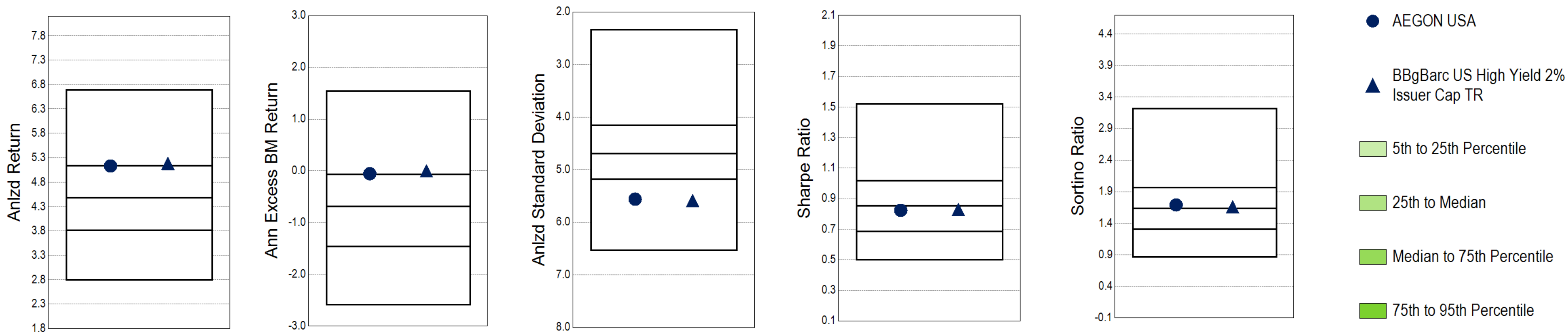
AEGON USA

3 Year Risk Return

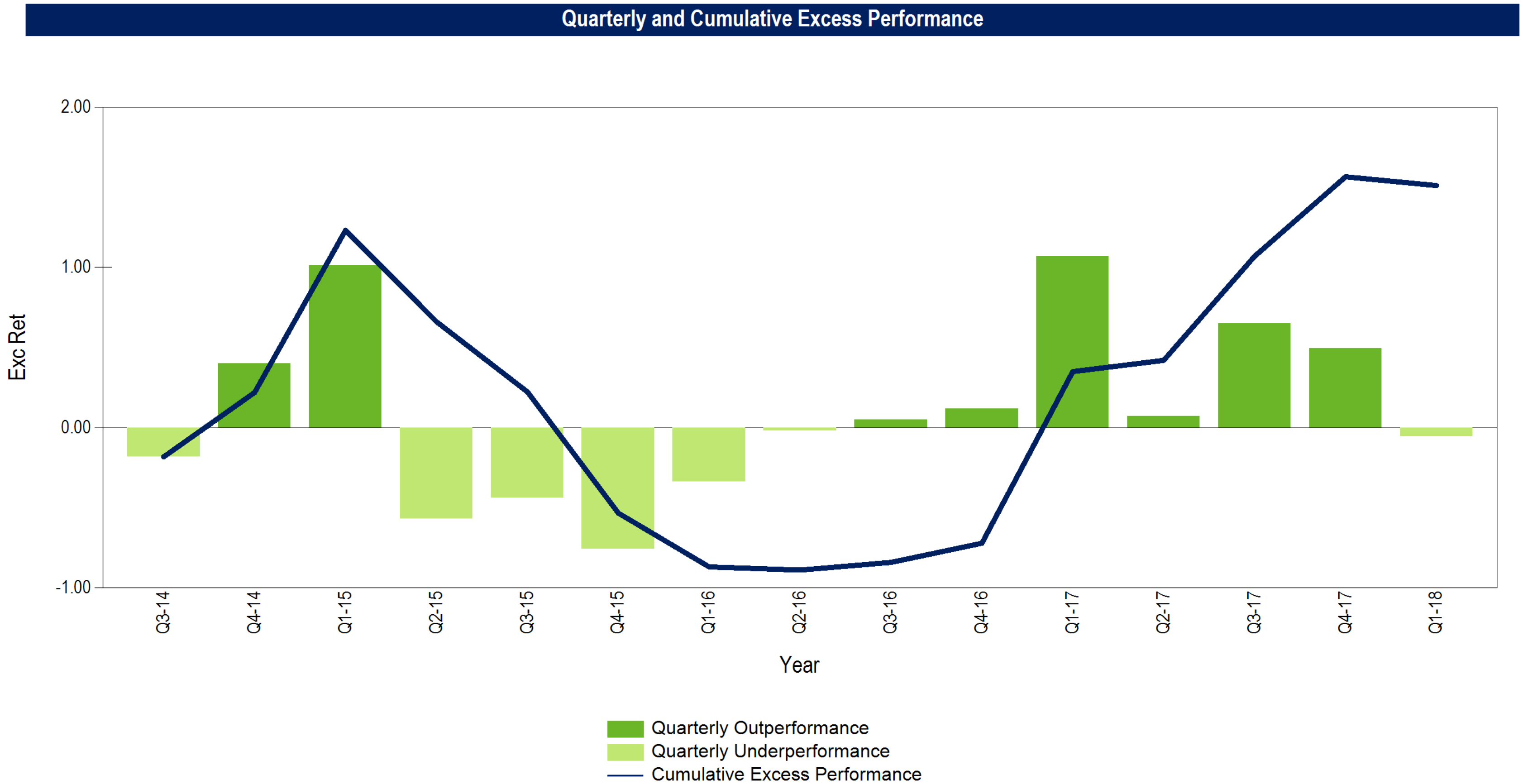


3 Year Style Map





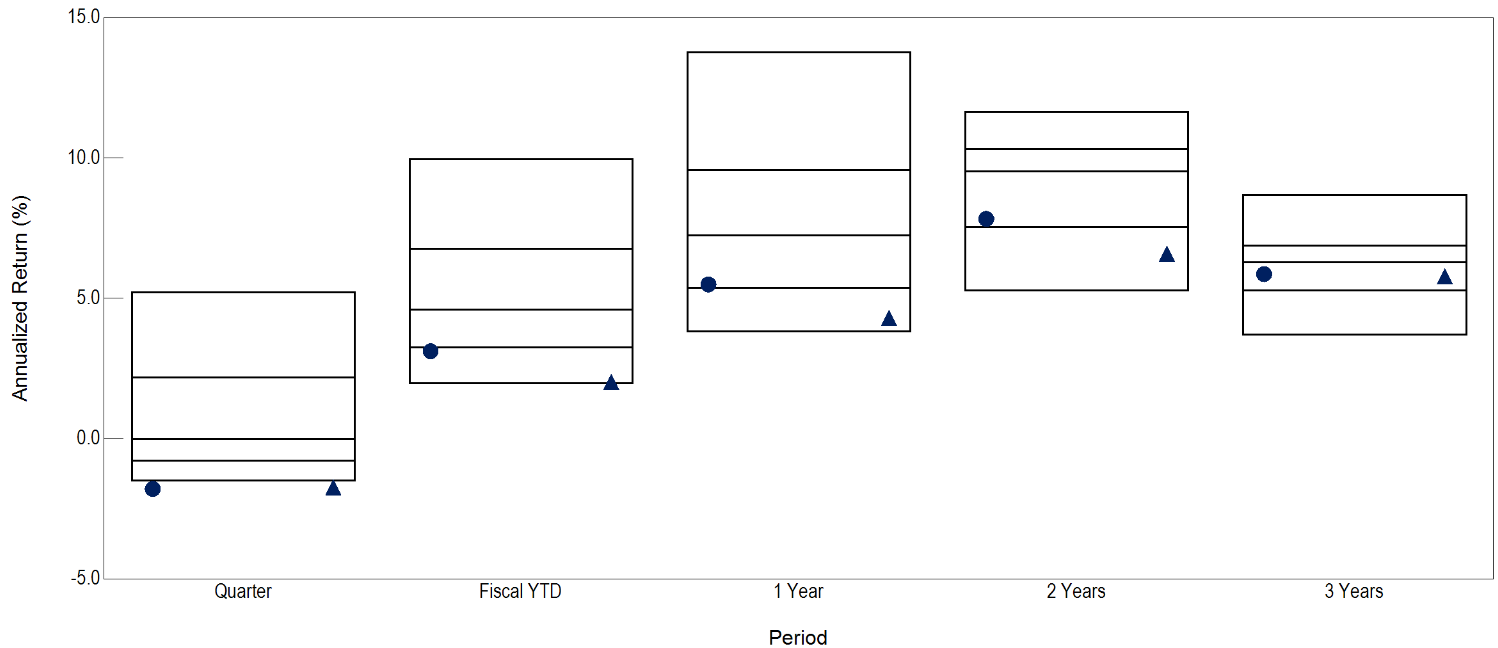
PRUDENTIAL EMERGING MARKETS



Los Angeles City Employees' Retirement System

PRUDENTIAL EMERGING MARKETS

Prudential Emerging Markets vs. eV Emg Mkt Fixed Inc Hedged Net

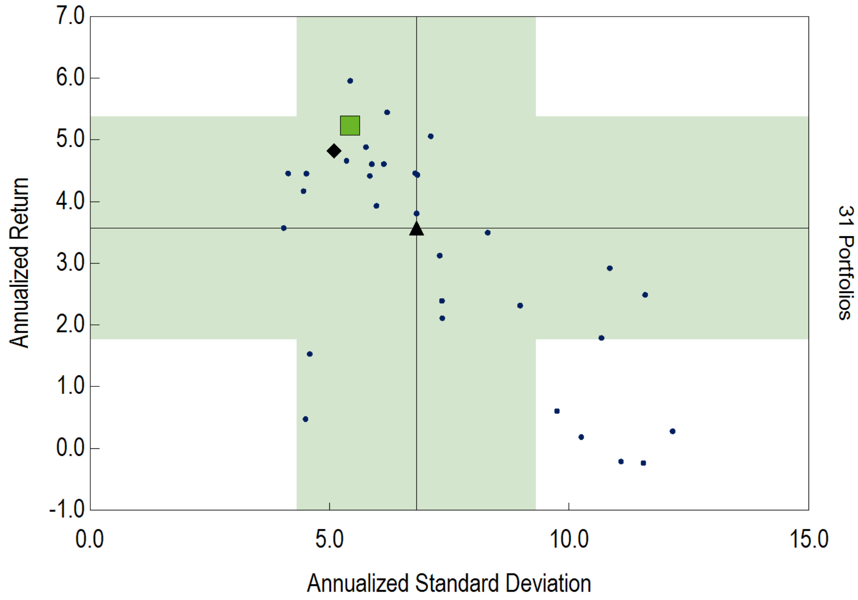


	Return (Rank)									
5th Percentile	5.22		9.96		13.77		11.64		8.67	
25th Percentile	2.20		6.78		9.59		10.34		6.88	
Median	0.02		4.61		7.26		9.54		6.30	
75th Percentile	-0.77		3.26		5.38		7.56		5.30	
95th Percentile	-1.47		2.00		3.85		5.29		3.72	
# of Portfolios	41		41		41		41		37	
● Prudential Emerging Markets	-1.80	(99)	3.11	(77)	5.49	(72)	7.82	(70)	5.86	(61)
▲ JP Morgan EMBI Global Diversified	-1.74	(99)	2.01	(95)	4.30	(92)	6.58	(85)	5.78	(65)

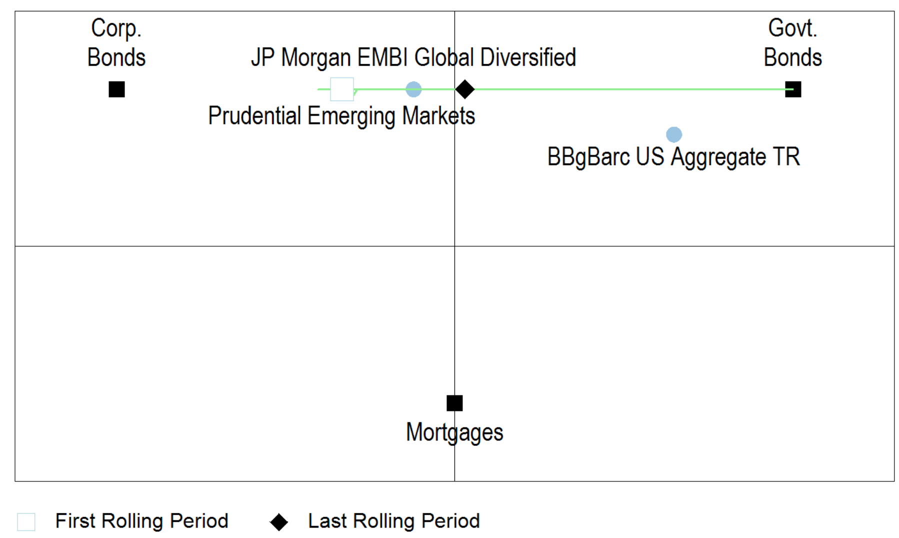
Los Angeles City Employees' Retirement System

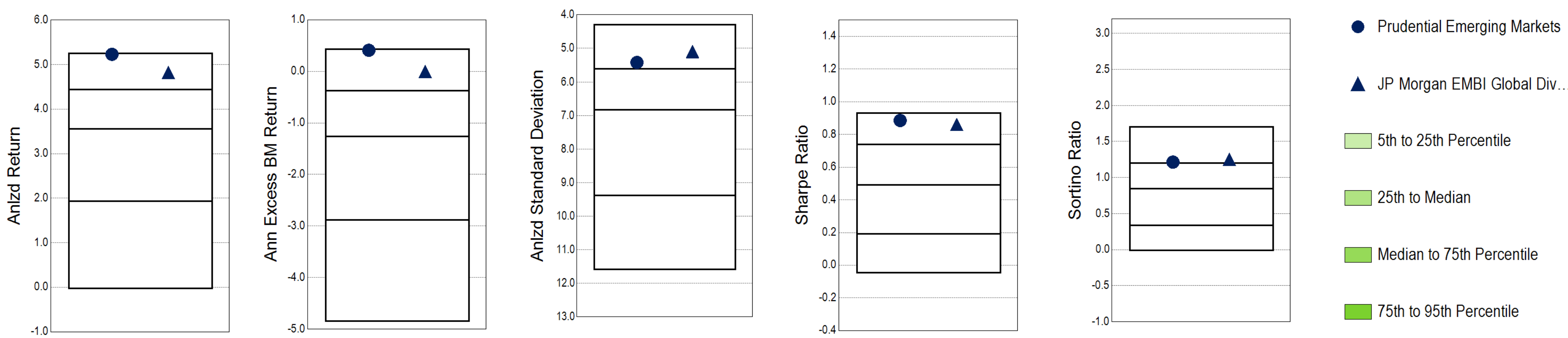
PRUDENTIAL EMERGING MARKETS

Since Inception Risk Return

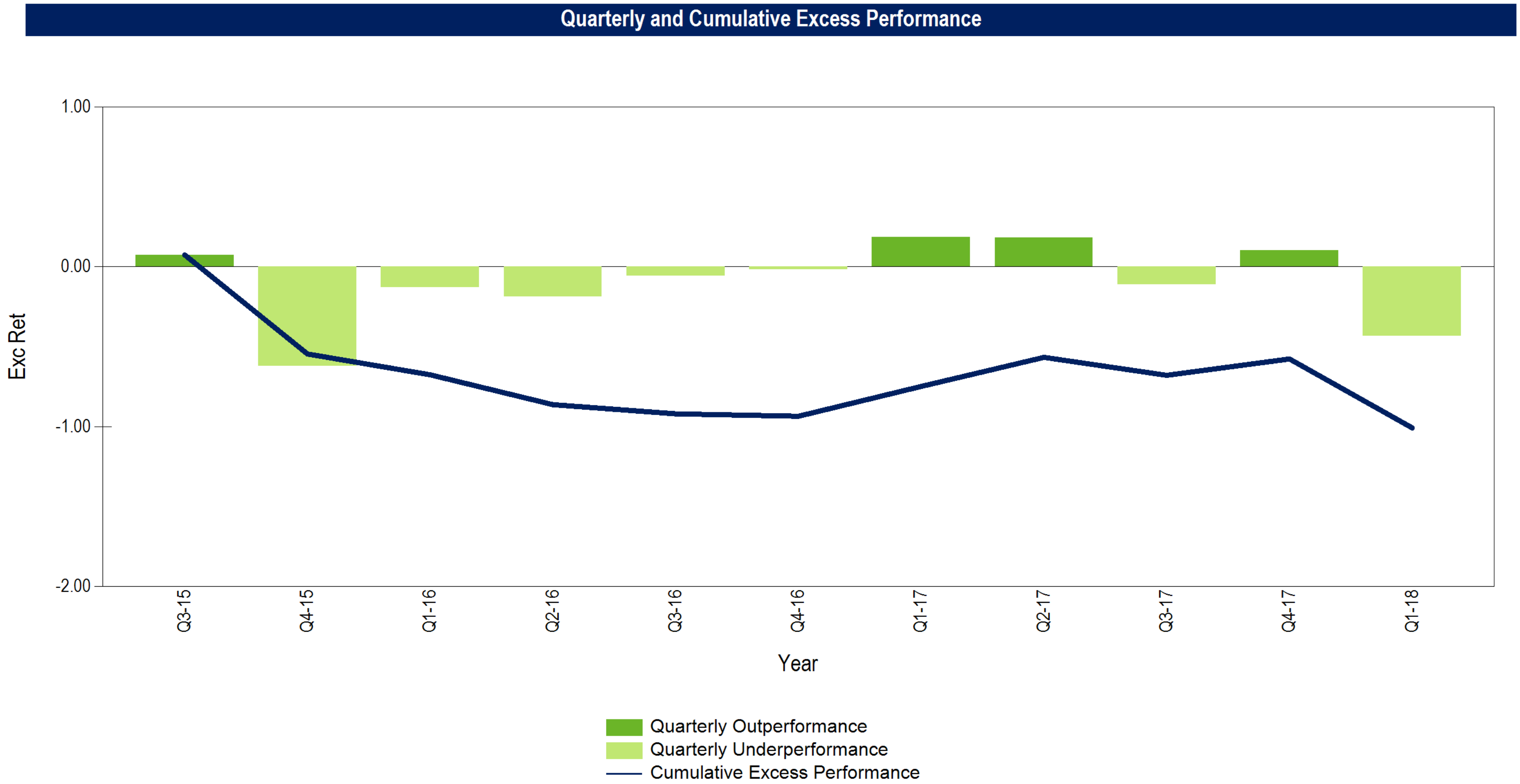


Since Inception Style Map





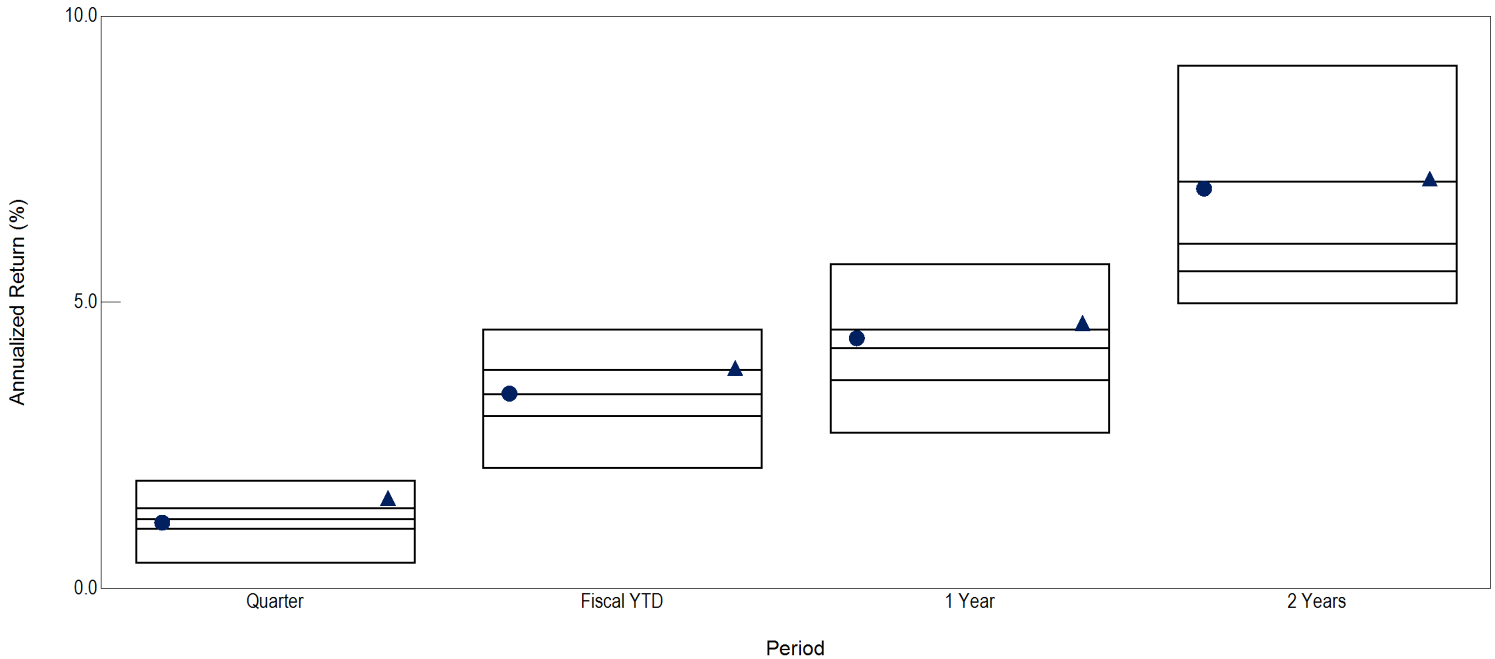
BAIN CAPITAL SENIOR LOAN FUND, LP



Los Angeles City Employees' Retirement System

BAIN CAPITAL SENIOR LOAN FUND, LP

Bain Capital Senior Loan Fund, LP vs. eV US Float-Rate Bank Loan Fixed Inc Net

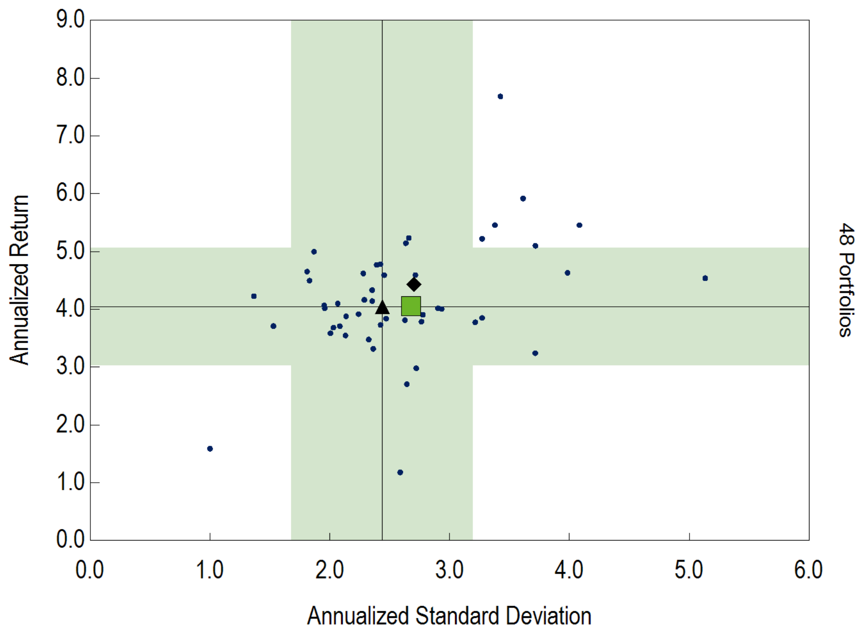


	Quarter Return	Quarter (Rank)	Fiscal YTD Return	Fiscal YTD (Rank)	1 Year Return	1 Year (Rank)	2 Years Return	2 Years (Rank)
5th Percentile	1.88		4.52		5.66		9.13	
25th Percentile	1.41		3.83		4.54		7.12	
Median	1.23		3.40		4.21		6.04	
75th Percentile	1.06		3.02		3.66		5.56	
95th Percentile	0.46		2.12		2.74		4.99	
# of Portfolios	50		50		49		49	
● **Bain Capital Senior Loan Fund, LP**	1.15	(64)	3.41	(50)	4.37	(31)	6.99	(28)
▲ **Credit Suisse Leveraged Loans**	1.58	(13)	3.86	(25)	4.64	(23)	7.16	(25)

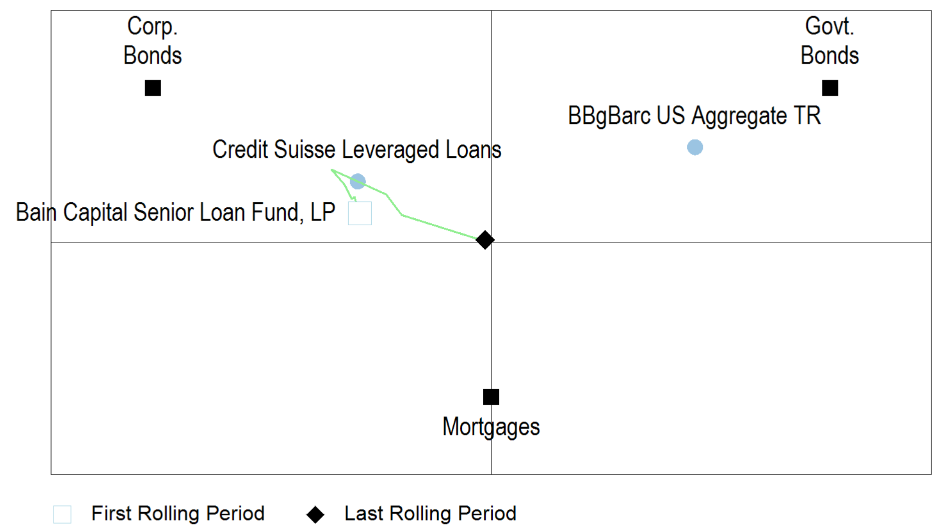
Los Angeles City Employees' Retirement System

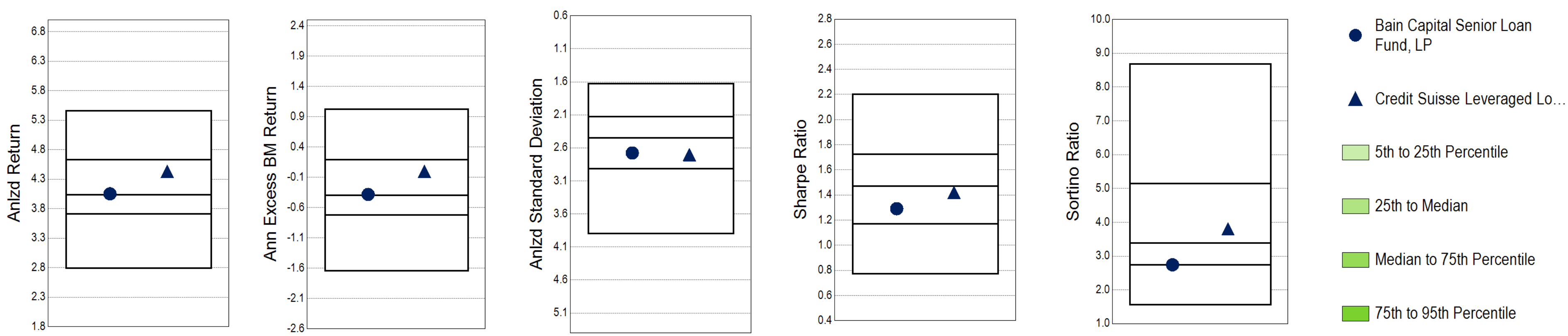
BAIN CAPITAL SENIOR LOAN FUND, LP

Since Inception Risk Return



Since Inception Style Map





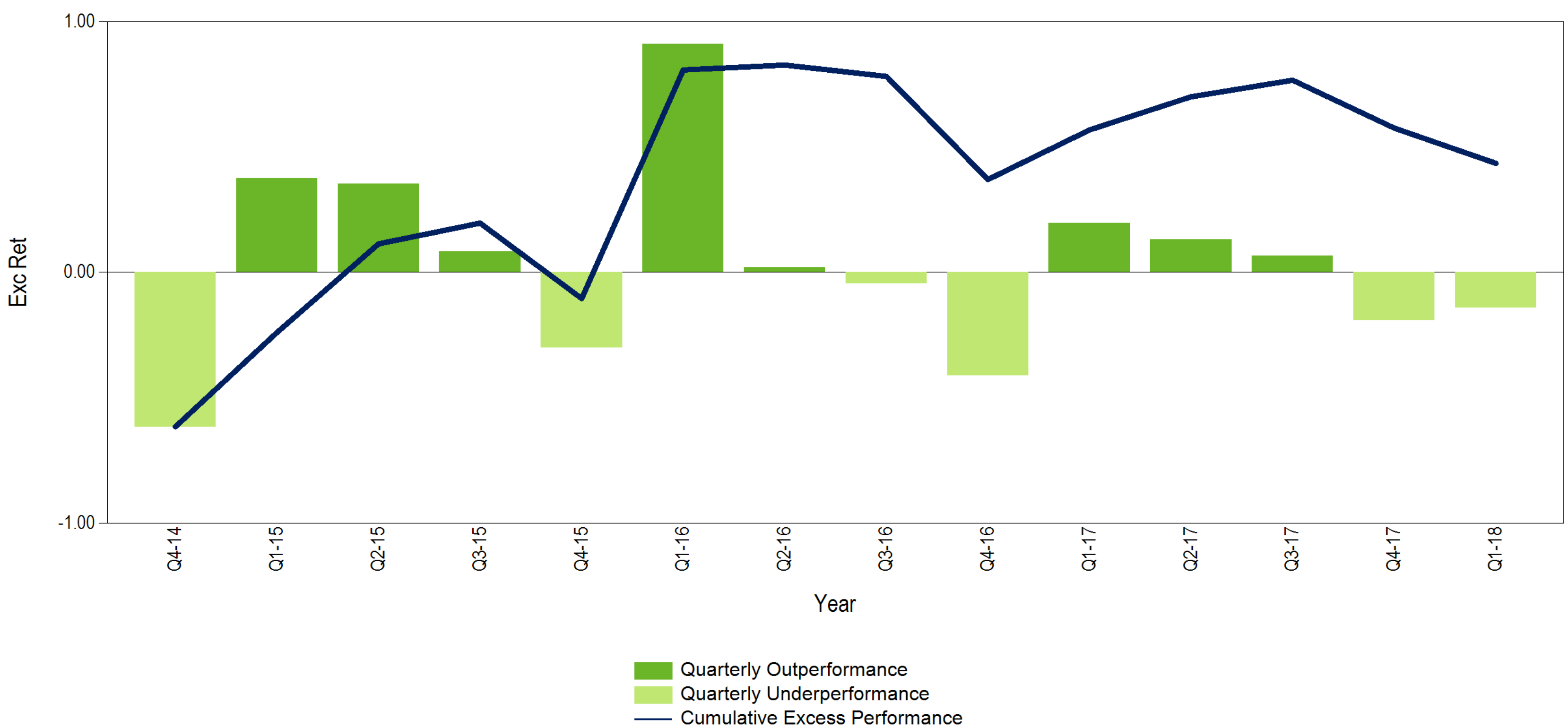
REAL ASSETS MANAGER PERFORMANCE

NEPC, LLC

Los Angeles City Employees' Retirement System

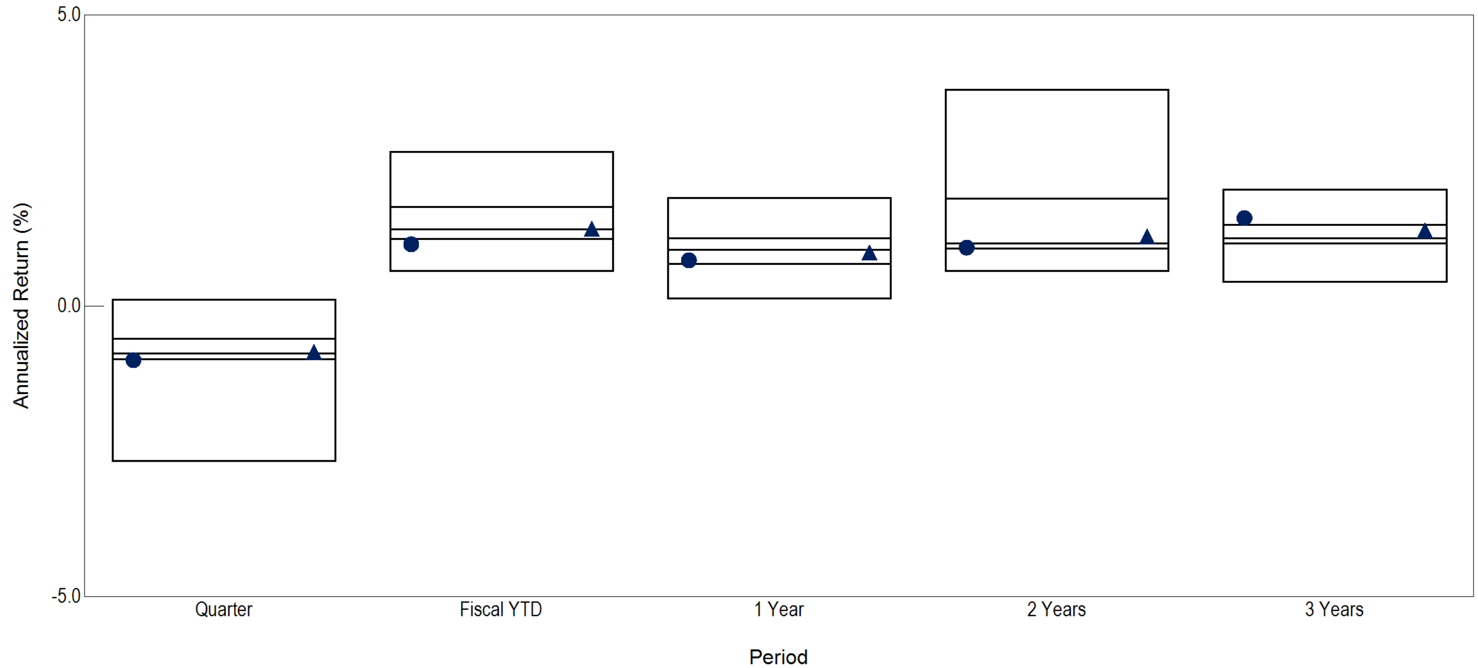
DFA US TIPS

Quarterly and Cumulative Excess Performance



DFA US TIPS

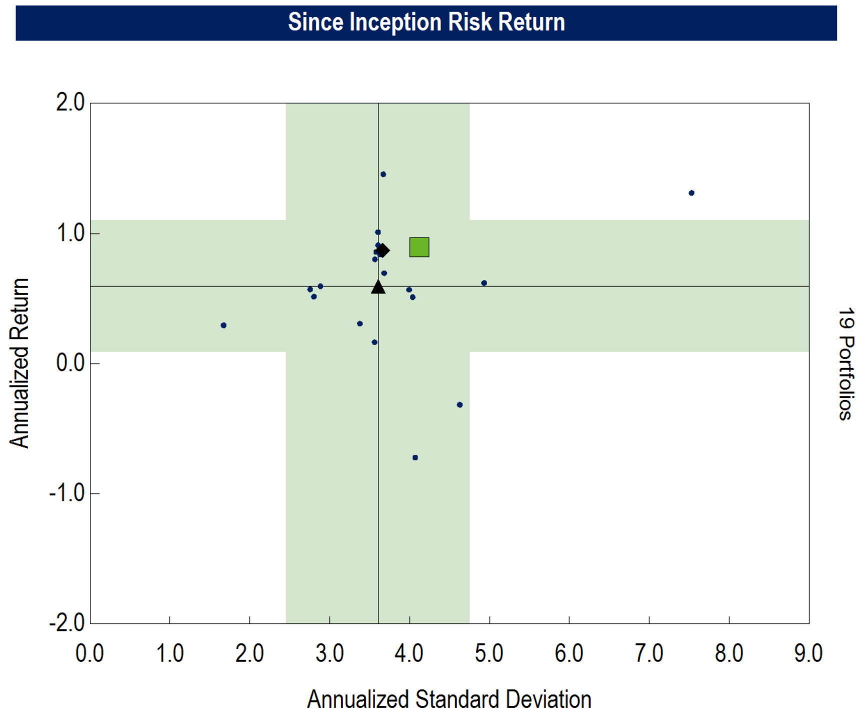
DFA US TIPS vs. eV US TIPS / Inflation Fixed Inc Net

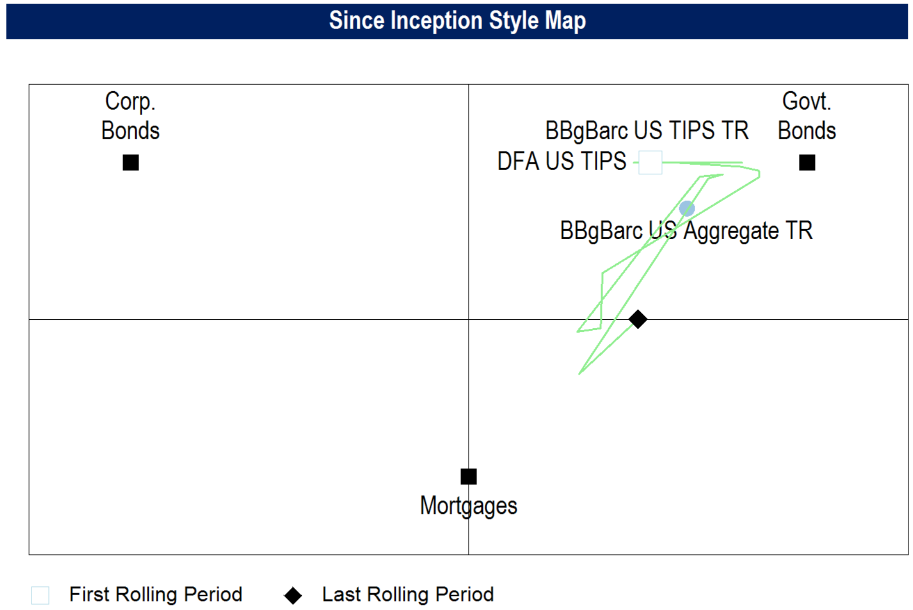


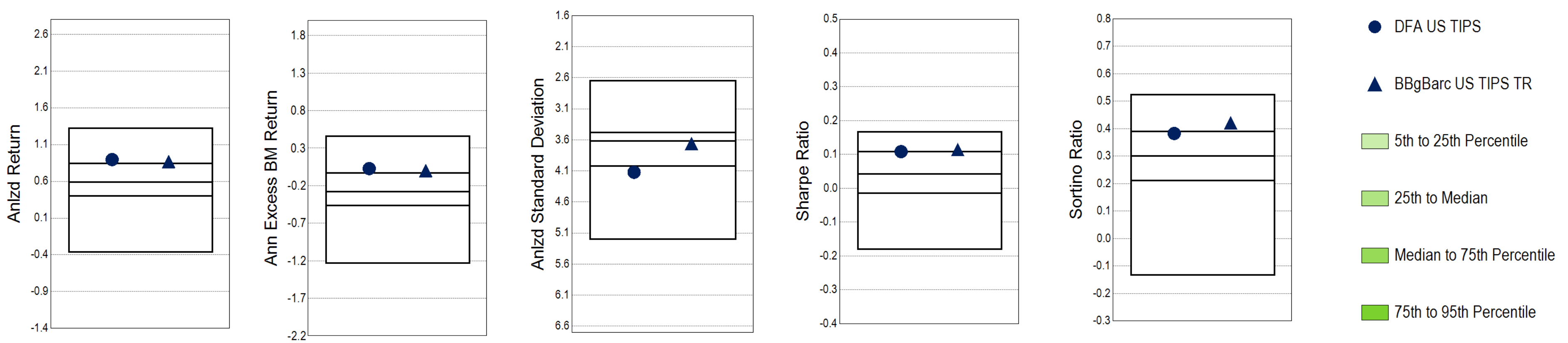
Return (Rank)	Quarter		Fiscal YTD		1 Year		2 Years		3 Years	
5th Percentile	0.11		2.64		1.86		3.72		2.00	
25th Percentile	-0.55		1.72		1.18		1.86		1.41	
Median	-0.80		1.33		0.98		1.09		1.17	
75th Percentile	-0.90		1.17		0.73		1.00		1.08	
95th Percentile	-2.66		0.61		0.14		0.61		0.43	
# of Portfolios	21		21		21		21		20	
● DFA US TIPS	-0.93	(86)	1.06	(77)	0.79	(68)	1.00	(75)	1.51	(22)
▲ BBgBarc US TIPS TR	-0.79	(49)	1.33	(51)	0.92	(53)	1.20	(43)	1.30	(34)

Los Angeles City Employees' Retirement System

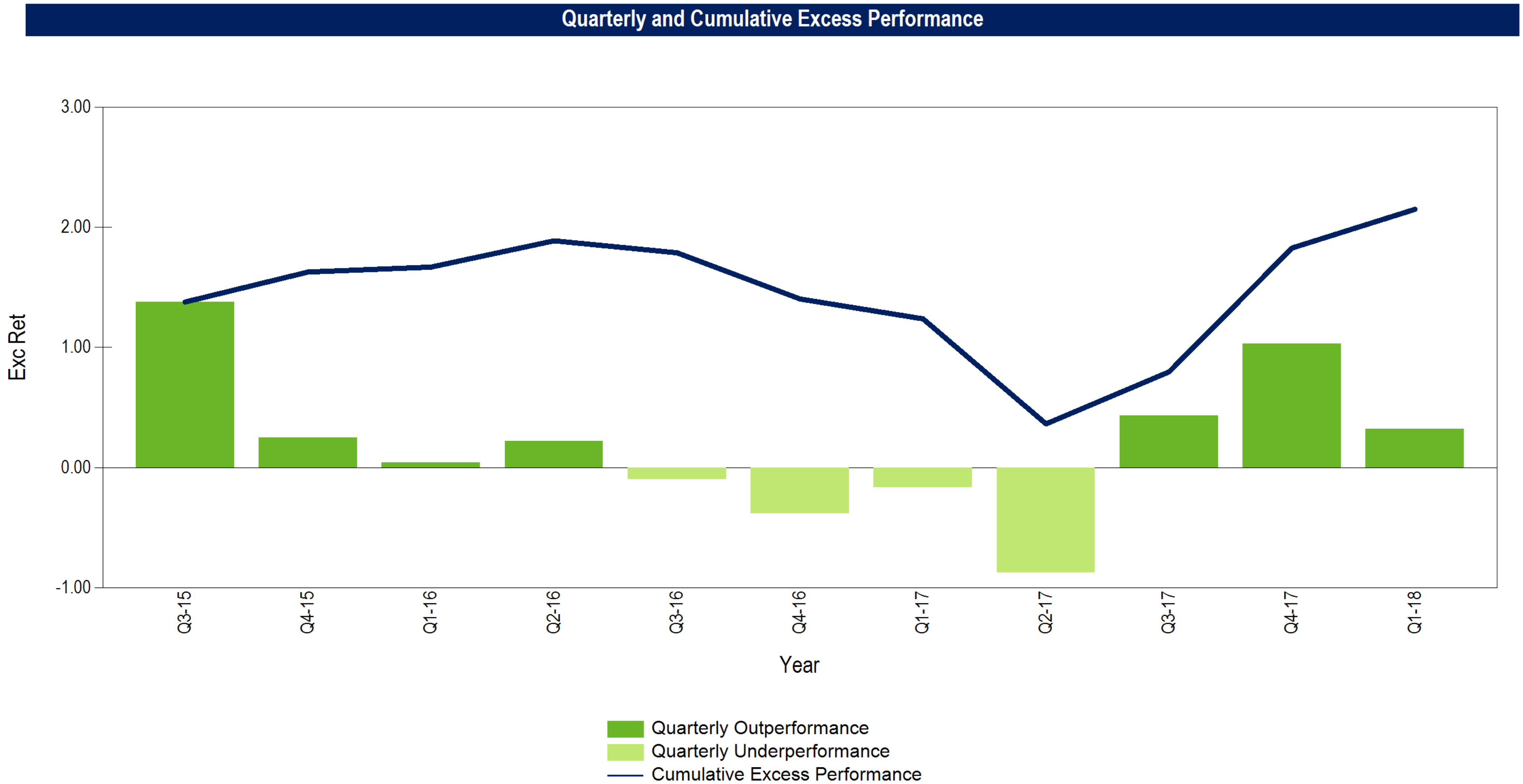
DFA US TIPS





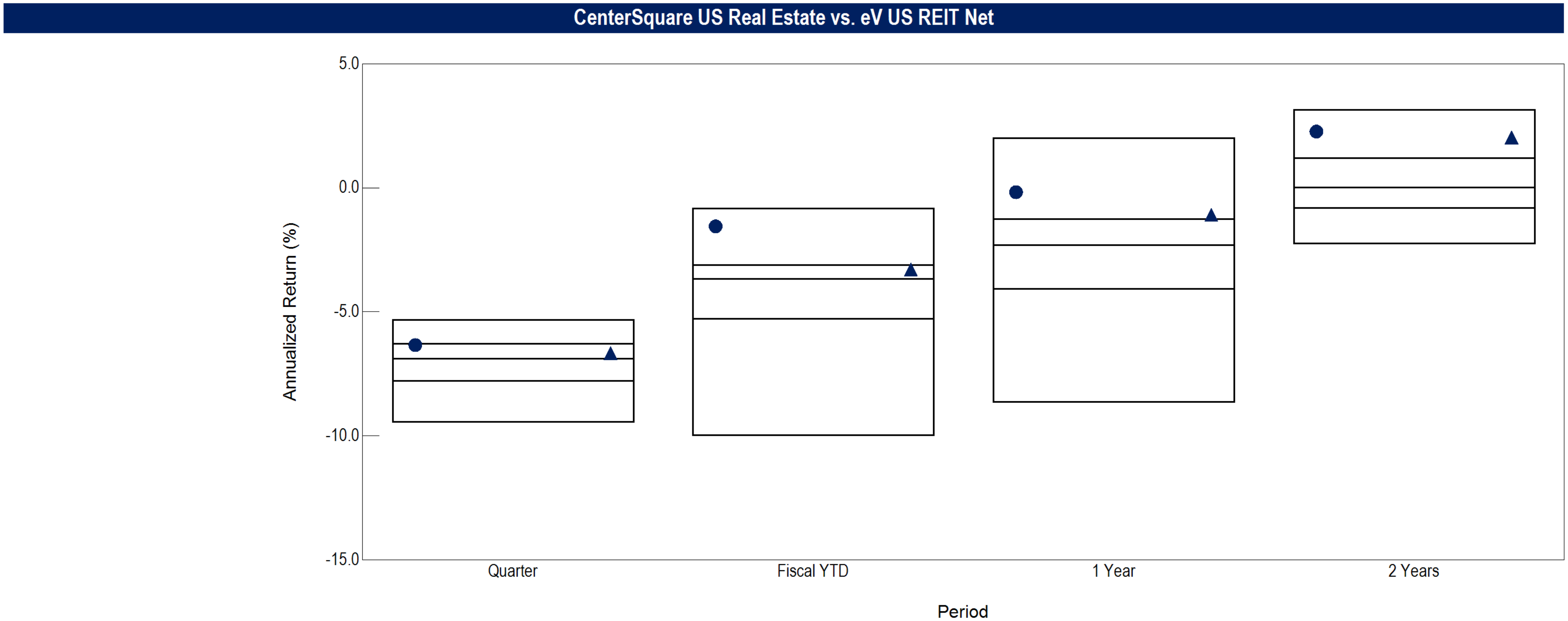


CENTERSQUARE US REAL ESTATE



Los Angeles City Employees' Retirement System

CENTERSQUARE US REAL ESTATE

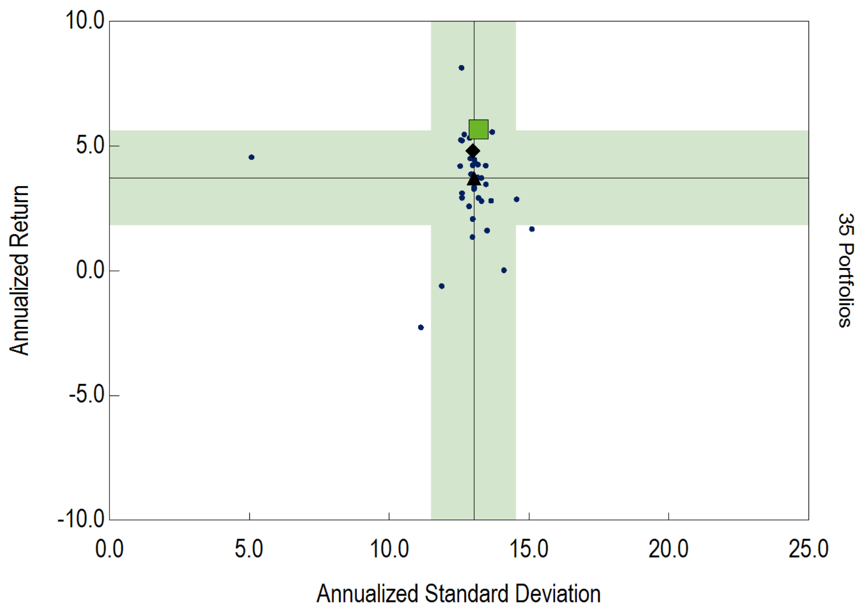


	Return (Rank)							
5th Percentile	-5.32		-0.84		2.01		3.13	
25th Percentile	-6.27		-3.09		-1.23		1.21	
Median	-6.87		-3.64		-2.30		0.03	
75th Percentile	-7.76		-5.26		-4.06		-0.79	
95th Percentile	-9.41		-9.95		-8.60		-2.23	
# of Portfolios	36		36		36		35	
● CenterSquare US Real Estate	-6.34	(26)	-1.56	(10)	-0.18	(16)	2.27	(15)
▲ FTSE NAREIT All Equity REIT	-6.66	(42)	-3.29	(31)	-1.09	(23)	2.03	(17)

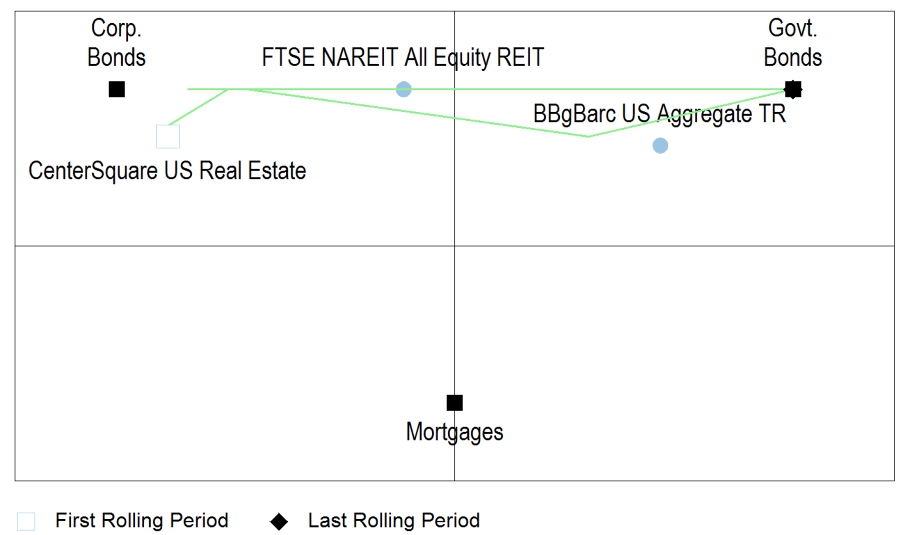
Los Angeles City Employees' Retirement System

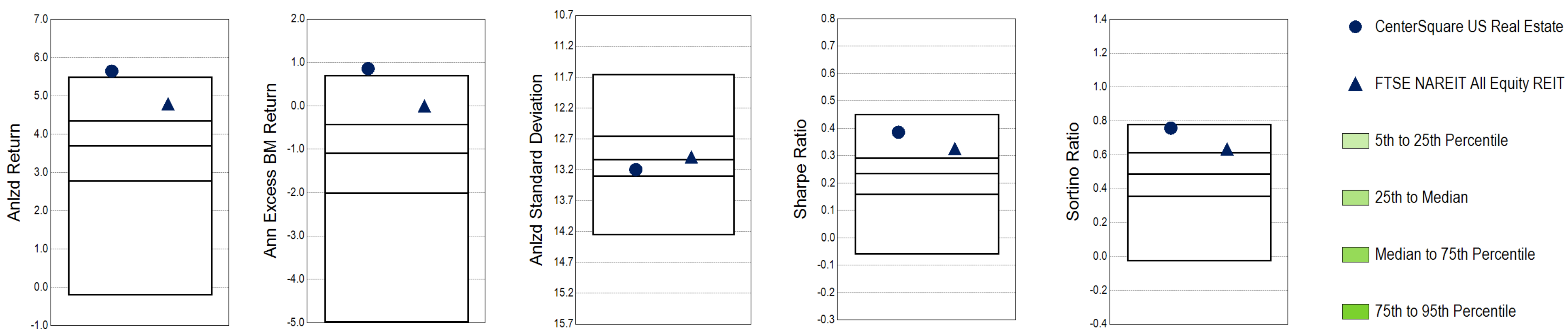
CENTERSQUARE US REAL ESTATE

Since Inception Risk Return



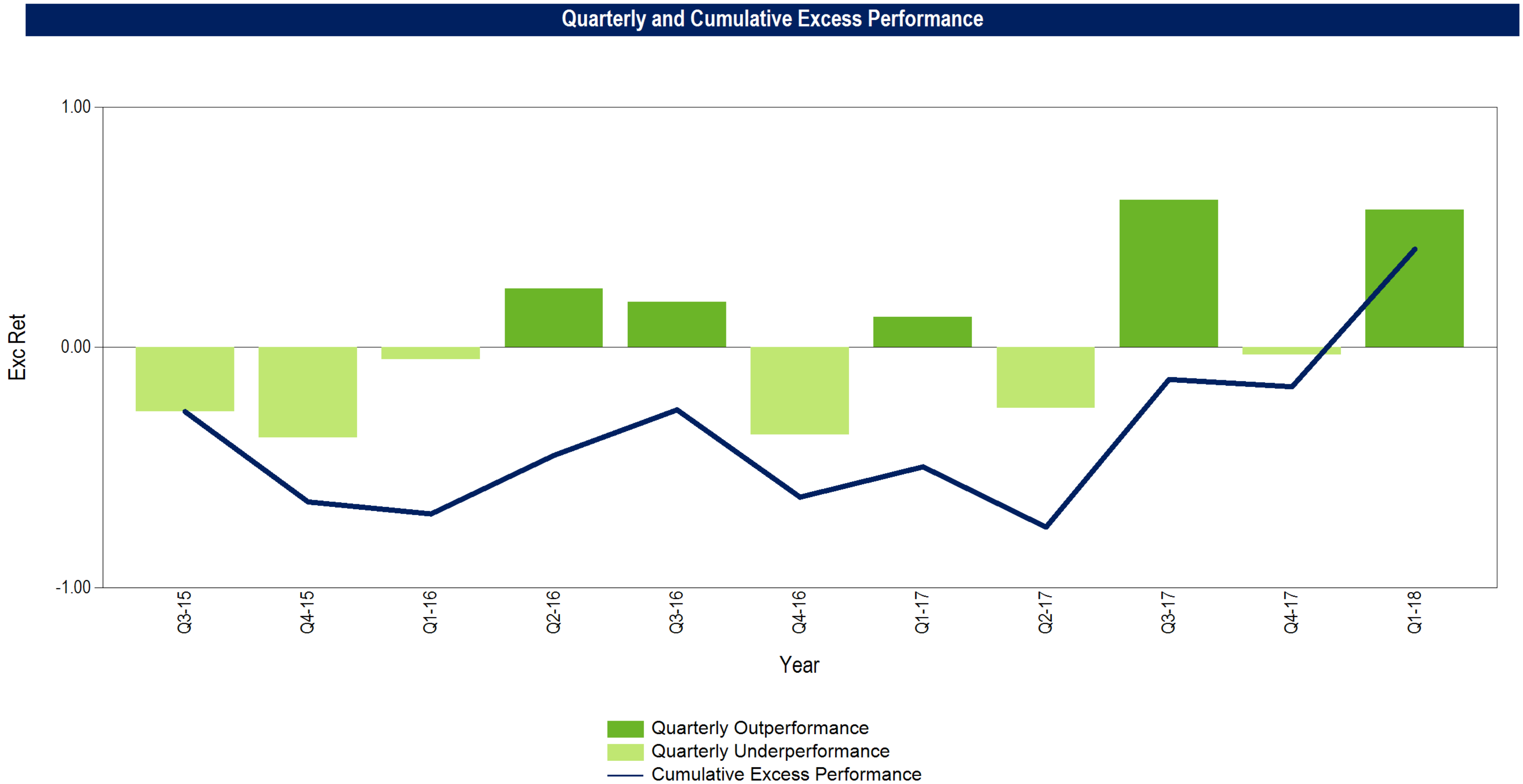
Since Inception Style Map





Los Angeles City Employees' Retirement System

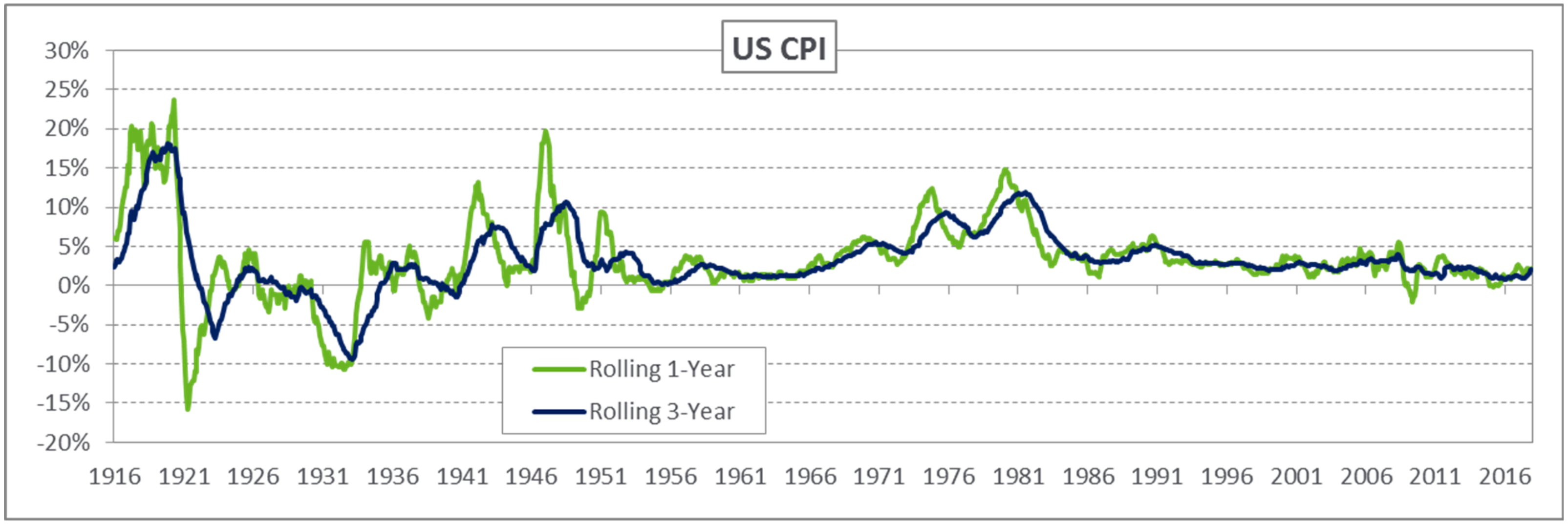
CORE COMMODITY MGMT



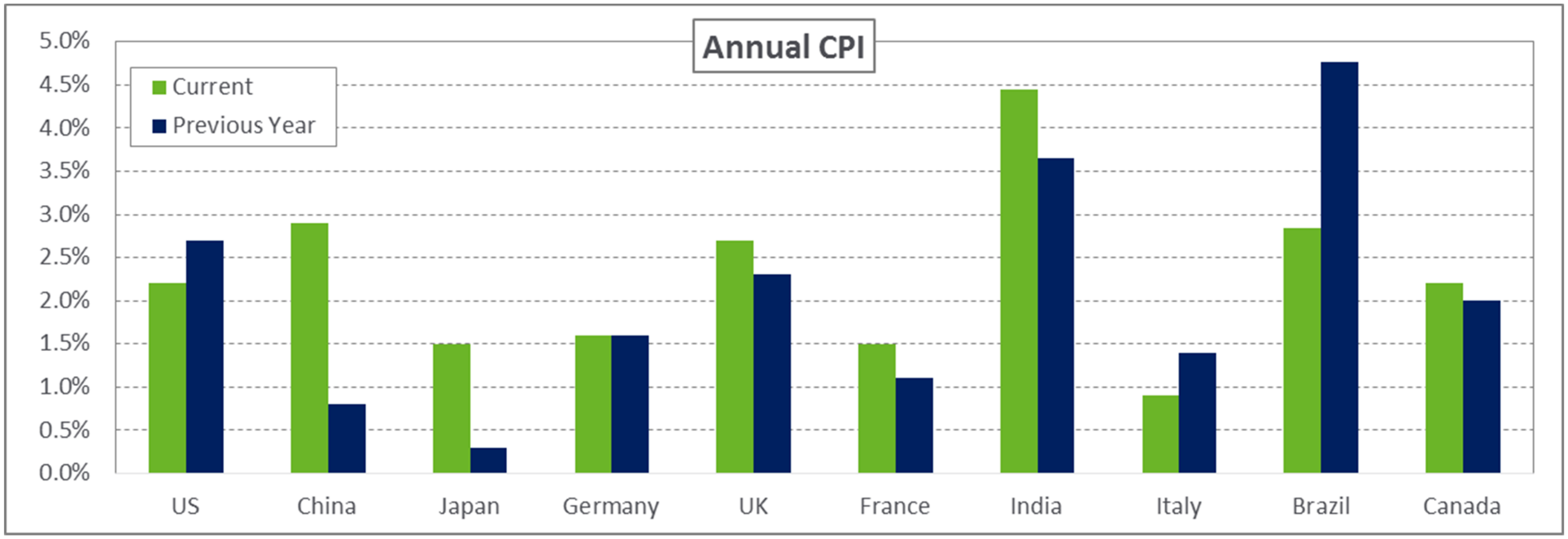
MARKET ENVIRONMENT

MACRO

INFLATION

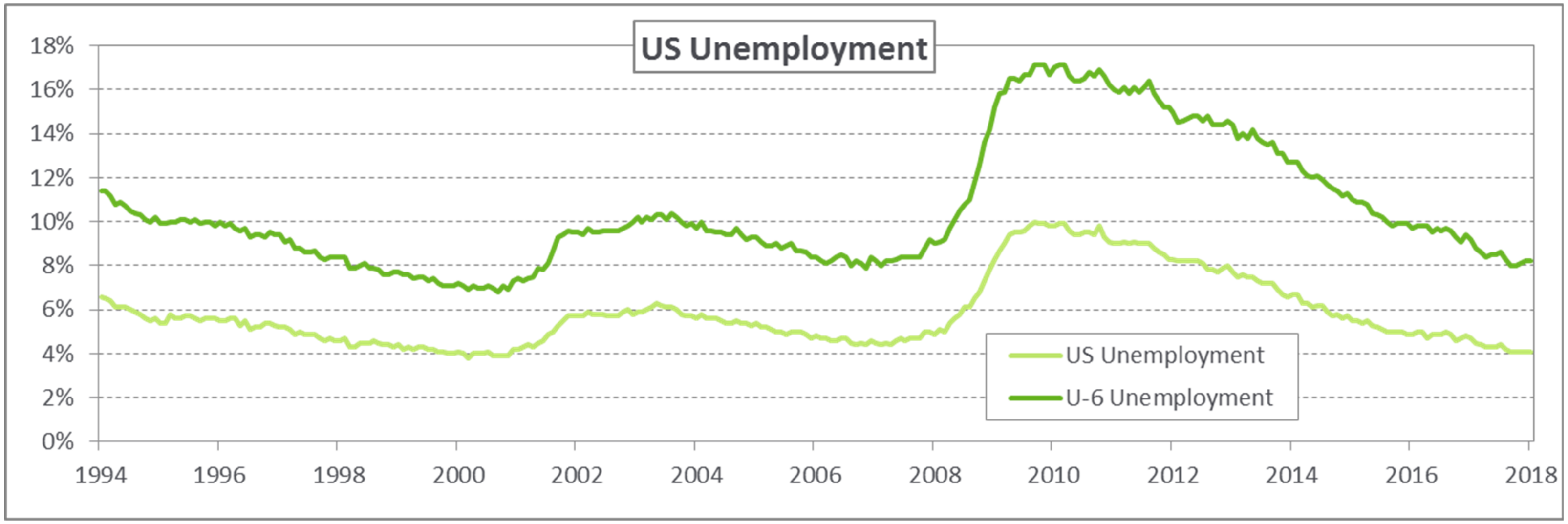


Source: Bureau of Labor Statistics, Bloomberg, NEPC

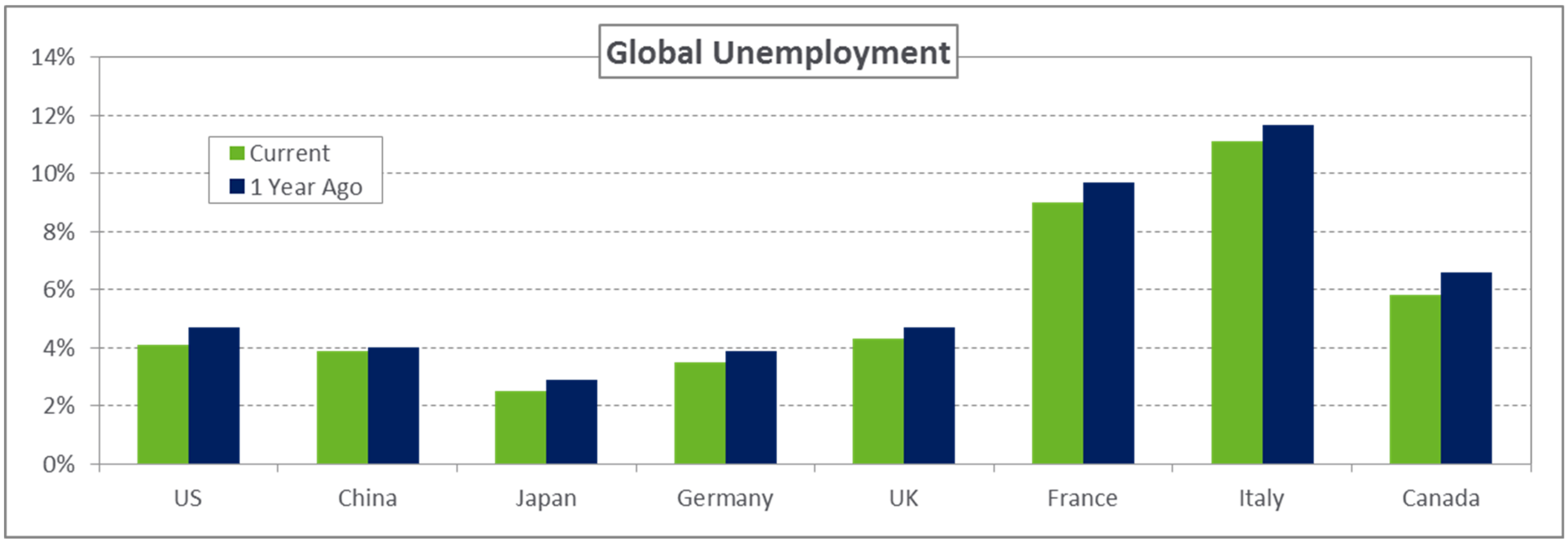


Source: Bureau of Labor Statistics, National Bureau of Statistics of China, Ministry of Internal Affairs and Communications (Japan), German Federal Statistics Office, UK Office for National Statistics, National Statistics Office of France, India Central Statistical Organization, ISTAT, IBGE, STCA, Bloomberg

UNEMPLOYMENT

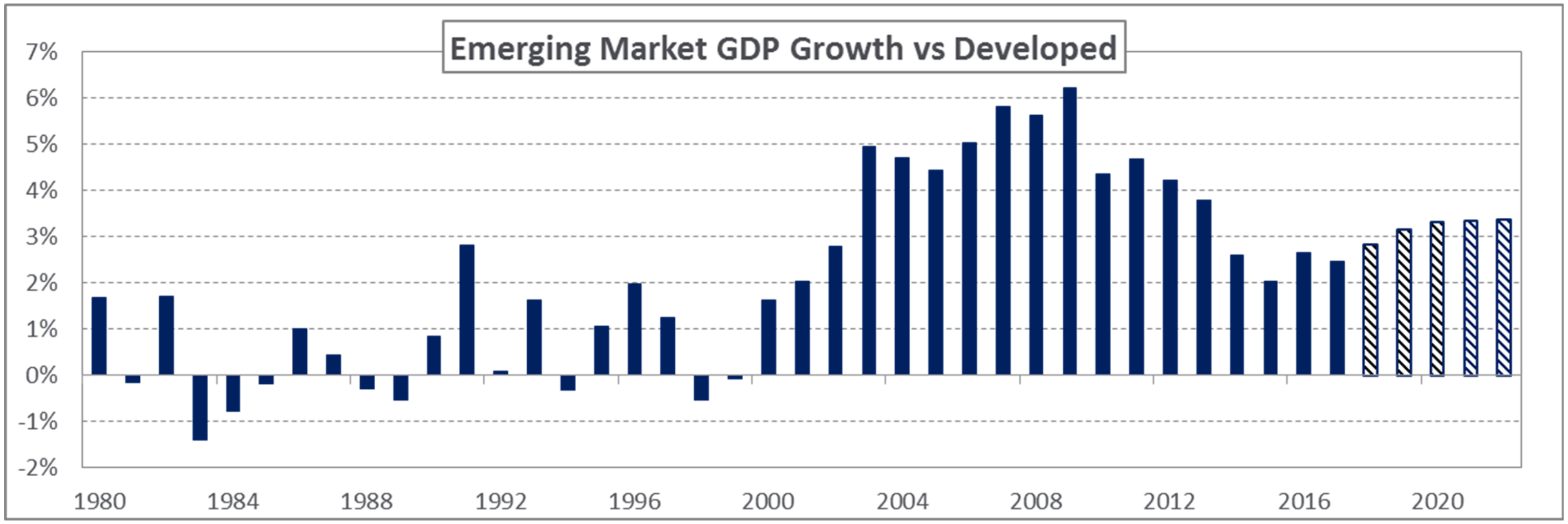


Source: Bureau of Labor Statistics, Bloomberg

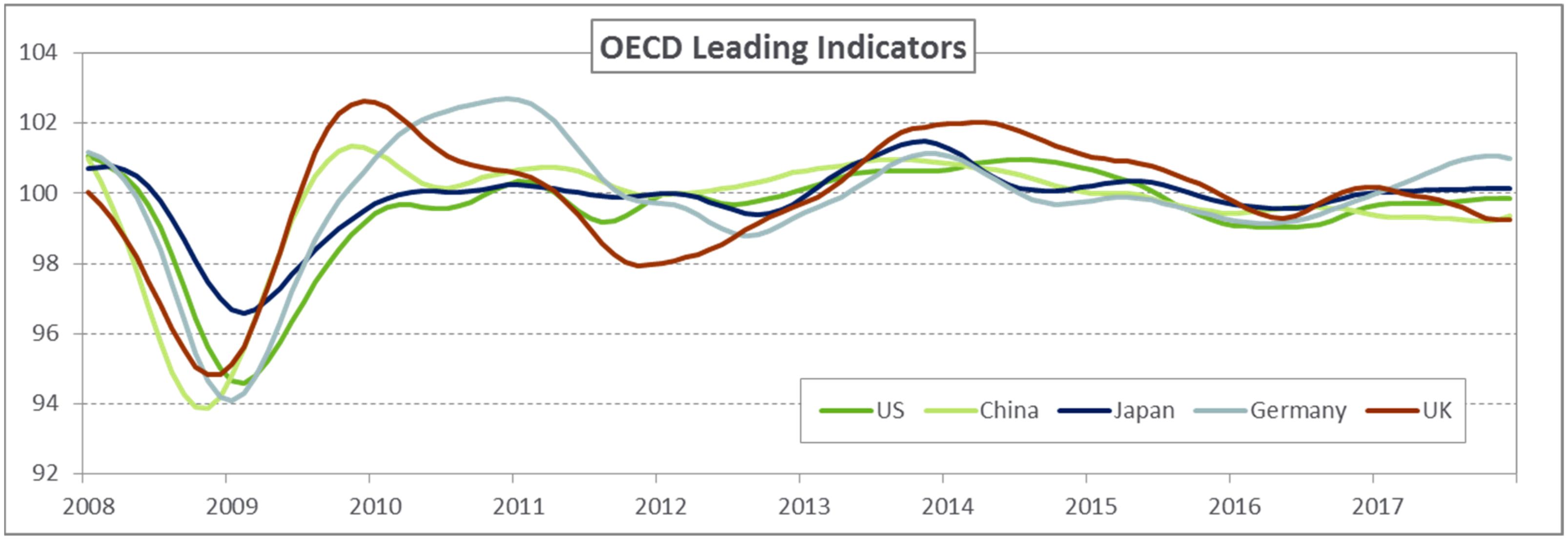


Source: Bureau of Labor Statistics, STA, National Bureau of Statistics of China, Ministry of Internal Affairs and Communications (Japan), German Federal Statistics Office, UK Office for National Statistics, National Statistics Office of France, ISTAT, IBGE, Bloomberg

ECONOMIC INDICATORS



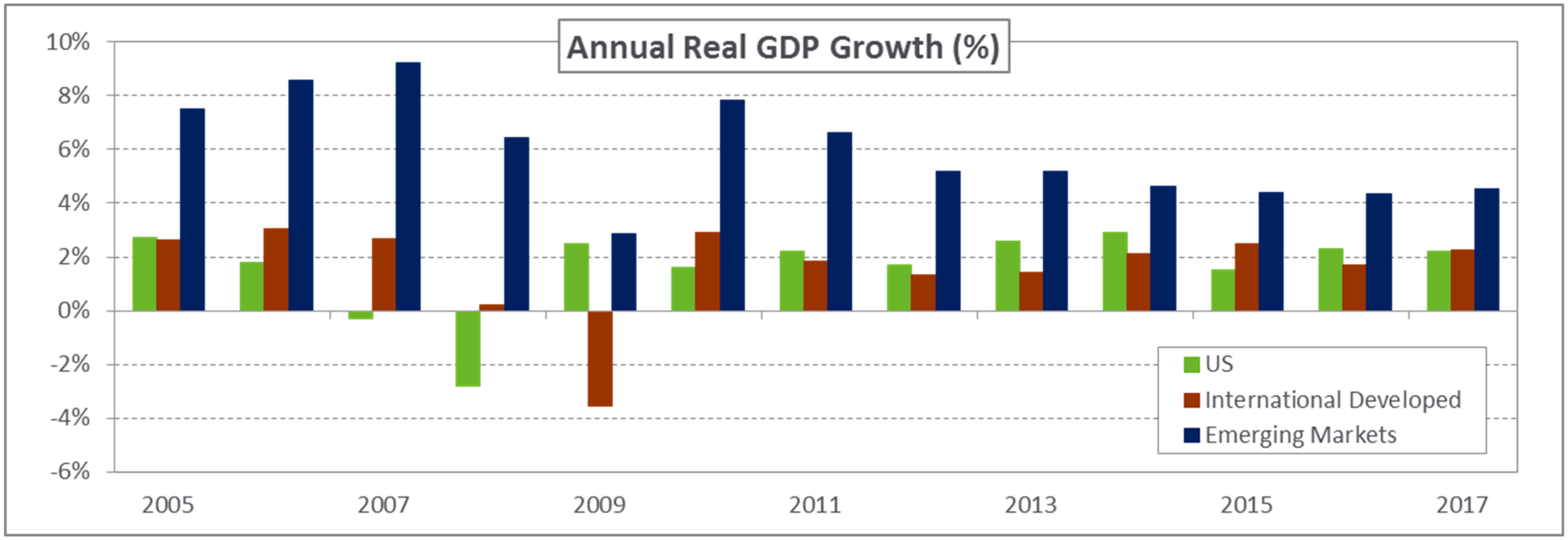
Source: IMF



Source: OECD, Bloomberg

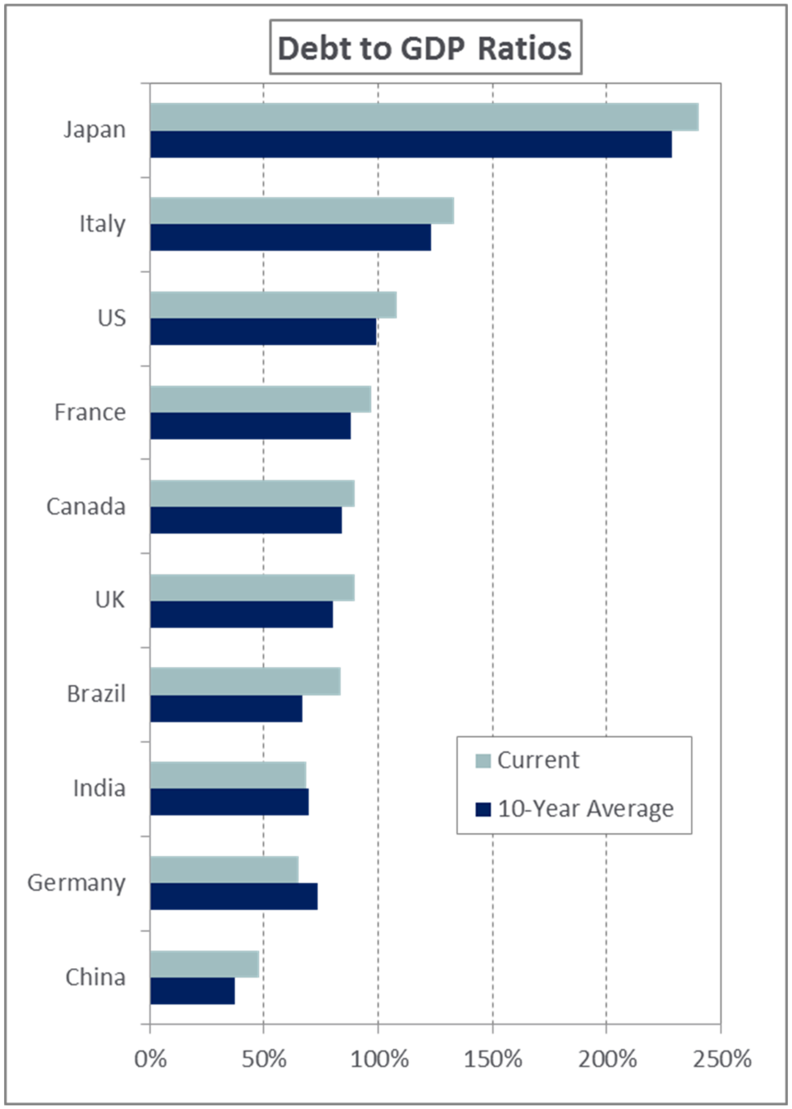
GROSS DOMESTIC PRODUCT

Source: Bloomberg

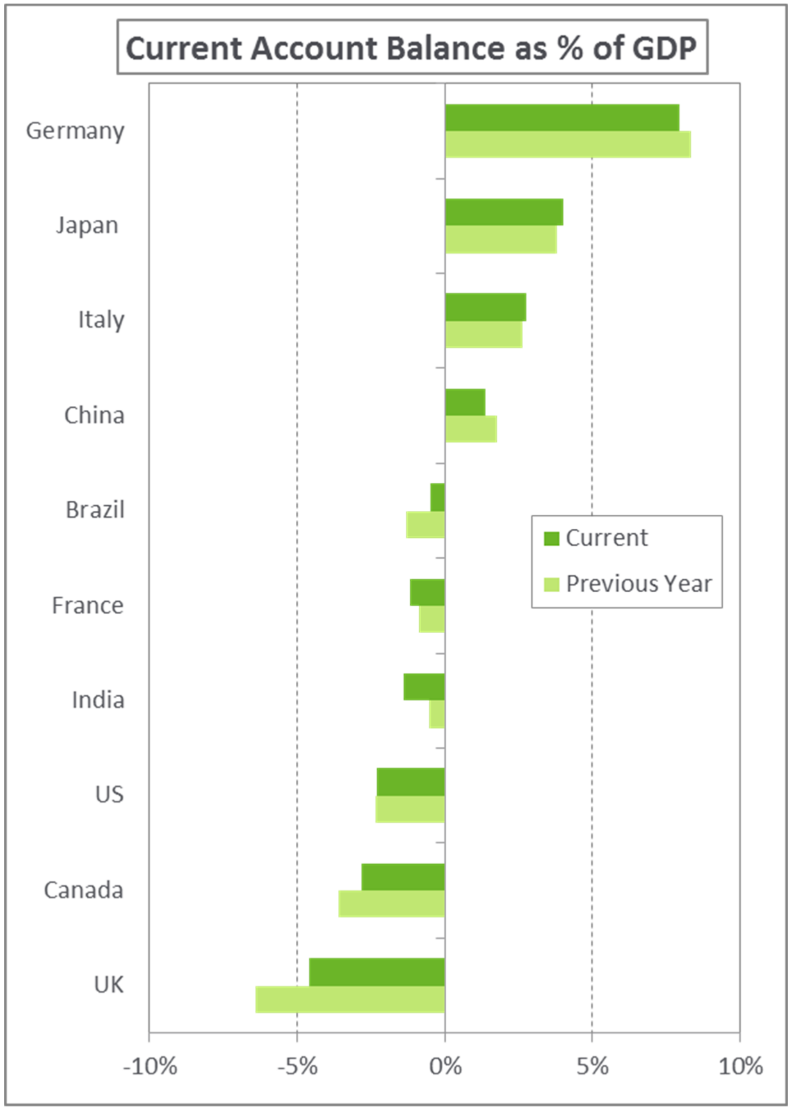


Source: Bloomberg

GROSS DOMESTIC PRODUCT METRICS

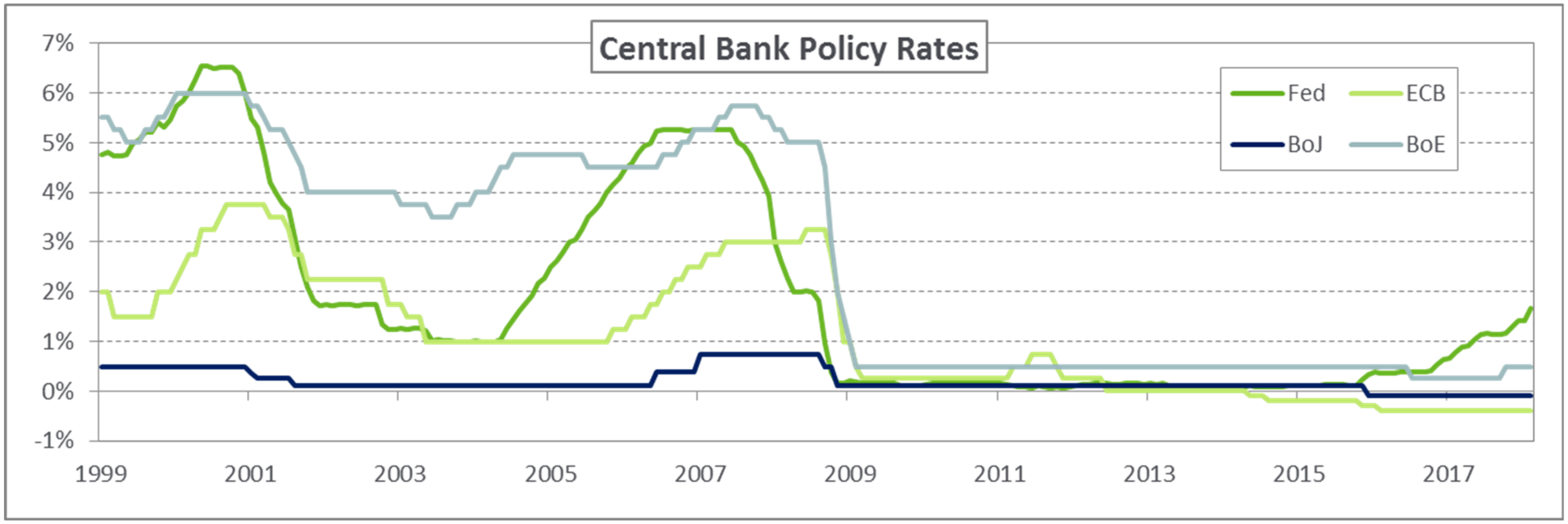


Source: IMF, Bloomberg

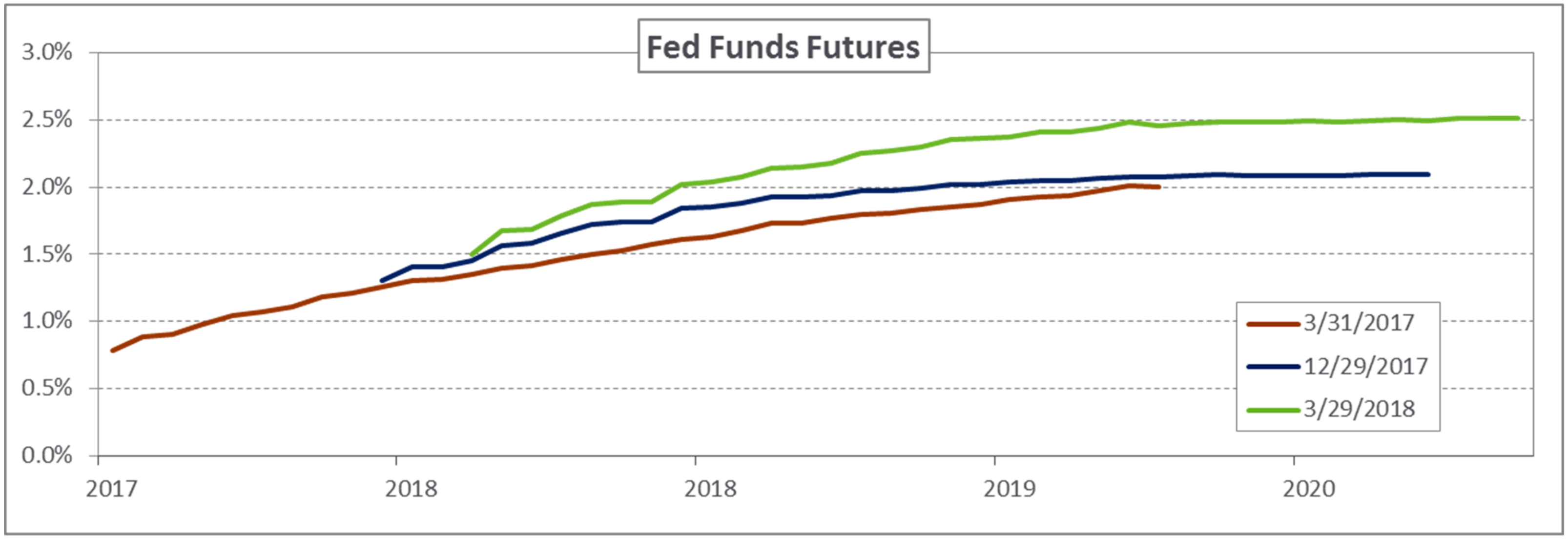


Source: Bloomberg

CENTRAL BANK RATES

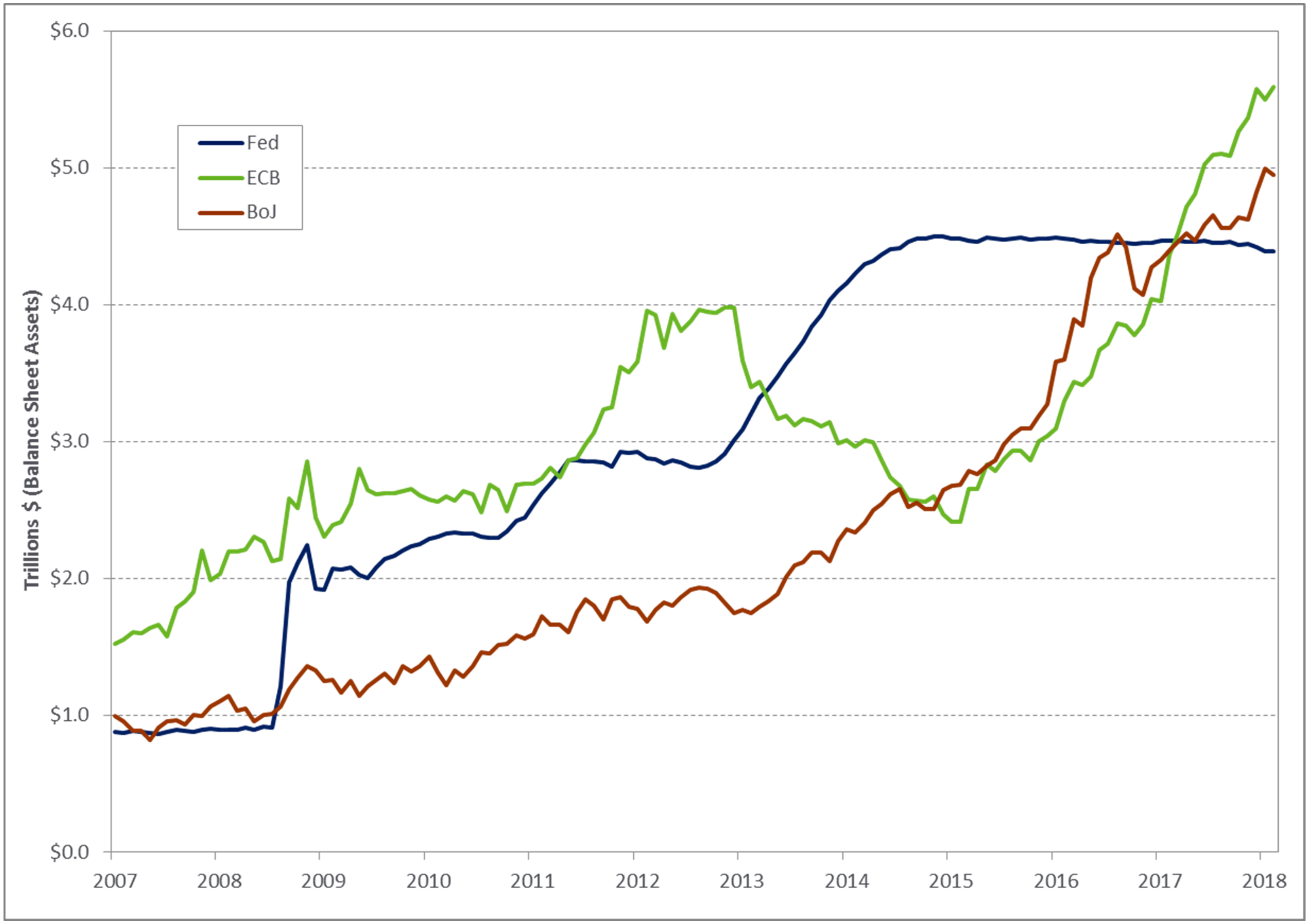


Source: Federal Reserve, ECB, Bank of Japan, Bank of England, Bloomberg



Source: Bloomberg

CENTRAL BANK BALANCE SHEETS

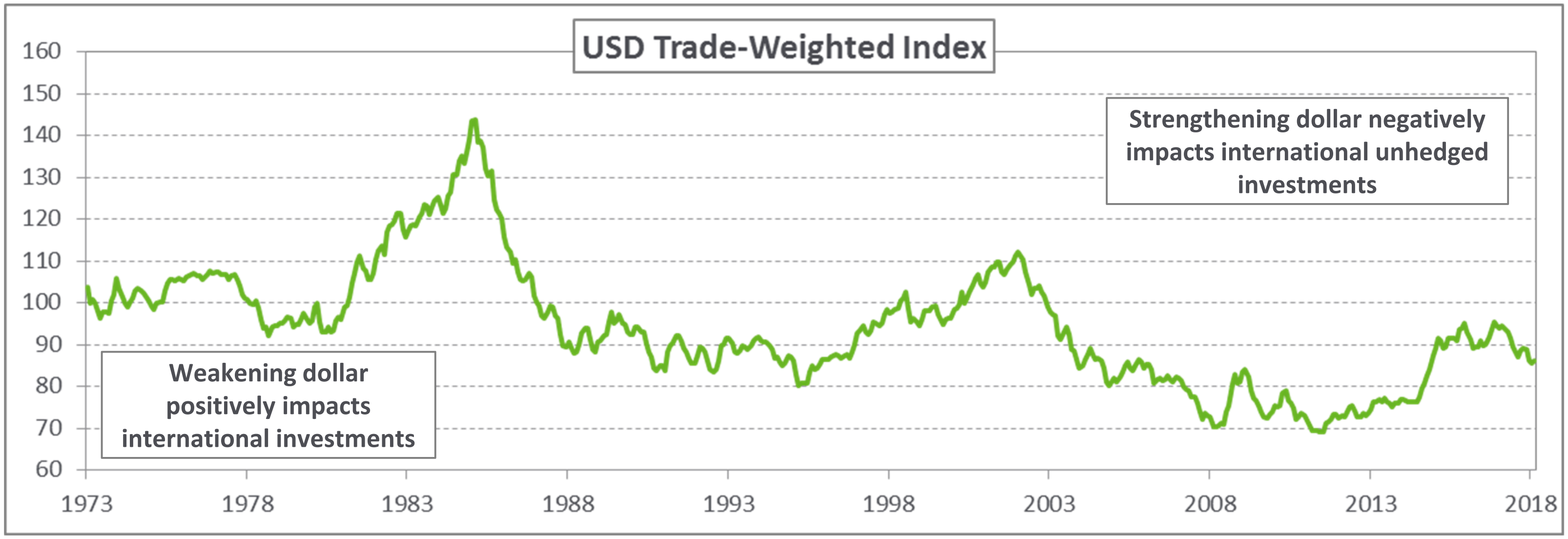


Source: Federal Reserve, Bank of Japan, ECB, Bloomberg, NEPC

CURRENCIES

		% Change Relative to USD		
Currencies	**Spot**	**1 Month**	**YTD**	**1 Year**
Euro	1.23	1.1%	2.7%	15.7%
British Pound	1.40	1.9%	3.7%	11.7%
Japanese Yen	106.28	0.4%	6.0%	4.8%
Swiss Franc	0.95	-1.0%	2.1%	5.1%
Australian Dollar	0.77	-1.1%	-1.7%	0.7%
Chinese Yuan	6.29	0.6%	3.4%	9.3%
Brazilian Real	3.31	-2.0%	0.2%	-5.6%
Russian Ruble	57.34	-1.7%	0.6%	-1.9%
Indian Rupee	65.08	0.3%	-1.9%	-0.4%
Mexican Peso	18.18	3.6%	8.1%	3.0%
South African Rand	11.84	-0.4%	4.5%	13.4%

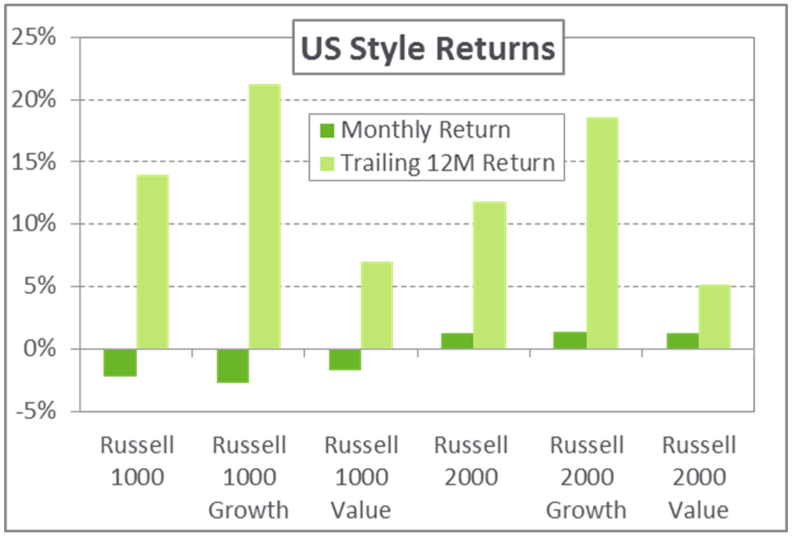
Source: Bloomberg



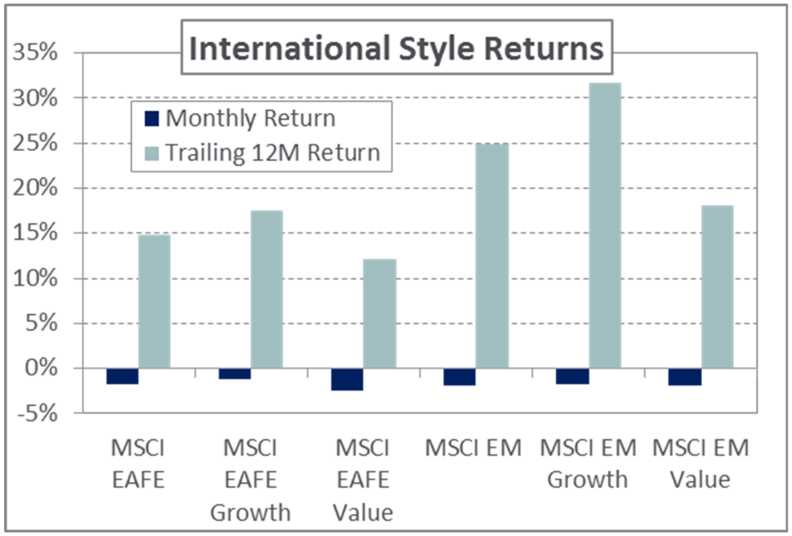
Source: Bloomberg

EQUITY

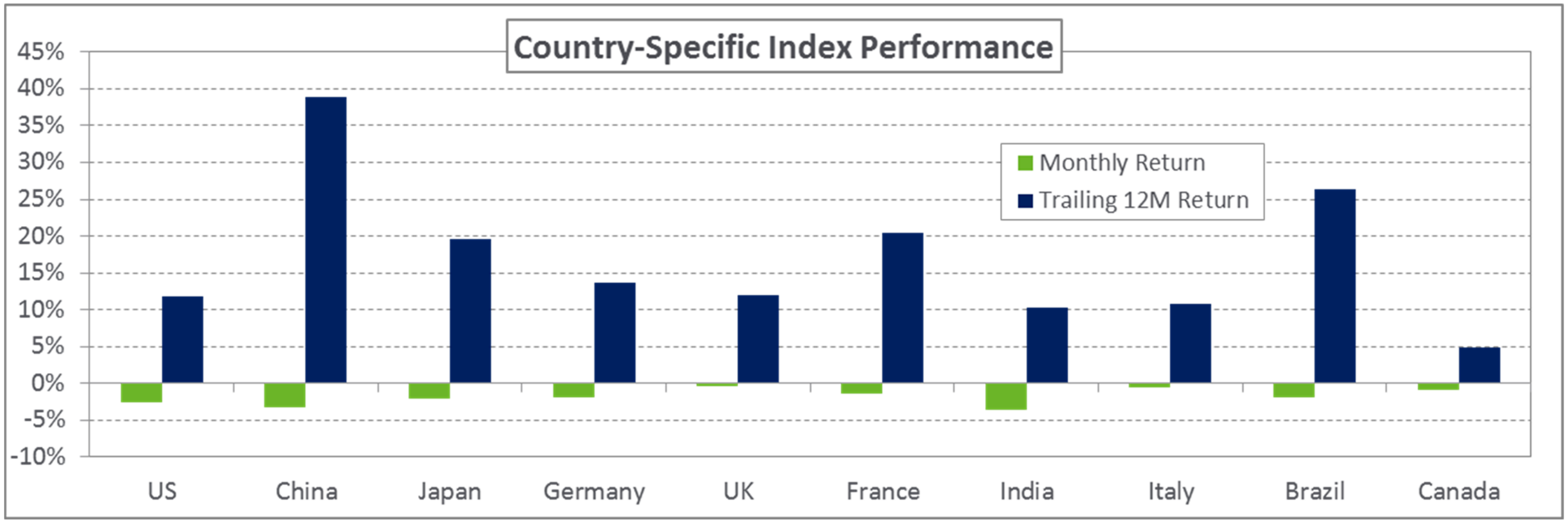
EQUITY INDEX PERFORMANCE



Source: Russell, Bloomberg



Source: MSCI, Bloomberg



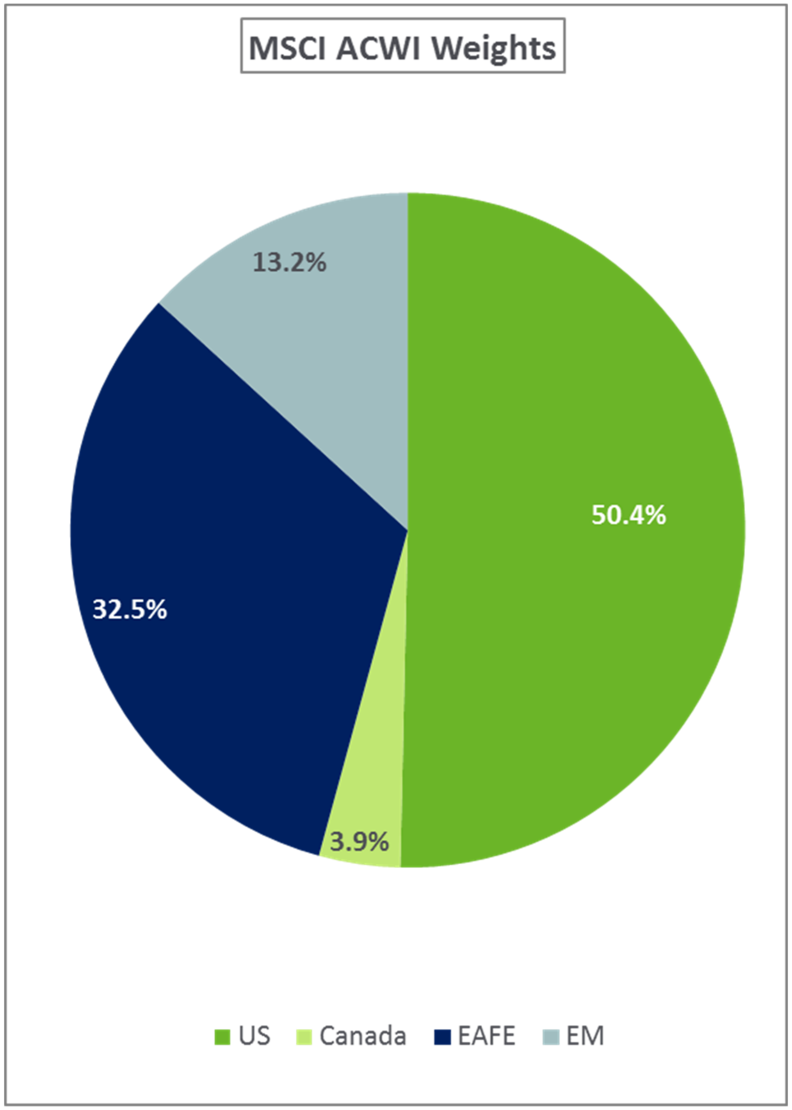
Source: MSCI, Bloomberg
Represents returns in USD

INDEX COMPOSITION

	MTD	QTD	YTD	Index Weight
S&P 500	**-2.5%**	**-0.8%**	**-0.8%**	**100%**
Cons Disc	-2.4%	3.0%	3.0%	12.7%
Cons Staples	-1.0%	-7.3%	-7.3%	7.7%
Energy	1.6%	-6.1%	-6.1%	5.8%
Financials	-4.4%	-1.1%	-1.1%	14.2%
Health Care	-3.1%	-1.3%	-1.3%	13.9%
Industrials	-2.7%	-1.7%	-1.7%	10.3%
Info Tech	-3.9%	3.4%	3.4%	24.8%
Materials	-4.3%	-5.7%	-5.7%	2.9%
Real Estate	3.6%	-5.3%	-5.3%	2.8%
Telecom	-1.0%	-7.8%	-7.8%	2.0%
Utilities	3.7%	-3.6%	-3.6%	2.9%

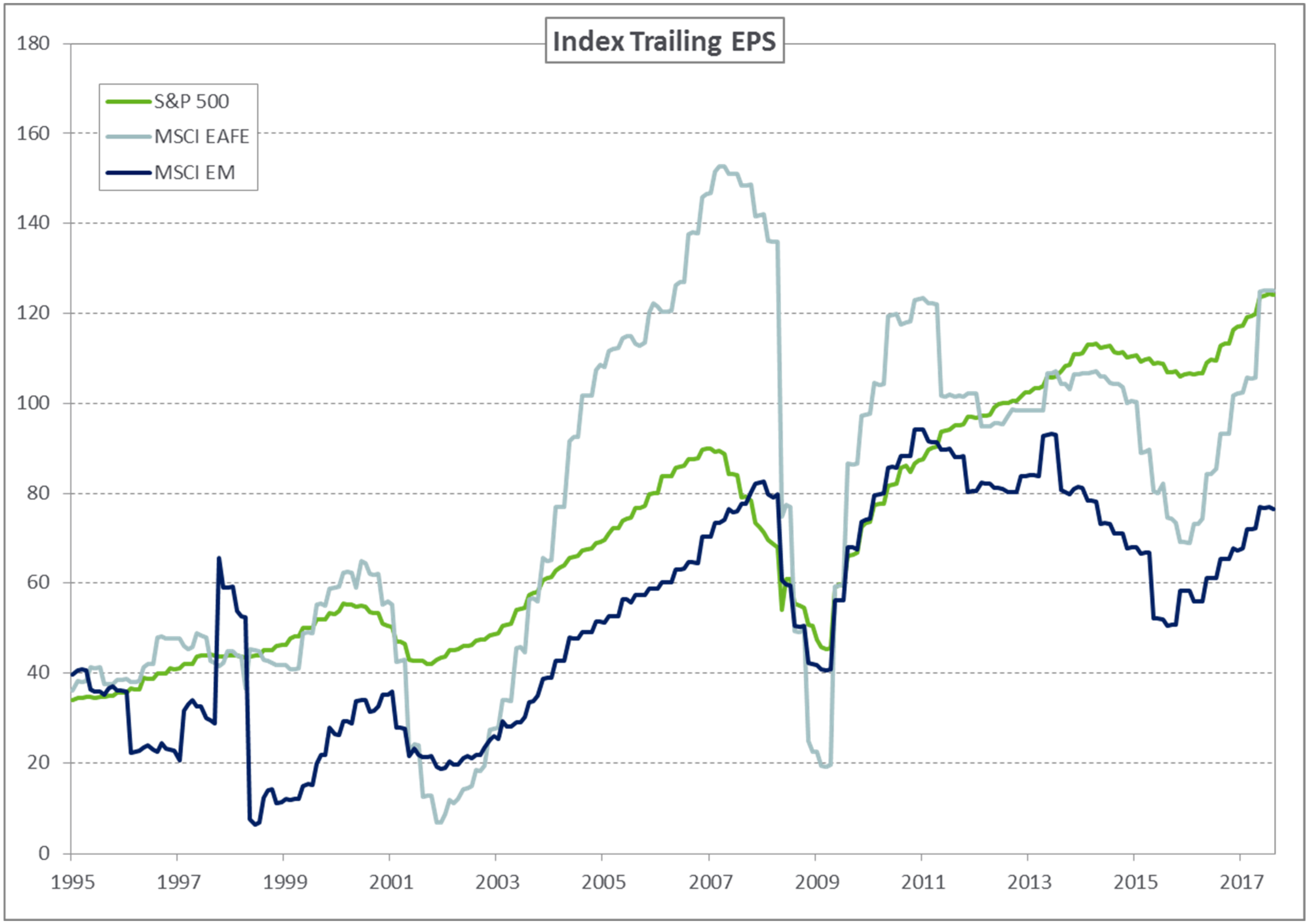
	MTD	QTD	YTD	Index Weight
MSCI ACWI	**-2.1%**	**-0.9%**	**-0.9%**	**100%**
Cons Disc	-2.7%	1.0%	1.0%	12.0%
Cons Staples	0.1%	-4.9%	-4.9%	8.0%
Energy	0.7%	-3.8%	-3.8%	6.3%
Financials	-3.8%	-1.0%	-1.0%	18.5%
Health Care	-2.0%	-1.0%	-1.0%	10.6%
Industrials	-2.4%	-1.6%	-1.6%	11.1%
Info Tech	-3.0%	3.2%	3.2%	18.9%
Materials	-3.6%	-3.7%	-3.7%	5.4%
Real Estate	2.1%	-3.6%	-3.6%	3.2%
Telecom	-1.5%	-5.4%	-5.4%	3.1%
Utilities	3.8%	-1.3%	-1.3%	2.9%

Source: S&P, MSCI, Bloomberg



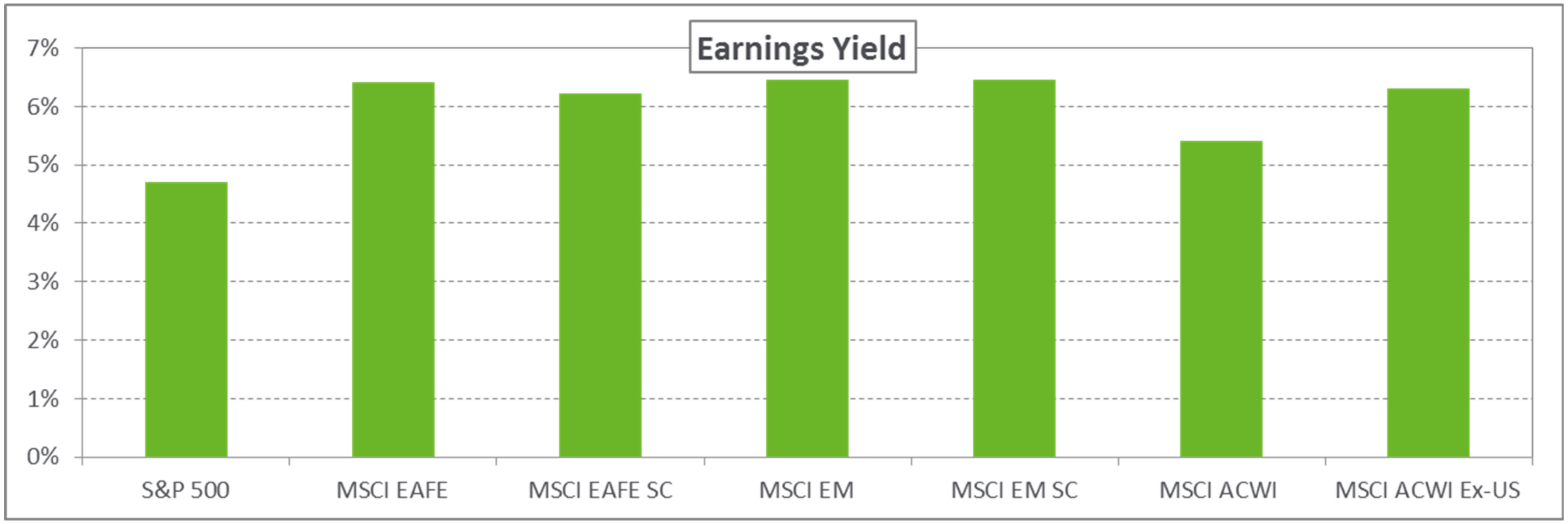
Source: MSCI, Bloomberg

EARNINGS

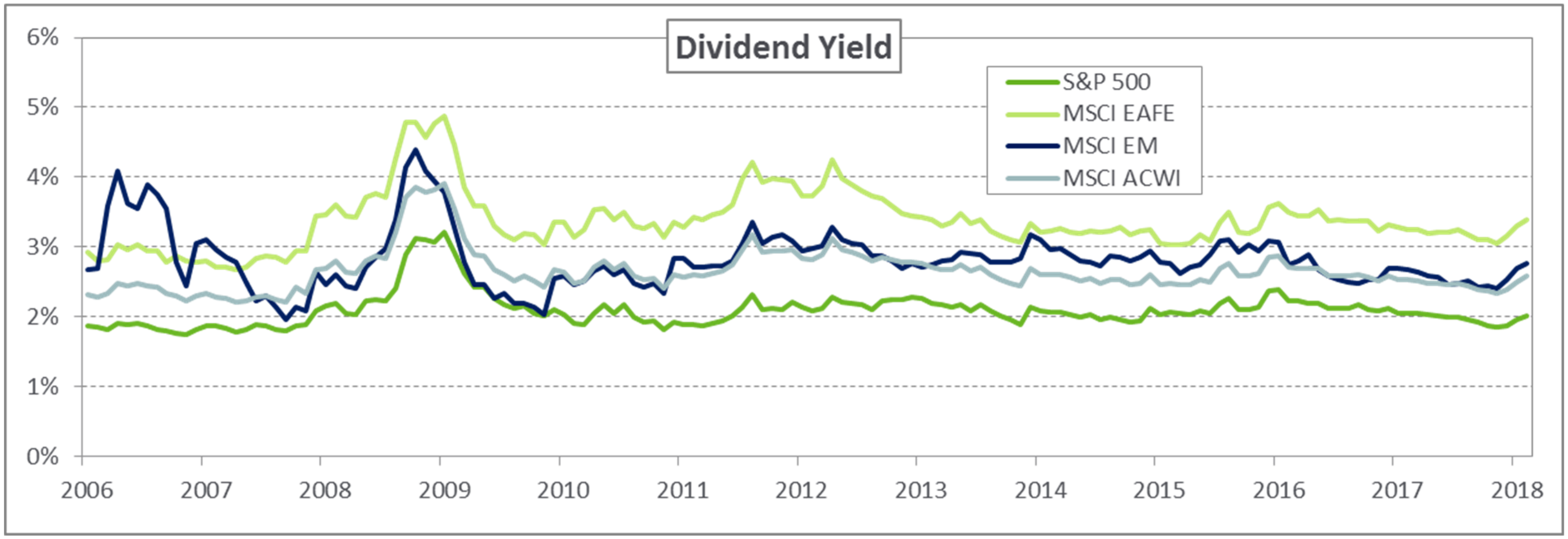


Source: S&P, MSCI, Bloomberg

YIELDS



Source: S&P, MSCI, Bloomberg
Earnings yield calculated as 1/PE Ratio



Source: S&P, MSCI, Bloomberg

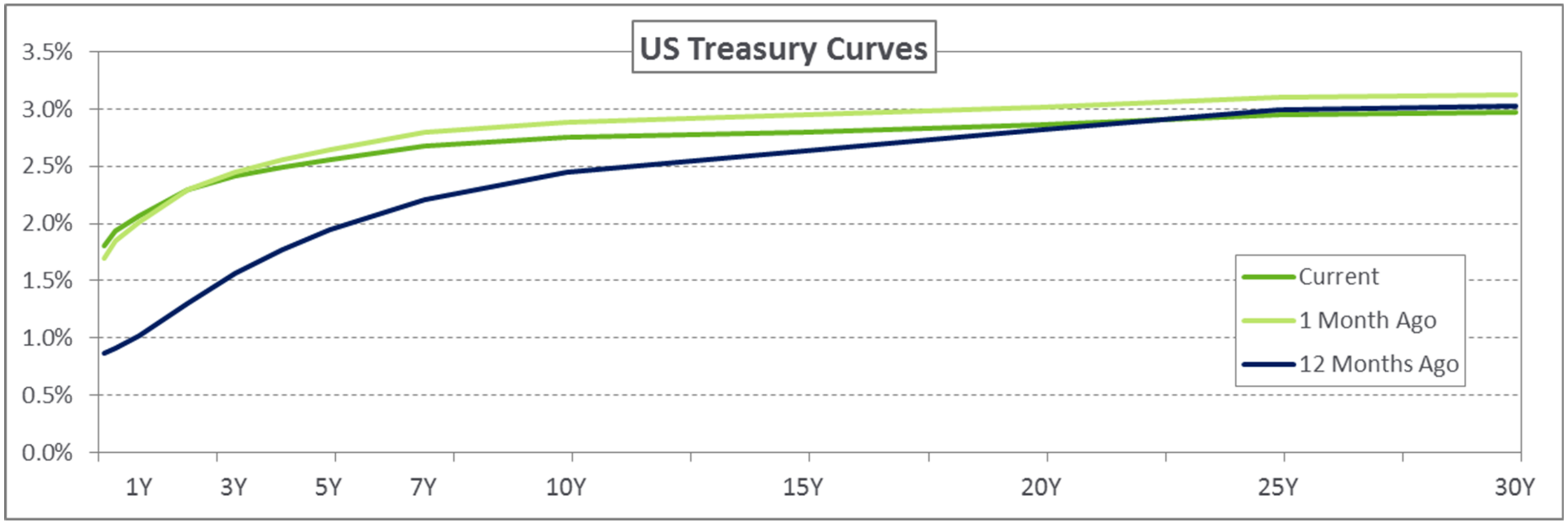
CREDIT

FIXED INCOME CHARACTERISTICS

	Averages			Total Returns (%)		
	Yield to Worst	Spread (bps)	Duration (Years)	1-Month	YTD	1-Year
Barclays Aggregate	3.1%	41	6.1	0.6%	-1.5%	1.2%
Barclays Treasury	2.6%	-	6.1	0.9%	-1.2%	0.4%
Barclays Agency	2.6%	12	3.9	0.6%	-0.5%	0.8%
Barclays MBS	3.3%	29	5.1	0.6%	-1.2%	0.8%
Barclays ABS	2.8%	43	2.3	0.2%	-0.5%	0.5%
Barclays CMBS	3.3%	67	5.4	0.4%	-1.3%	1.1%
Barclays Corp IG	3.8%	109	7.5	0.3%	-2.3%	2.7%
Barclays Muni	2.7%	-	6.0	0.4%	-1.1%	2.7%
Barclays HY Muni	5.3%	-	8.1	1.5%	0.6%	6.0%
Barclays TIPS	2.8%	-	5.0	1.1%	-0.8%	0.9%
Barclays HY	6.2%	354	4.1	-0.6%	-0.9%	3.8%
Barclays Global Agg	1.8%	38	7.1	1.1%	1.4%	7.0%
JPM EMBI Glob Div	5.9%	326	7.4	0.3%	-1.7%	4.3%
JPM CEMBI Broad	4.6%	244	4.7	-0.2%	-1.1%	3.7%
JPM GBI - EM	6.0%	-	5.2	1.0%	4.4%	13.0%

Source: Barclays, JPM, Bloomberg

TREASURIES

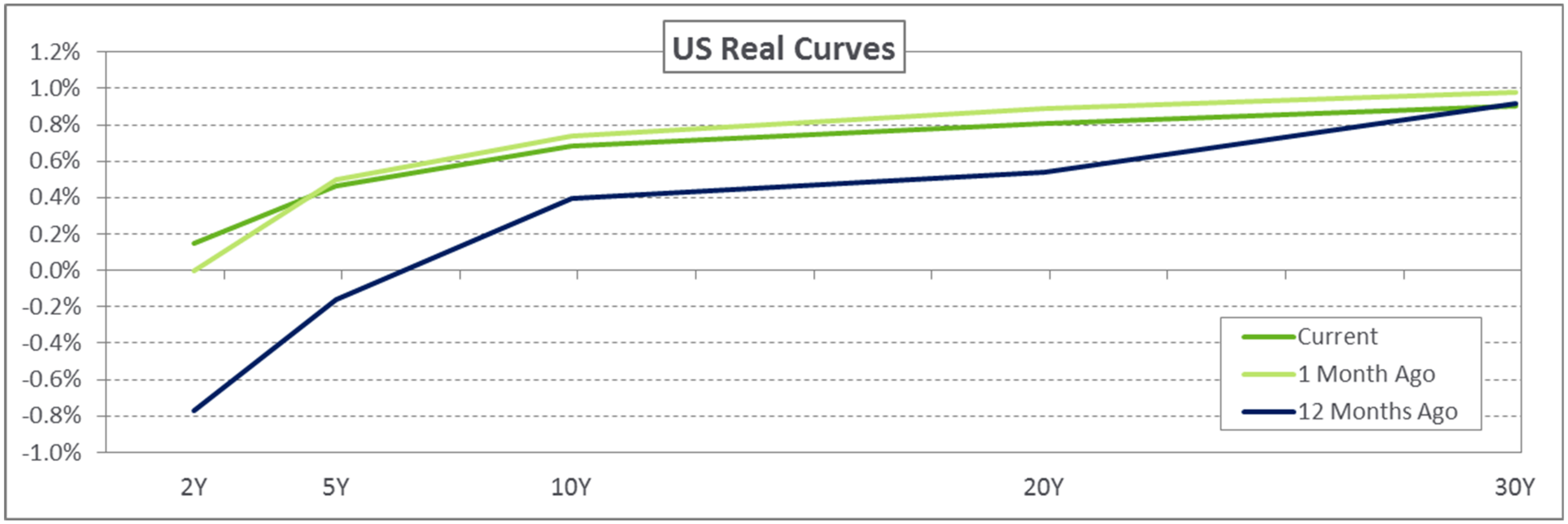


Source: Bloomberg

	Yield (%)			Total Return (%)	
	Current	1 Month Ago	12 Months Ago	1 Month	12 Months
3M Treasury	1.81%	1.70%	0.86%	0.13%	1.05%
6M Treasury	1.94%	1.85%	0.91%	0.14%	1.07%
2Y Treasury	2.30%	2.29%	1.31%	0.17%	-0.17%
5Y Treasury	2.56%	2.65%	1.94%	0.65%	-0.81%
10Y Treasury	2.75%	2.89%	2.45%	1.32%	-1.09%
30Y Treasury	2.98%	3.13%	3.03%	3.37%	3.54%

Source: Barclays, Bloomberg

REAL YIELDS

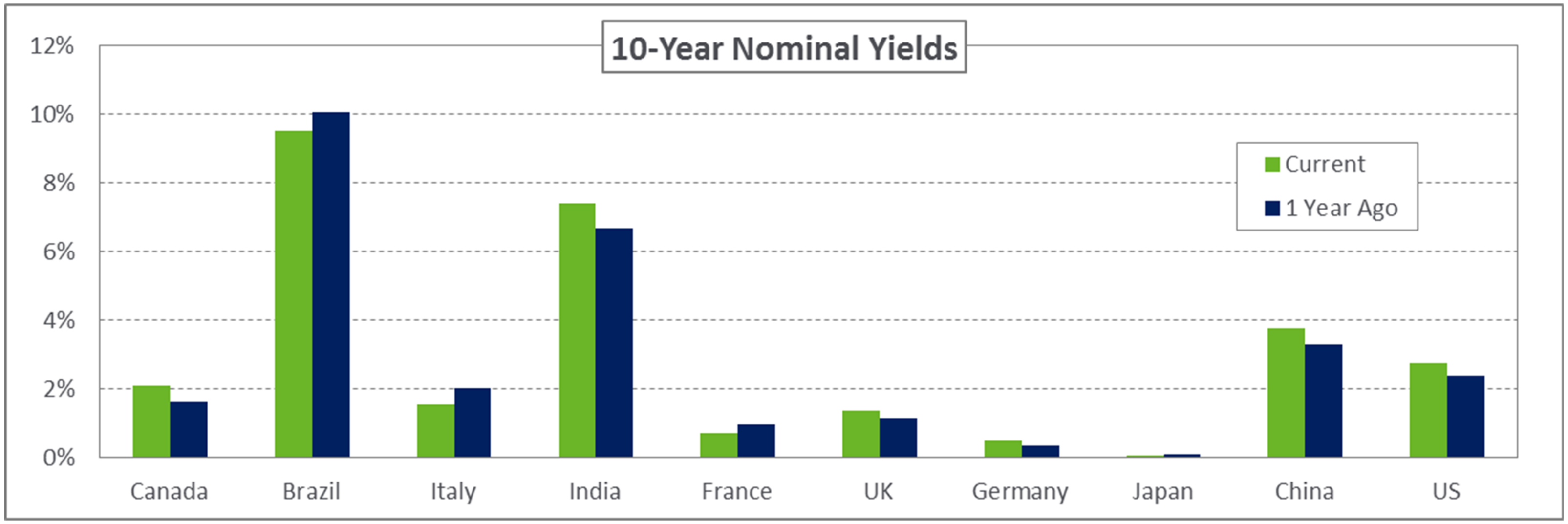


Source: Bloomberg

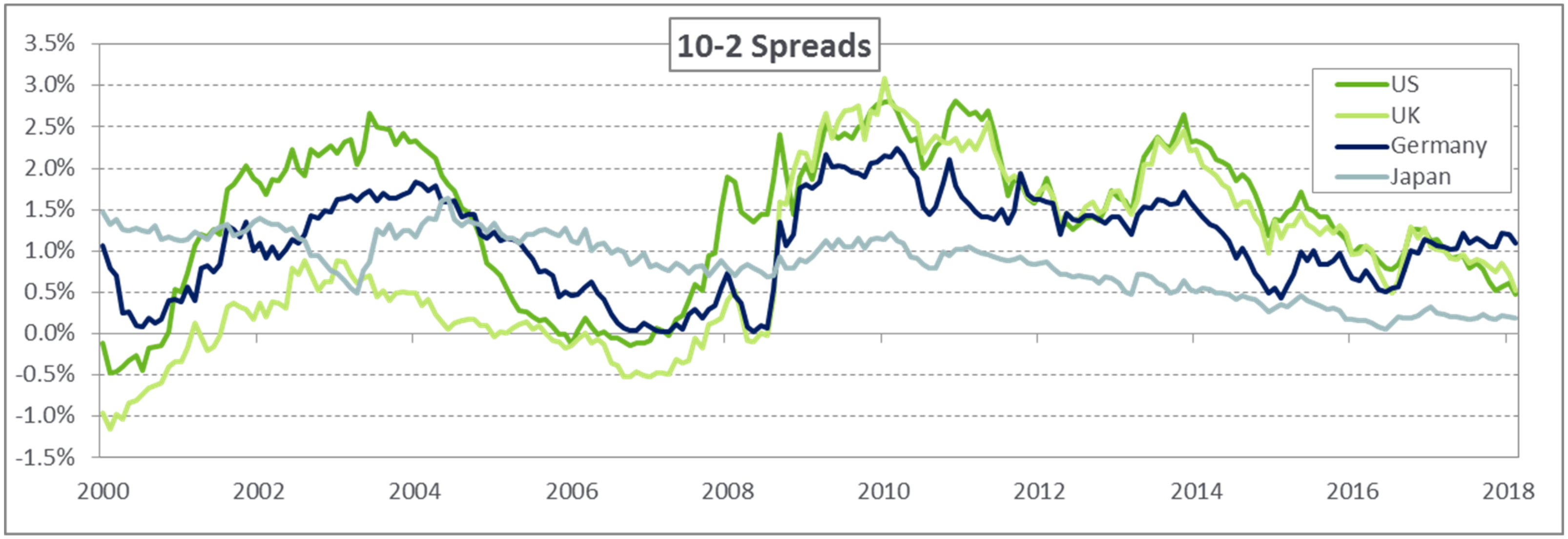
	Real Rates			Breakeven Rates	
	Current	1 Month Ago	12 Months Ago	Current	12 Months Ago
2Y Treasury	0.15%	0.00%	-0.77%	1.98%	1.82%
5Y Treasury	0.47%	0.50%	-0.16%	2.04%	1.95%
10Y Treasury	0.68%	0.74%	0.40%	2.06%	1.98%
20Y Treasury	0.81%	0.89%	0.54%	2.00%	1.94%
30Y Treasury	0.90%	0.98%	0.91%	2.07%	2.09%

Source: Barclays, Bloomberg

NOMINAL YIELDS

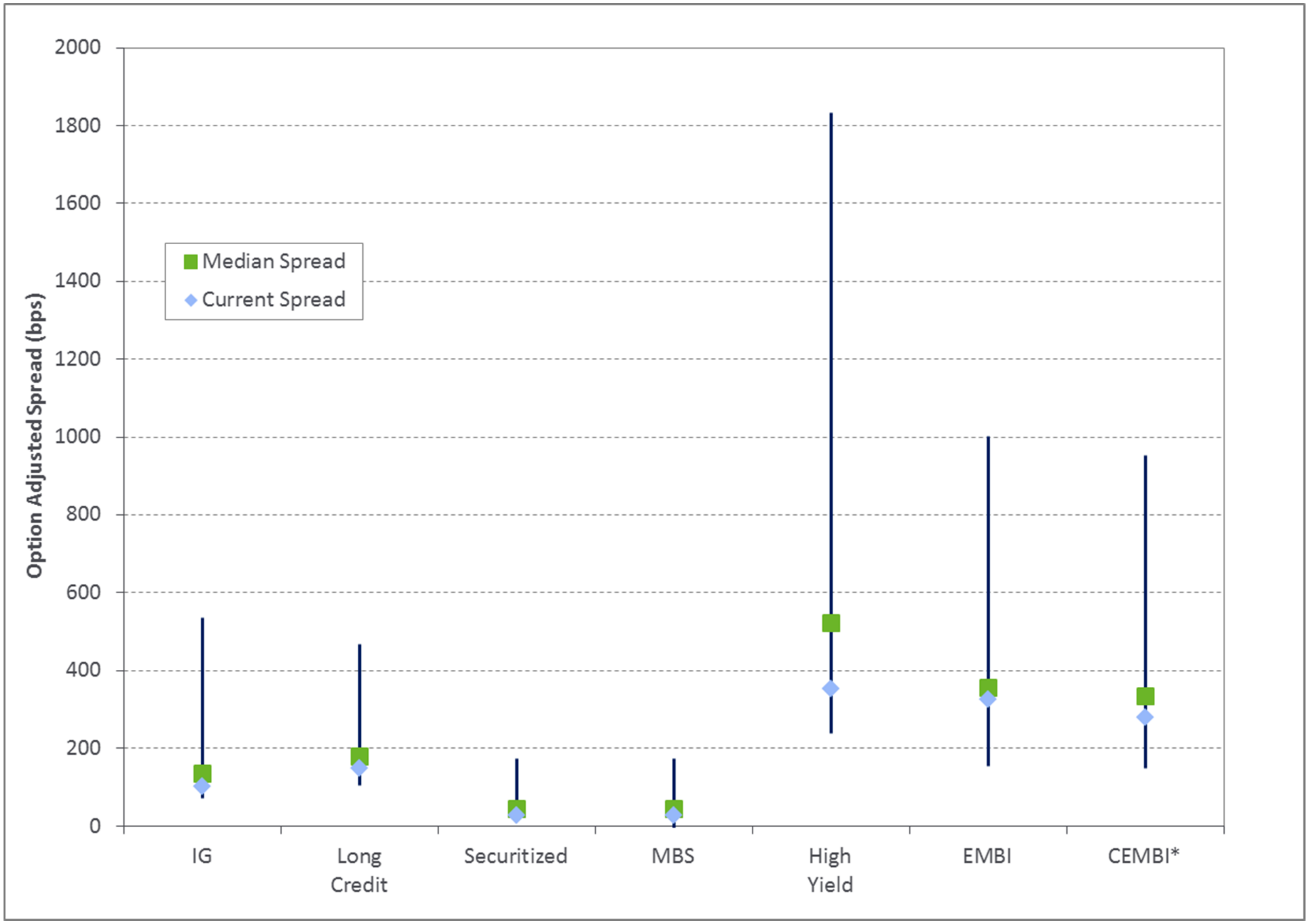


Source: Bloomberg



Source: Bloomberg

CREDIT SPREADS

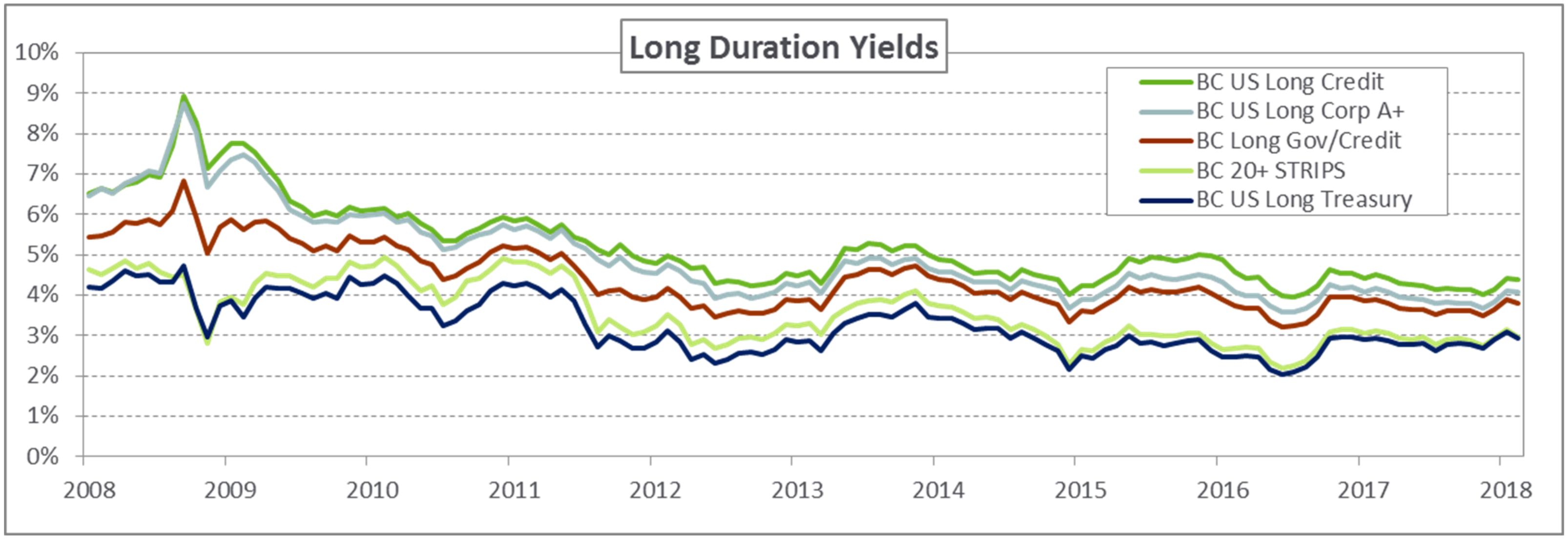


Source: Barclays, JPM, Bloomberg
Ranges calculated since 01/31/2000
*JPM CEMBI calculated as of 12/31/2001

LONG DURATION

Index	Month-End Yield	1 Month Prior Yield	1 Year Prior Yield	Duration
Barclays Long Treasury	2.9%	3.1%	3.0%	17.3
Barclays 20+ STRIPS	3.0%	3.2%	3.1%	25.5
Barclays Long Gov/Credit	3.8%	3.9%	3.9%	15.2
Barclays Long Credit	4.4%	4.4%	4.5%	13.8
Barclays Long Corp A+	4.1%	4.1%	4.2%	14.4

Source: Barclays, Bloomberg



Source: Barclays, Bloomberg

REAL ASSETS

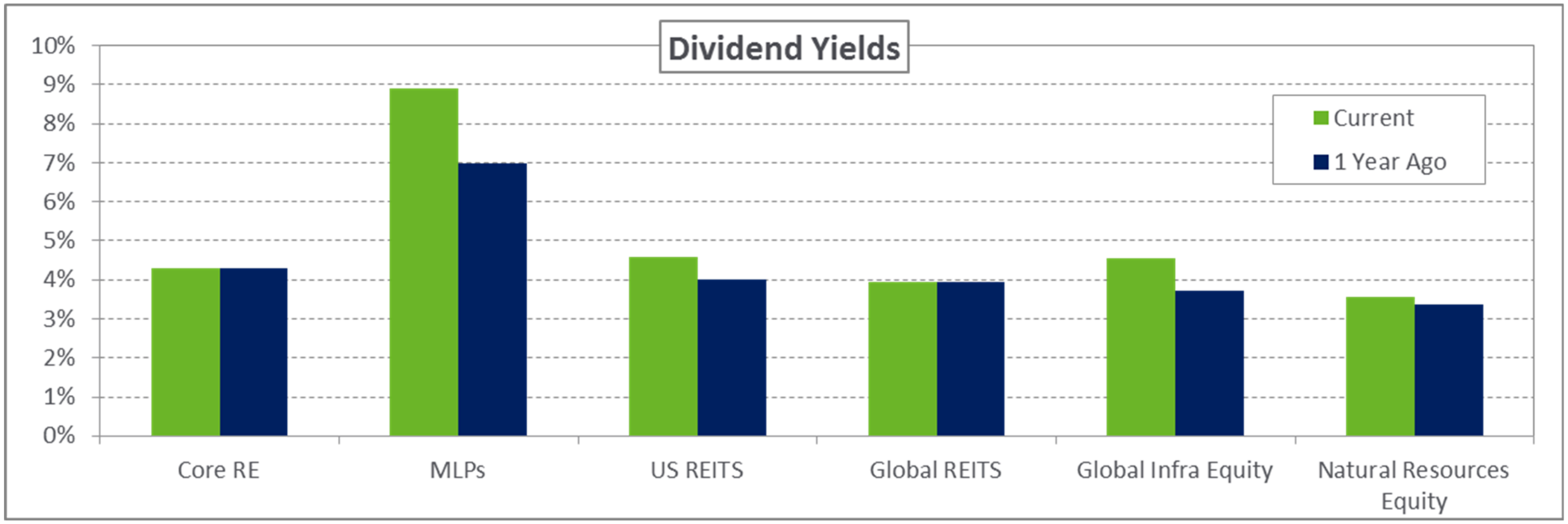
REAL ASSETS INDEX PERFORMANCE

Index	1 Month	3 Month	YTD	1 Year	3 Year	5 Year
Bloomberg Commodity Index	**-0.6%**	**-0.4%**	**-0.4%**	**3.7%**	**-3.2%**	**-8.3%**
Bloomberg Sub Agriculture Index	**-2.8%**	**3.1%**	**3.1%**	**-5.4%**	**-4.6%**	**-8.7%**
Coffee	-3.0%	-7.6%	-7.6%	-22.5%	-12.6%	-11.7%
Corn	1.6%	8.7%	8.7%	-5.9%	-9.1%	-15.8%
Cotton	-1.6%	2.6%	2.6%	7.0%	8.0%	-0.6%
Soybean	-1.0%	7.5%	7.5%	4.9%	0.3%	-0.2%
Soybean Oil	-1.1%	-4.8%	-4.8%	-3.5%	-2.7%	-11.8%
Sugar	-7.6%	-17.9%	-17.9%	-28.8%	-4.5%	-15.2%
Wheat	-8.8%	3.2%	3.2%	-11.3%	-15.0%	-16.7%
Bloomberg Sub Energy	**4.9%**	**1.8%**	**1.8%**	**9.9%**	**-9.0%**	**-16.2%**
Brent Crude	7.2%	5.4%	5.4%	30.5%	-3.2%	-14.6%
Heating Oil	6.2%	-0.3%	-0.3%	27.7%	-2.9%	-11.7%
Natural Gas	1.5%	-6.9%	-6.9%	-28.6%	-23.9%	-24.3%
Unleaded Gas	4.3%	0.9%	0.9%	18.1%	-1.5%	-12.2%
WTI Crude Oil	5.8%	8.8%	8.8%	25.7%	-7.1%	-16.4%
Bloomberg Sub Industrial Metals	**-4.4%**	**-6.2%**	**-6.2%**	**12.7%**	**4.0%**	**-1.5%**
Aluminum	-6.2%	-12.0%	-12.0%	0.0%	0.6%	-3.7%
Copper	-3.3%	-8.6%	-8.6%	12.0%	1.8%	-3.4%
Nickel	-3.6%	4.2%	4.2%	31.3%	1.0%	-5.8%
Zinc	-4.9%	-0.8%	-0.8%	19.7%	15.3%	9.3%
Bloomberg Sub Precious Metals	**0.2%**	**-0.5%**	**-0.5%**	**0.5%**	**1.8%**	**-6.1%**
Gold	0.4%	1.0%	1.0%	5.2%	3.1%	-4.2%
Silver	-0.7%	-5.2%	-5.2%	-12.0%	-2.0%	-11.7%
Bloomberg Sub Livestock	**-7.1%**	**-10.0%**	**-10.0%**	**-4.4%**	**-6.7%**	**-3.4%**
Lean Hogs	-0.6%	-10.7%	-10.7%	-1.4%	-4.8%	-7.6%
Live Cattle	-10.4%	-10.4%	-10.4%	-7.0%	-7.9%	-1.0%

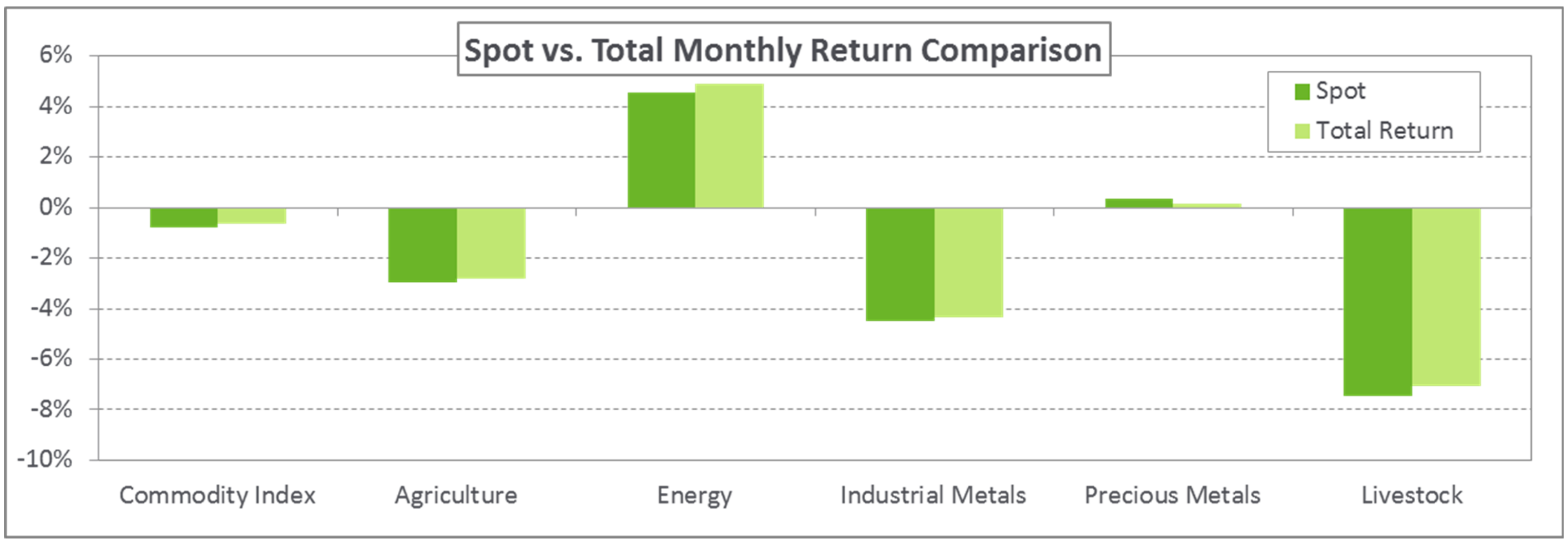
Source: Bloomberg

Bloomberg subindex total return indices reflects the return of the underlying one month commodity futures price movements

INCOME YIELD

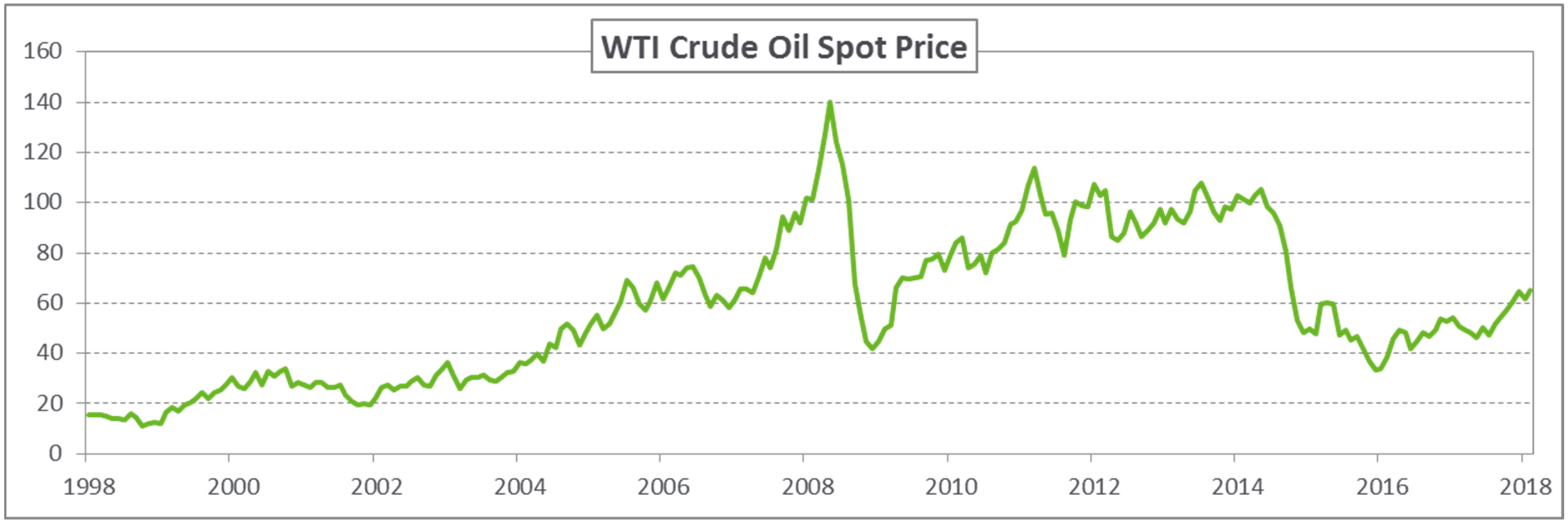


Source: Alerian, NAREIT, S&P, Bloomberg

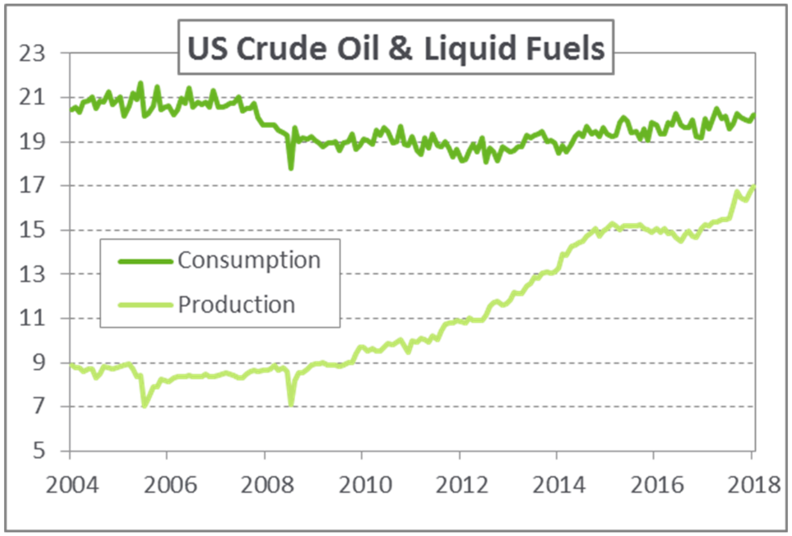


Source: Bloomberg, NEPC

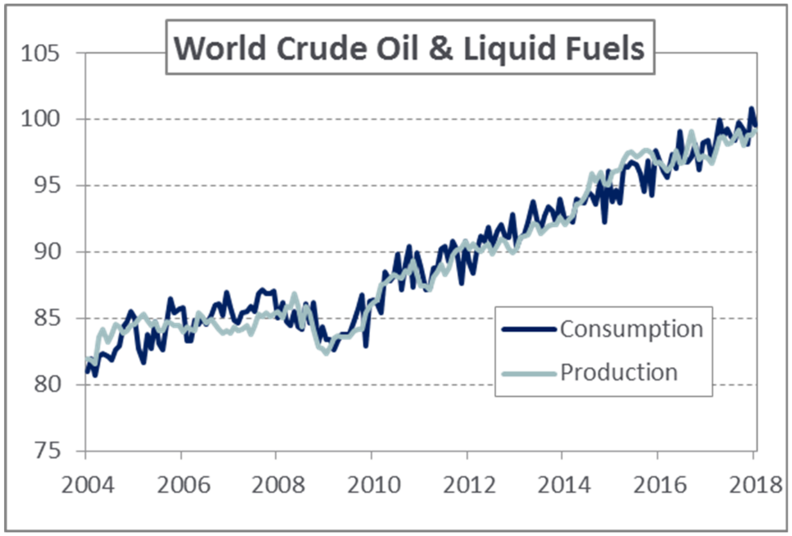
OIL MARKETS



Source: New York Mercantile Exchange, Bloomberg

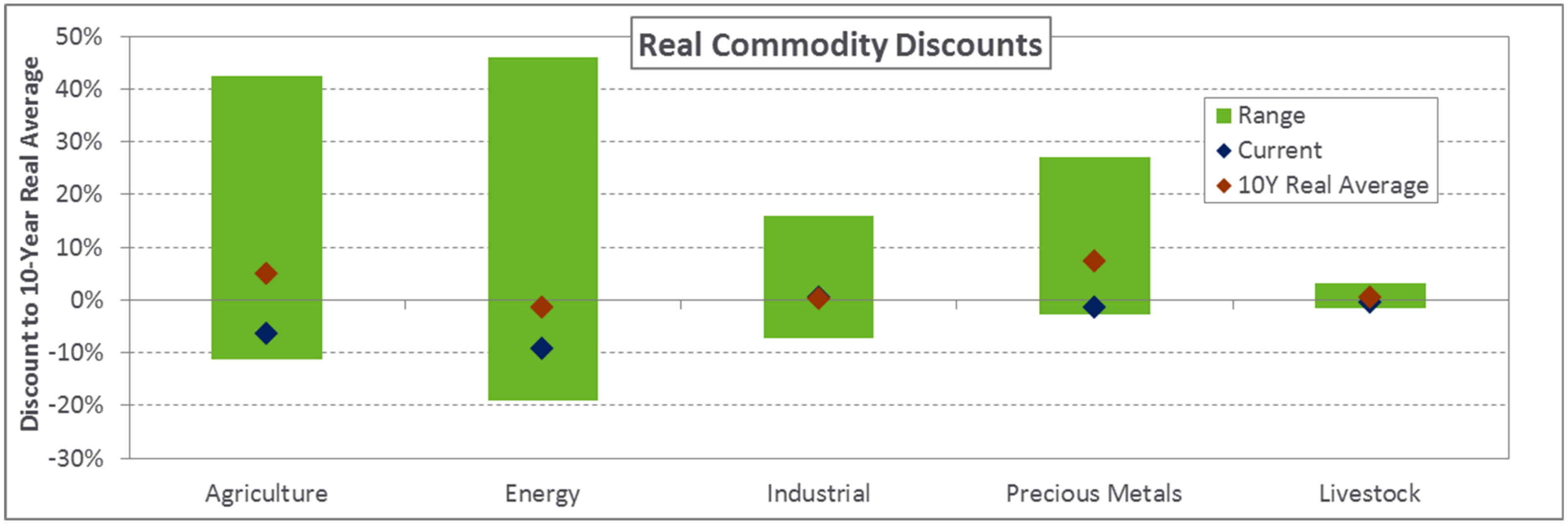


Source: US Department of Energy, Bloomberg

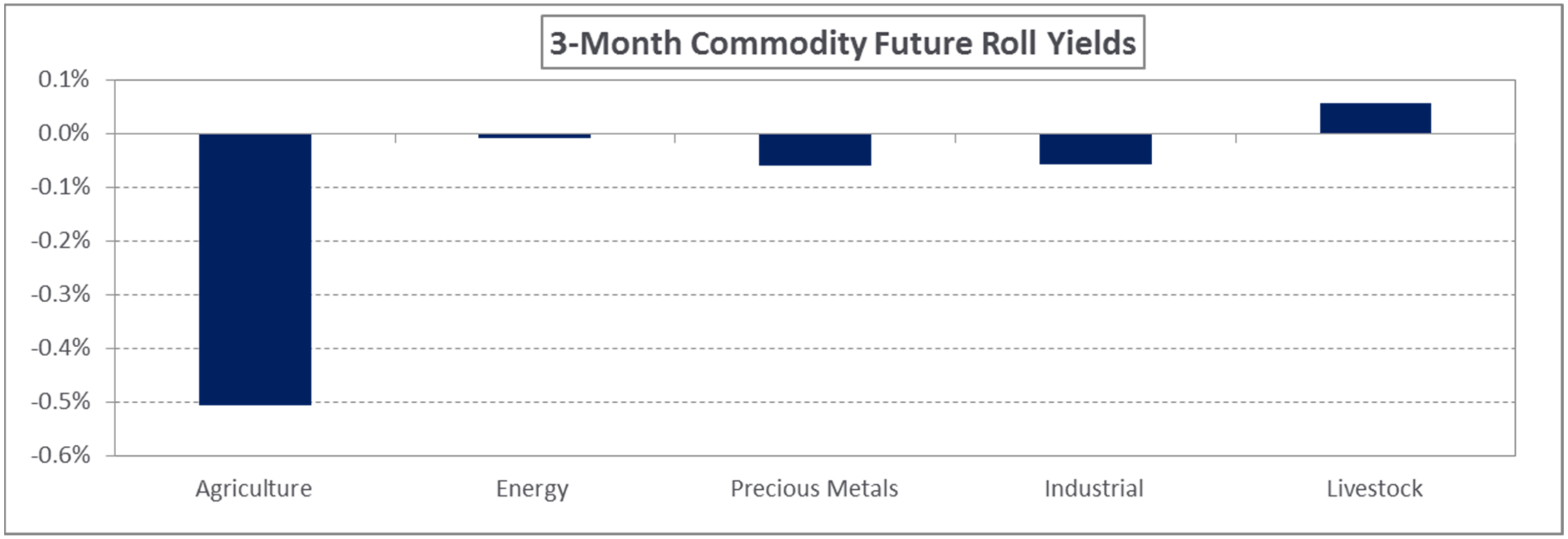


Source: OECD, Bloomberg

VALUATIONS



Source: Bloomberg, NEPC



Source: Bloomberg

DEFINITIONS

POLICY INDEX DEFINITIONS

Policy Index: Current (adopted January 10, 2012) 24% Russell 3000 Index, 29% MSCI ACWI ex USA Net Index, 19% BBg Barclays U.S. Aggregate Bond Index, 5% Credit Opportunities Blend, 10% Real Assets Blend, 12% Private Equity Blend, 1% Citi 3 Month T-Bill Index

U.S. Equity Blend: July 1, 2011 **-** Current: Russell 3000 Index; September 30, 1994 - December 31, 1999 S&P 500 Index 33.75, Russell 1000 Value Index 35%, Russell 1000 Growth 12.5%, Russell 2000 Value 12.5%, Russell 2000 Growth 6.25%

Core Fixed Income Blend: July 1, 2013 – Current: Bbg Barclays U.S. Aggregate Bond Index

Credit Opportunities Blend: 65% Bbg Barclays U.S. HY 2% Cap Index, 35% JPM EMBIGD Index

Public Real Assets Blend: 60% Bbg Barclays U.S. TIPS Index, 20% Bbg Commodity Index, 10% FTSE NAREIT All Equity Index, 10% Alerian MLP Index

Real Estate Blend: July 1, 2014 - Current NCREIF ODCE + 0.80%; July 1, 2012 - June 30, 2014 NCREIF Property Index Lagged +1%; October 1, 1994 - June 30, 2012 NCREIF Property Index Lagged

Private Equity Blend: February 1, 2012 – current: Russell 3000 + 3%; Inception – January 31, 2012: Russell 3000 + 4%

Note: See Investment Policy for a full description of the indices listed.

GLOSSARY OF INVESTMENT TERMINOLOGY

 # Of Portfolios/Observations[1] – The total number of data points that make up a specified universe

Allocation Index[3] - The allocation index measures the value added (or subtracted) to each portfolio by active management. It is calculated monthly: The portfolio asset allocation to each category from the prior month-end is multiplied by a specified market index.

Asset Allocation Effect[2] - Measures an investment manager's ability to effectively allocate their portfolio's assets to various sectors. The allocation effect determines whether the overweighting or underweighting of sectors relative to a benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is over weighted in a sector that outperforms the benchmark and underweighted in a sector that underperforms the benchmark. Negative allocation occurs when the portfolio is over weighted in a sector that underperforms the benchmark and under weighted in a sector that outperforms the benchmark.

Agency Bonds (Agencies)[3] - The full faith and credit of the United States government is normally not pledged to payment of principal and interest on the majority of government agencies issuing these bonds, with maturities of up to ten years. Their yields, therefore, are normally higher than government and their marketability is good, thereby qualifying them as a low risk-high liquidity type of investment. They are eligible as security for advances to the member banks by the Federal Reserve, which attests to their standing.

Asset Backed Securities (ABS)[3] - Bonds which are similar to mortgage-backed securities but are collateralized by assets other than mortgages; commonly backed by credit card receivables, auto loans, or other types of consumer financing.

Attribution[3] - Attribution is an analytical technique that allows us to evaluate the performance of the portfolio relative to the benchmark. A proper attribution tells us where value was added or subtracted as a result of the manager's decisions.

Average Effective Maturity[4] - For a single bond, it is a measure of maturity that takes into account the possibility that a bond might be called back to the issuer.

For a portfolio of bonds, average effective maturity is the weighted average of the maturities of the underlying bonds. The measure is computed by weighing each bond's maturity by its market value with respect to the portfolio and the likelihood of any of the bonds being called. In a pool of mortgages, this would also account for the likelihood of prepayments on the mortgages.

Batting Average[1] - A measurement representing an investment manager's ability to meet or beat an index.

Formula: Divide the number of days (or months, quarters, etc.) in which the manager beats or matches the index by the total number of days (or months, quarters, etc.) in the period of question and multiply that factor by 100.

Brinson Fachler (BF) Attribution[1] - The BF methodology is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance. The main advantage of the BF methodology is that rather than using the overall return of the benchmark, it goes a level deeper than BHB and measures whether the benchmark sector, country, etc. outperformed/or underperformed the overall benchmark.

Brinson Hood Beebower (BHB) Attribution[1] - The BHB methodology shows that excess return must be equal to the sum of all other factors (i.e., allocation effect, selection effect, interaction effect, etc.). The advantage to using the BHB methodology is that it is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance.

Corporate Bond (Corp) [4] - A debt security issued by a corporation and sold to investors. The backing for the bond is usually the payment ability of the company, which is typically money to be earned from future operations. In some cases, the company's physical assets may be used as collateral for bonds.

Correlation[1] - A range of statistical relationships between two or more random variables or observed data values. A correlation is a single number that describes the degree of relationship between variables.

Data Source: [1]InvestorForce, [2]Interaction Effect Performance Attribution, [3]NEPC, LLC, [4]Investopedia, [5]Hedgeco.net

GLOSSARY OF INVESTMENT TERMINOLOGY

Coupon[4] – The interest rate stated on a bond when it is issued. The coupon is typically paid semiannually. This is also referred to as the "coupon rate" or "coupon percent rate."

Currency Effect[1] - Is the effect that changes in currency exchange rates over time affect excess performance.

Derivative Instrument[3] - A financial obligation that derives its precise value from the value of one or more other instruments (or assets) at the same point of time. For example, the relationship between the value of an S&P 500 futures contract (the derivative instrument in this case) is determined by the value of the S&P 500 Index and the value of a U.S. Treasury bill that matures at the expiration of the futures contract.

Downside Deviation[1] - Equals the standard deviation of negative return or the measure of downside risk focusing on the standard deviation of negative returns.

Formula:
Annualized Standard Deviation (Fund Return - Average Fund Return) where average fund return is greater than individual fund returns, monthly or quarterly.

Duration[3] - Duration is a measure of interest rate risk. The greater the duration of a bond, or a portfolio of bonds, the greater its price volatility will be in response to a change in interest rates. A bond's duration is inversely related to interest rates and directly related to time to maturity.

Equity/Debt/Cash Ratio[1] – The percentage of an investment or portfolio that is in Equity, Debt, and/or Cash (i.e. A 7/89/4 ratio represents an investment that is made up of 7% Equity, 89% Debt, and 4% Cash).

Foreign Bond[3] - A bond that is issued in a domestic market by a foreign entity, in the domestic market's currency. A foreign bond is most often issued by a foreign firm to raise capital in a domestic market that would be most interested in purchasing the firm's debt. For foreign firms doing a large amount of business in the domestic market, issuing foreign bonds is a common practice.

Hard Hurdle[5] – is a hurdle rate that once beaten allows a fund manager to charge a performance fee on only the funds above the specified hurdle rate.

High-Water Mark[4] - The highest peak in value that an investment fund/account has reached. This term is often used in the context of fund manager compensation, which is performance based. Some performance-based fees only get paid when fund performance exceeds the high-water mark. The high-water mark ensures that the manager does not get paid large sums for poor performance.

Hurdle Rate[4] - The minimum rate of return on an investment required, in order for a manager to collect incentive fees from the investor, which is usually tied to a benchmark.

Interaction Effects[2] - The interaction effect measures the combined impact of an investment manager's selection and allocation decisions within a sector. For example, if an investment manager had superior selection and over weighted that particular sector, the interaction effect is positive. If an investment manager had superior selection, but underweighted that sector, the interaction effect is negative. In this case, the investment manager did not take advantage of the superior selection by allocating more assets to that sector. Since many investment managers consider the interaction effect to be part of the selection or the allocation, it is often combined with the either effect.

Median[3] - The value (rate of return, market sensitivity, etc.) that exceeds one-half of the values in the population and that is exceeded by one-half of the values. The median has a percentile rank of 50.

Modified Duration[3] - The percentage change in the price of a fixed income security that results from a change in yield.

Mortgage Backed Securities (MBS)[3] - Bonds which are a general obligation of the issuing institution but are also collateralized by a pool of mortgages.

Municipal Bond (Muni) [4] - A debt security issued by a state, municipality or county to finance its capital expenditures.

Net Investment Change[1] – Is the change in an investment after accounting for all Net Cash Flows.

Performance Fee[4] - A payment made to a fund manager for generating positive returns. The performance fee is generally calculated as a percentage of investment profits, often both realized and unrealized.

Data Source: [1]InvestorForce, [2]Interaction Effect Performance Attribution, [3]NEPC, LLC, [4]Investopedia, [5]Hedgeco.net

GLOSSARY OF INVESTMENT TERMINOLOGY

Policy Index[3] - A custom benchmark designed to indicate the returns that a passive investor would earn by consistently following the asset allocation targets set forth in this investment policy statement.

Price to Book (P/B)[4] - A ratio used to compare a stock's market value to its book value. It is calculated by dividing the current closing price of the stock by the latest quarter's book value per share, also known as the "price-equity ratio".

Price to Earnings (P/E)[3] - The weighted equity P/E is based on current price and trailing 12 months earnings per share (EPS).

Price to Sales (P/S)[4] - A ratio for valuing a stock relative to its own past performance, other companies, or the market itself. Price to sales is calculated by dividing a stock's current price by its revenue per share for the trailing 12 months.

Return on Equity (ROE)[4] - The amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.

Selection (or Manager) Effect[2] - Measures the investment manager's ability to select securities within a given sector relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by the manager's allocation to the sector. The weight of the sector in the portfolio determines the size of the effect—the larger the sector, the larger the effect is, positive or negative.

Soft Hurdle rate[5] – is a hurdle rate that once beaten allows a fund manager to charge a performance fee based on the entire annualized return.

Tiered Fee[1] – A fee structure that is paid to fund managers based on the size of the investment (i.e. 1.00% fee on the first $10M invested, 0.90% on the next $10M, and 0.80% on the remaining balance).

Total Effects[2] - The active management (total) effect is the sum of the selection, allocation, and interaction effects. It is also the difference between the total portfolio return and the total benchmark return. You can use the active management effect to determine the amount the investment manager has added to a portfolio's return.

Total Return[1] - The actual rate of return of an investment over a specified time period. Total return includes interest, capital gains, dividends, and distributions realized over a defined time period.

Universe[3] - The list of all assets eligible for inclusion in a portfolio.

Upside Deviation[1] – Standard Deviation of Positive Returns

Weighted Avg. Market Cap.[4] - A stock market index weighted by the market capitalization of each stock in the index. In such a weighting scheme, larger companies account for a greater portion of the index. Most indexes are constructed in this manner, with the best example being the S&P 500.

Yield (%)[3] - The current yield of a security is the current indicated annual dividend rate divided by current price.

Yield to Maturity[3] -The discount rate that equates the present value of cash flows, both principal and interest, to market price.

Data Source: [1]InvestorForce, [2]Interaction Effect Performance Attribution, [3]NEPC, LLC, [4]Investopedia, [5]Hedgeco.net

DISCLOSURES

Information Disclaimer

- Past performance is no guarantee of future results.

- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.

- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may be preliminary and subject to change.

- This report is provided as a management aid for the client's internal use only. Information contained in this report does not constitute a recommendation by NEPC.

- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.

- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.

- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.

- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.

RISK BUDGETING, ASSET CLASS REVIEW & IMPLEMENTATION

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

July 24, 2018

BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

AGENDA

RISK BUDGETING ANALYSIS

NEPC, LLC

ACTIVE RISK BUDGETING PROCESS

- **Evaluating active risk efficiency:**
  - Use NEPC 5-7 year forward-looking excess return expectations for betas and active investment manager excess return
  - Use alpha correlations of strategies to understand active risk diversification benefits
  - Efficient frontier of portfolio mixes are based on optimal information ratios at a given level of active risk; incorporate constraints and/or no constraints

- **"Down-stream" from the strategic asset allocation process, the active risk budgeting framework is one tool used to understand current asset class structure against current asset class benchmarks**
  - Asset class betas are set in the asset allocation process and a review of current investment structure is warranted to understand forward-looking active risk

- **Evaluate newly approved asset class betas vs current structure and evaluate new active risk profiles**

- **Note: the active risk budgeting process takes into account forward looking expectations based wholly or in part on historical outcomes and should only be used as a broad guardrail for setting investment program structures**

SUMMARY & RECOMMENDATION

Asset Class	Current Risk Budget	Proposed Risk Budget	Difference	Comment
Domestic Equities	0.50%	0.75%	0.25%	Prospective active management placements
Non-US Equities	1.20%	1.20%	-	Unchanged
Core Fixed Income	1.00%	1.75%	0.75%	Prospective active management placements
Credit Opportunities	1.50%	1.00%	-0.50%	Restructured benchmark
Real Assets	3.00%	0.75%	-2.25%	Restructured benchmark

Domestic Equities –

– Increase in active risk budget to account for active risk profiles of prospective managers in large cap growth and small cap

Core Fixed Income –

– Prospective structure change results in increased active risk budget

Credit Opportunities-

– Prospective reduction in active risk budget associated with asset class expansion and benchmark change

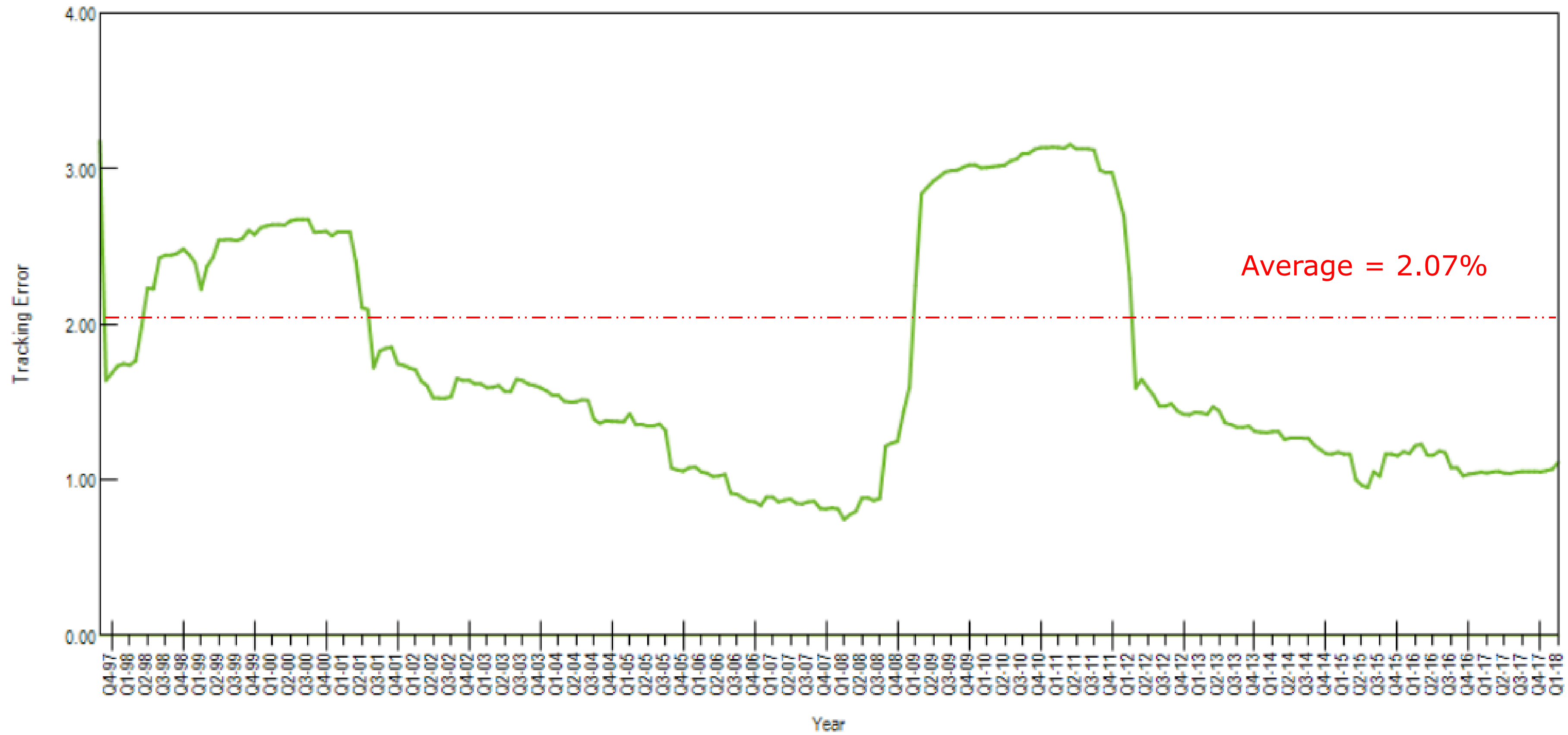
- **Real Assets –**

  – Prospective reduction in active risk budget associated with asset class simplification and benchmark change

TOTAL FUND TRACKING ERROR

	5 Yr Tracking Error	10 Yr Tracking Error	20 Yr Tracking Error	Since Nov 1994 Tracking Error
Total Fund	1.08%	1.95%	1.84%	2.07%

Rolling 3 Year Tracking Error



DOMESTIC EQUITY VIEW

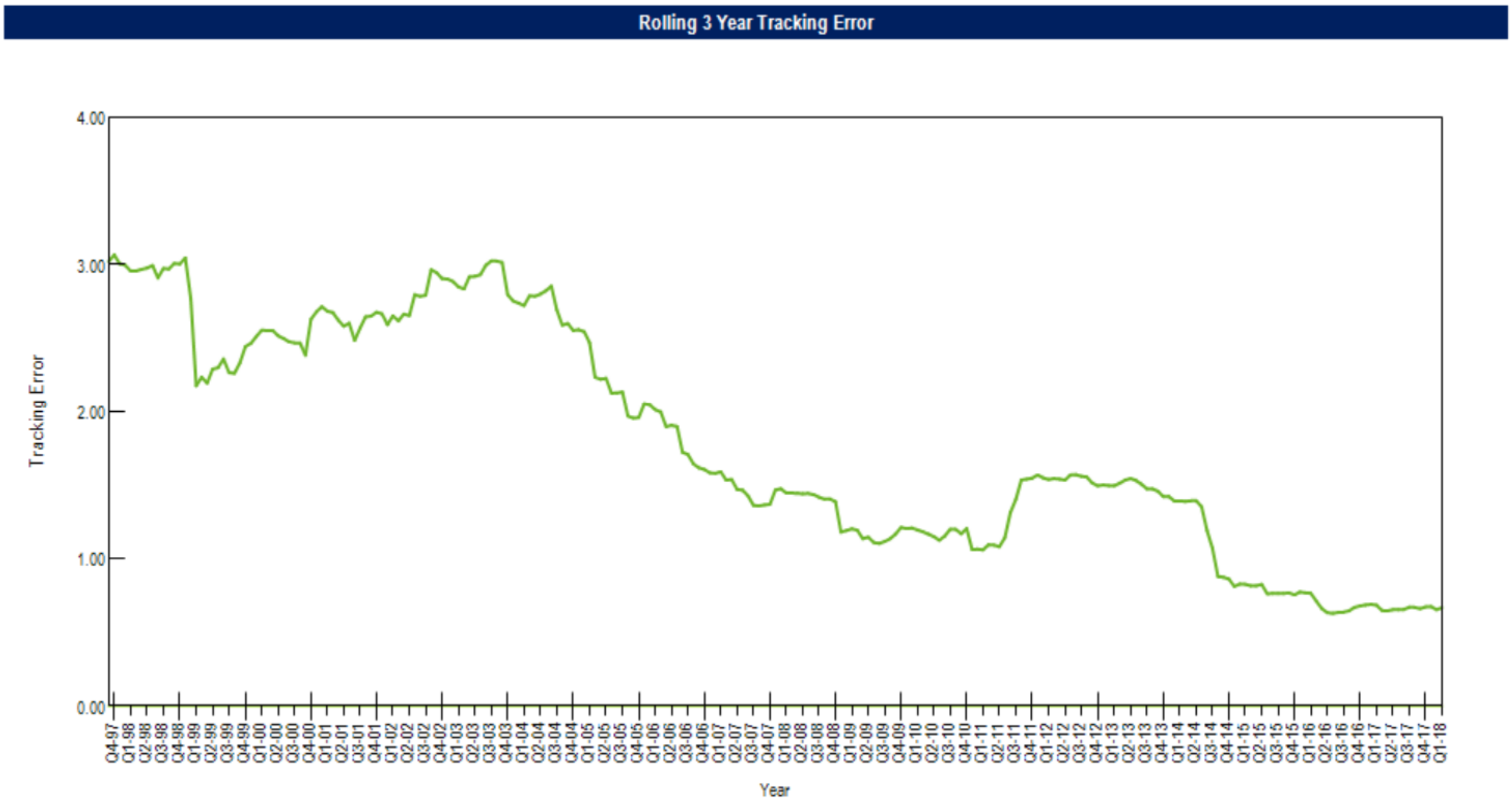
General Market Thoughts

- **US Equities Broadly**
  - Valuations appear stretched based on a number of valuation metrics
  - Earnings growth needed to continue rally; 2017 saw a recovery in earnings but can it be sustained?
- **Small Caps**
  - Small caps should benefit from tax reform as effective rate drops from ~32% to 21%
  - GDP surprise could be beneficial to smaller companies who are more domestically focused from a revenue standpoint

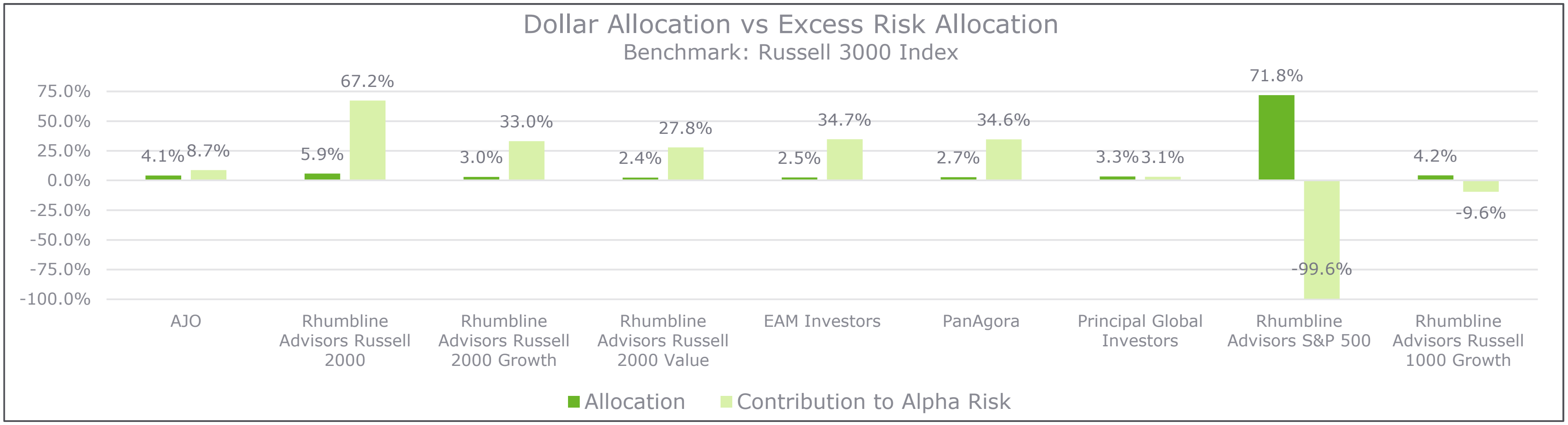
Equity Implementation Views

Strategy		Outlook	Commentary
Liquid	Passive	Positive	Cheap implementation and replacement for low tracking error strategies
	Large Cap	Neutral	Passive or High Tracking Error preferred implementation as cost for low tracking error outweighs benefits
	Small Cap	Positive	US small caps are levered to GDP Growth; Could benefit from tax reform
Illiquid	Venture	Neutral	With US valuations still high, target managers that have a sector-focused strategy whose value-add goes beyond that of a capital provider.
	Growth Equity	Positive	Target managers that are well equipped to fuel continued growth in VC-backed companies
	Buyouts	Neutral	Look for managers with some competitive advantage/angle in their deals; sector specialists can still outperform
	Special Situations	Positive	Flexible and nimble approaches able to capitalize on market, industry and/or specific company volatility

DOMESTIC EQUITY 3 YR ROLLING TRACKING ERROR



DOMESTIC EQUITY RISK BUDGETING

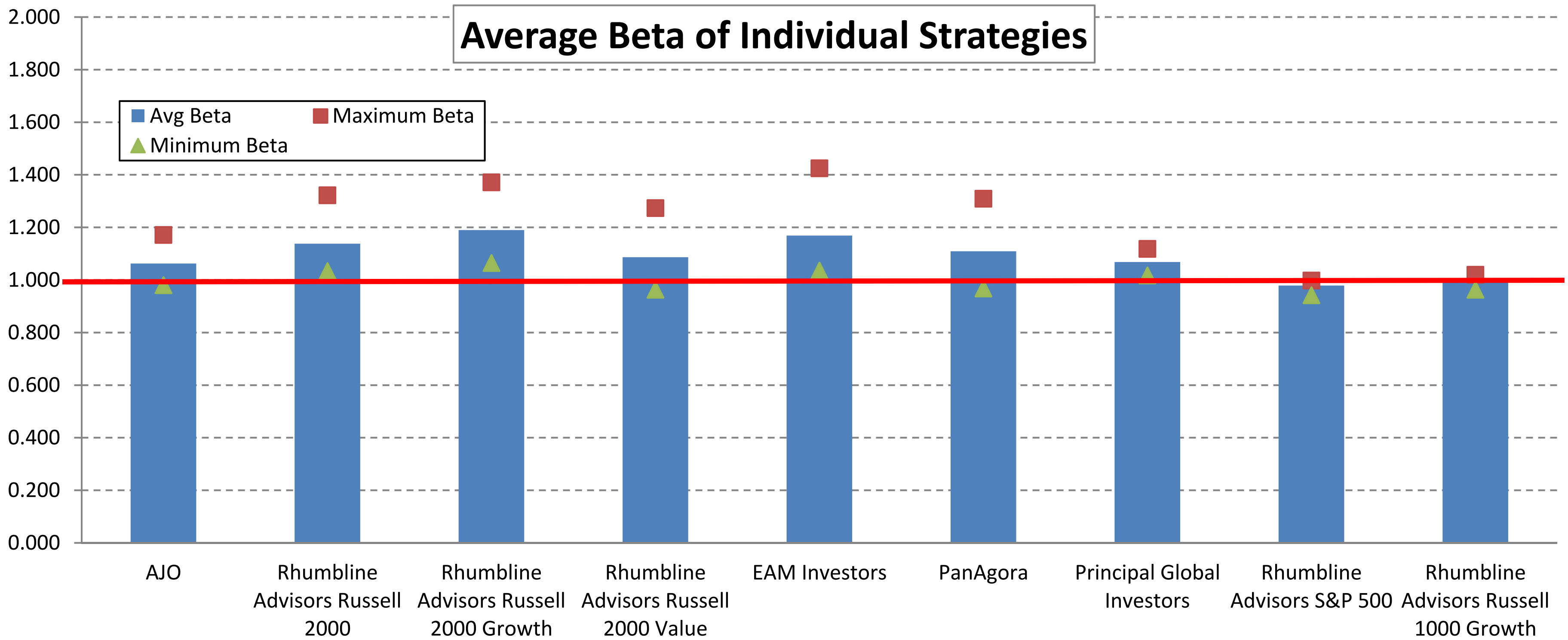


Alpha Correlations	AJO	Rhumbline Advisors Russell 2000	Rhumbline Advisors Russell 2000 Growth	Rhumbline Advisors Russell 2000 Value	EAM Investors	PanAgora	Principal Global Investors	Rhumbline Advisors S&P 500	Rhumbline Advisors Russell 1000 Growth
AJO	1.00	0.31	0.07	0.41	0.01	0.43	-0.03	-0.25	-0.49
Rhumbline Advisors Russell 2000	0.31	1.00	0.92	0.94	0.76	0.91	0.20	-0.92	-0.59
Rhumbline Advisors Russell 2000 Growth	0.07	0.92	1.00	0.72	0.91	0.70	0.39	-0.91	-0.31
Rhumbline Advisors Russell 2000 Value	0.41	0.94	0.72	1.00	0.52	0.97	0.01	-0.80	-0.76
EAM Investors	0.01	0.76	0.91	0.52	1.00	0.52	0.43	-0.82	-0.03
PanAgora	0.43	0.91	0.70	0.97	0.52	1.00	0.00	-0.78	-0.72
Principal Global Investors	-0.03	0.20	0.39	0.01	0.43	0.00	1.00	-0.43	0.13
Rhumbline Advisors S&P 500	-0.25	-0.92	-0.91	-0.80	-0.82	-0.78	-0.43	1.00	0.41
Rhumbline Advisors Russell 1000 Growth	-0.49	-0.59	-0.31	-0.76	-0.03	-0.72	0.13	0.41	1.00

Correlated   Uncorrelated

Benchmark for Domestic Equities is the Russell 3000 index.

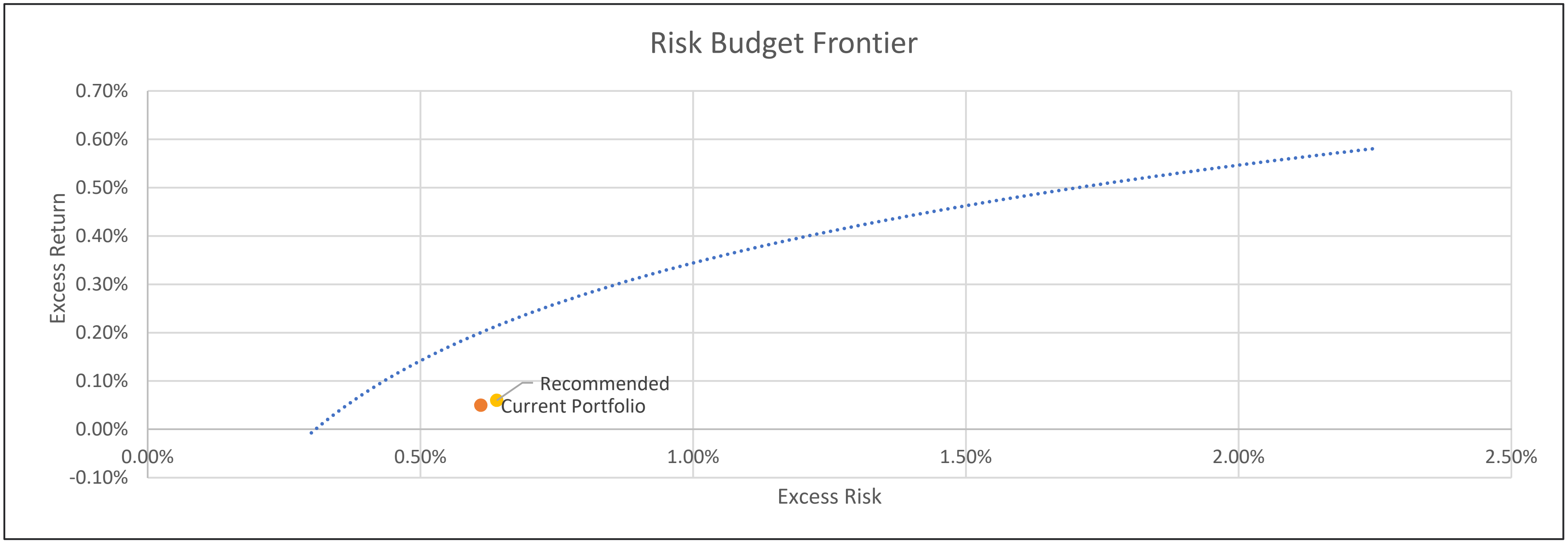
DOMESTIC EQUITY



Benchmark for Domestic Equities is the Russell 3000 index.

DOMESTIC EQUITY RISK BUDGETING

Portfolio	Current Allocation (%)	Expected Excess Return (%)	Tracking Error (%)	Strategy Benchmark	Excess Risk Contribution (%)	Mix J Optimal Mix Constrained at 0.5% TE	Mix J Max Info Ratio	Recommended
Rhumbline S&P 500 Index	71.8%	-0.15%	1.18%	S&P 500	-99.6%	68.1%	61.2%	71.0%
Rhumbline Russell 1000 Growth Index	4.2%	-0.15%	2.99%	Russell 1000 Growth	-9.6%	5.6%	8.5%	4.0%
AJO - Large Cap Value	4.1%	0.50%	3.60%	Russell 1000 Value	8.7%	0.0%	4.0%	4.0%
Principal - Mid Cap Core	3.3%	0.75%	3.93%	Russell MidCap	3.1%	15.4%	15.2%	5.0%
Rhumbline - Russell 2000 Index	5.9%	0.35%	7.76%	Russell 2000	67.2%	0.0%	0.0%	5.0%
Rhumbline - Russell 2000 Growth	3.0%	0.35%	8.16%	Russell 2000 Growth	33.0%	0.0%	0.0%	3.0%
Rhumbline - Russell 2000 Value	2.4%	0.35%	16.03%	Russell 2000 Value	27.8%	0.3%	0.1%	3.0%
EAM Investors - Small Cap Growth	2.5%	1.50%	11.14%	Russell 2000 Growth	34.7%	1.0%	1.0%	2.5%
PanAgora - Small Cap Value	2.7%	1.50%	9.14%	Russell 2000 Value	34.6%	9.6%	10.0%	2.5%
Expected Excess Return	0.05%					0.16%	0.19%	0.06%
Expected Excess Risk	0.61%					0.50%	0.57%	0.64%
Information Ratio	0.08					0.33	0.34	0.09



Benchmark for Domestic Equities is the Russell 3000 index.

DEVELOPED NON-U.S. EQUITY VIEW

General Market Thoughts

- **Europe and Japan carry risks but offer a meaningful return opportunity even after recent strong performance**
  - Earnings growth has outpaced multiple expansion in Europe
  - Catalysts for outperformance are present with shareholder friendly actions in Japan and macroeconomic improvement in Europe

- **Small-cap equity and global equity are preferred implementation approaches**
  - These strategies offer the best opportunity to exploit valuation discrepancies among stocks across countries and sectors
  - Hedging a portion of non-US developed currency exposure remains a strategic goal

Equity Implementation Views

Strategy		Outlook	Commentary
Liquid	Passive	Positive	Option to complement active exposure with currency hedge; Global equity preferred implementation
	Large Cap	Positive	Consider 50% hedged exposure as baseline;
	Small Cap	Positive	Small cap complements global implementation;
	Europe	Positive	More targeted approach available via passive, hedge fund or private equity
Illiquid	Venture	Positive	Tech hubs developing – positive early, mid and growth equity
	Buyouts	Positive	Mid & Small buyouts and special situations preferred implementation

EMERGING MARKETS VIEW

General Market Thoughts

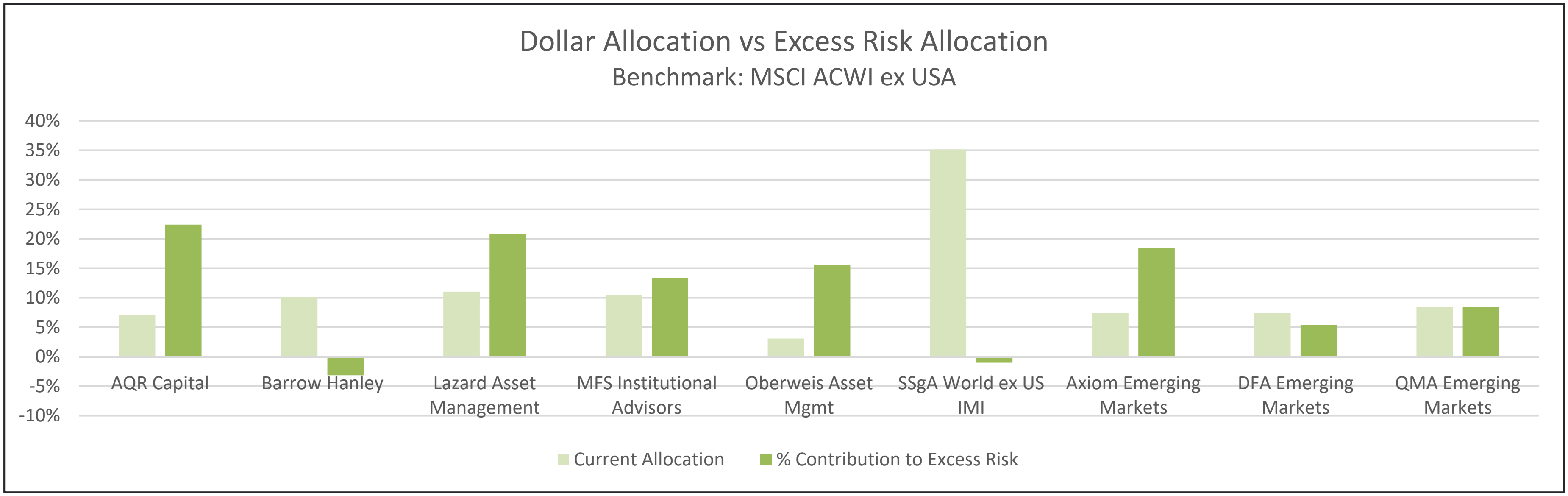
- **Emerging equities offer the highest total return potential for investors**
  - Valuation levels and long-term fundamentals suggest an overweight relative to global market cap weights (e.g. 15% to 20%)
  - China's depreciating currency, broad US dollar strength and US-Asia trade policy concerns temper our excitement
  - Growth premium relative to the developed world is advancing as emerging market economic conditions improve off fiscal and currency adjustments of recent years
- **Overweight small-cap and consumer focused strategies relative to broad benchmark mandates**
  - Small-cap and emerging market consumer strategies offer a structural bias away from commodity exposures and state owned enterprises

Equity Implementation Views

Strategy		Outlook	Commentary
EM	Passive	Negative	State Owned Enterprises exposure and cost/ tracking error make passive expensive
	Large Cap	Positive	May gain most of exposure in true global mandate
	Small Cap	Positive	Small-cap and emerging market consumer strategies offer a structural bias away from commodity exposures and state owned enterprises
	Private Equity	Positive	Emphasize growth equity strategies ; Early stage venture shifting from copy-cat business models to technology innovation; Control deals are becoming more frequent as PE industry matures

NON-U.S. EQUITY 3 YR ROLLING TRACKING ERROR

NON-U.S. EQUITY RISK BUDGETING

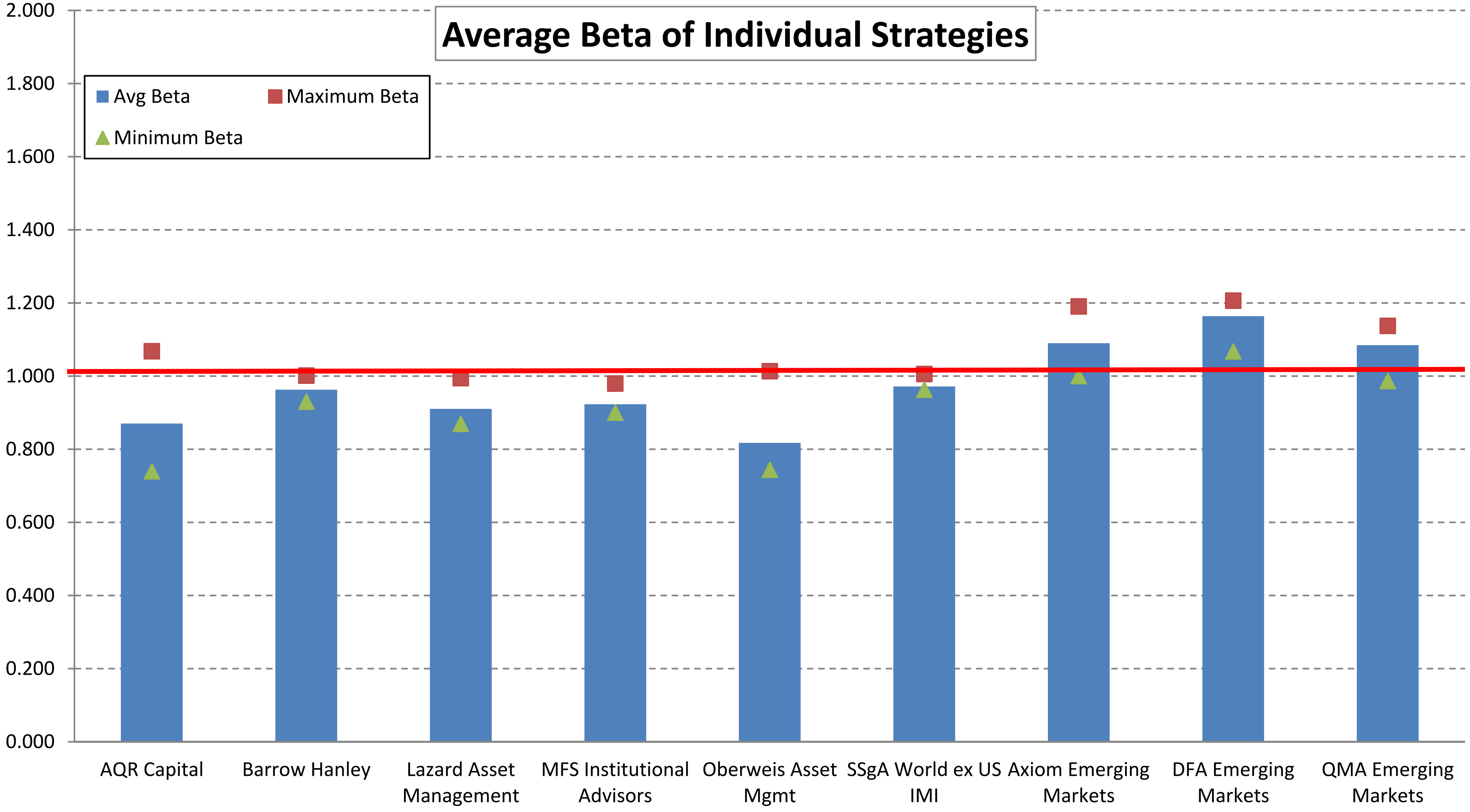


Alpha Correlations	AQR Capital	Barrow Hanley	Lazard Asset Management	MFS Institutional Advisors	Oberweis Asset Mgmt	SSgA World ex US IMI	Axiom Emerging Markets	DFA Emerging Markets	QMA Emerging Markets
AQR Capital	1.00	0.00	0.40	0.27	0.64	0.53	-0.29	-0.37	-0.36
Barrow Hanley	0.00	1.00	0.28	0.01	0.02	0.52	-0.49	-0.54	-0.58
Lazard Asset Management	0.40	0.28	1.00	0.53	0.52	0.51	-0.34	-0.58	-0.54
MFS Institutional Advisors	0.27	0.01	0.53	1.00	0.38	0.47	-0.34	-0.52	-0.48
Oberweis Asset Mgmt	0.64	0.02	0.52	0.38	1.00	0.43	-0.02	-0.40	-0.34
SSgA World ex US IMI	0.53	0.52	0.51	0.47	0.43	1.00	-0.89	-0.90	-0.95
Axiom Emerging Markets	-0.29	-0.49	-0.34	-0.34	-0.02	-0.89	1.00	0.80	0.89
DFA Emerging Markets	-0.37	-0.54	-0.58	-0.52	-0.40	-0.90	0.80	1.00	0.91
QMA Emerging Markets	-0.36	-0.58	-0.54	-0.48	-0.34	-0.95	0.89	0.91	1.00

Correlated   Uncorrelated

Benchmark for total Non-US Equities is the MSCI ACWI ex US index.

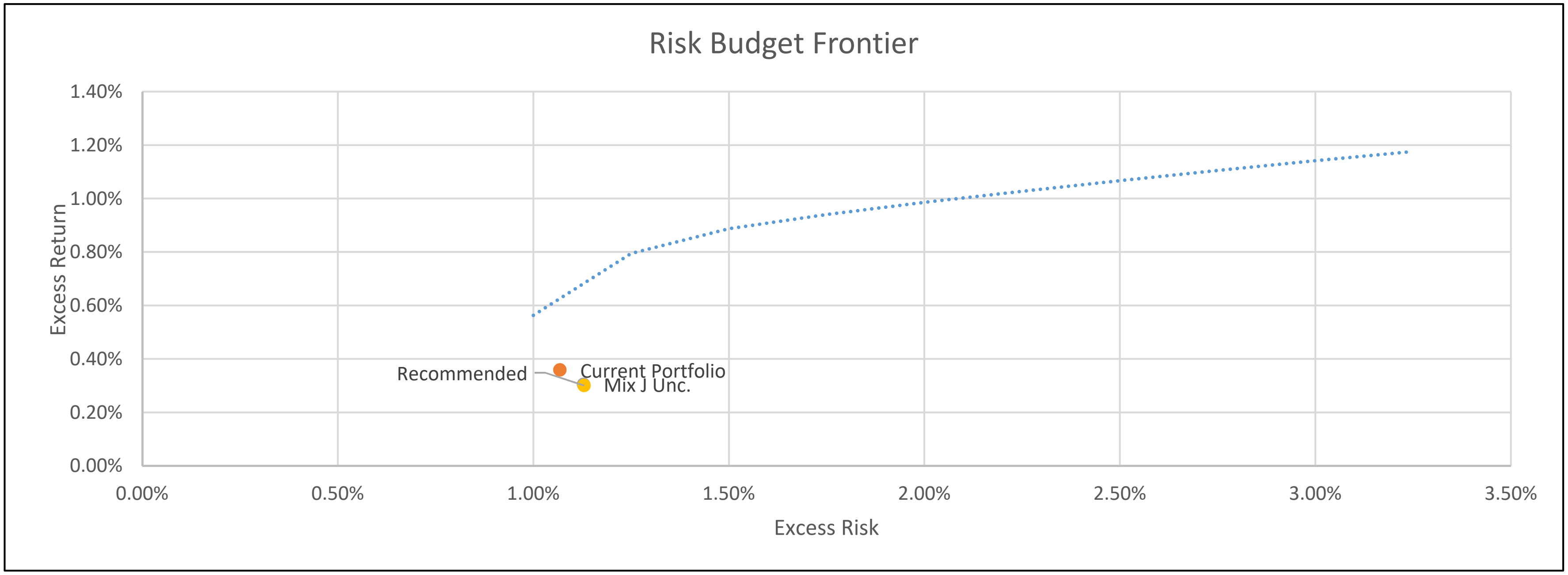
NON-U.S. EQUITY



Benchmark for total Non-US Equities is the MSCI ACWI ex US index.

NON-U.S. EQUITY RISK BUDGETING

Portfolio	Current Allocation (%)	Expected Excess Return (%)	Tracking Error (%)	Strategy Benchmark	Excess Risk Contribution (%)	Mix J Optimal Mix Constrained at 1.2% TE	Mix J Max Info Ratio	Recommended
SSgA - World ex USA IMI	35.1%	-0.71%	2.09%	MSCI World ex USA IMI	-1.0%	7.8%	0.0%	42.2%
MFS - Growth	10.4%	0.50%	4.10%	MSCI ACWI ex USA Growth	13.0%	22.7%	26.5%	6.9%
Barrow Hanley - Value	10.1%	0.50%	3.92%	MSCI ACWI ex USA Value	-3.0%	32.2%	36.3%	6.9%
Lazard - Core	11.0%	0.50%	4.12%	MSCI EAFE	21.0%	0.2%	0.2%	6.9%
Oberweiss - Small Cap	3.1%	1.00%	7.92%	MSCI EAFE Small Cap	16.0%	0.0%	0.0%	5.6%
AQR - Small Cap	7.1%	1.00%	5.92%	MSCI EAFE Small Cap	22.0%	11.1%	11.1%	5.6%
Axiom - Emerging Markets Growth	7.4%	1.50%	7.19%	MSCI Emerging Markets Growth	18.0%	0.0%	0.0%	8.6%
DFA - Emerging Markets Value	7.4%	1.50%	9.17%	MSCI Emerging Markets Value	5.0%	6.7%	7.2%	8.6%
QMA - Emerging Markets	8.4%	1.50%	7.88%	MSCI Emerging Markets	8.0%	19.2%	18.7%	8.6%
Expected Excess Return	0.36%					0.72%	0.81%	0.30%
Expected Excess Risk	1.07%					1.20%	1.30%	1.13%
Information Ratio	0.34					0.6	0.63	0.27



Benchmark for total Non-US Equities is the MSCI ACWI ex US index.

CORPORATE CREDIT VIEW

General Market Thoughts

- **Spreads continued to compress in 2018 across credit sectors**
  - Many sectors' spreads are well below long term averages
  - YTD, Bank loans have outperformed High Yield, 1.50% vs. -0.60%
- **Current valuations do not accurately reflect market risks**
  - Leverage levels at post-crisis high
  - Specific sectors showing signs of stress
- **Credit selection will be imperative in 2018**

Implementation Views

Strategy	Outlook	Commentary
Investment Grade	Neutral	Fundamental safe haven, but concerns around technical pressure remain
High Yield (HY)	Strong Negative	Spread compression elevates our concerns about the future risk-adjusted returns; secularly challenged sectors; impact of tax reform on CCCs
Bank Loans	Neutral	Loans trading at or above par and high percent of covenant-lite loans remain a concern; rising-rate benefit.
Private Credit	Positive	Competitive US market; Europe and Asia slightly more attractive; seek niche strategies to provide enhanced return

SOVEREIGN CREDIT VIEW

General Market Thoughts

- **Continued flattening of US Treasury yield curve with marginally higher real yields**
- **Tax reform in December 2017 shifted supply/demand dynamics for municipal bonds**

Implementation Views

Strategy	Outlook	Commentary
Treasuries	Neutral	Yields remain higher than other major developed markets; Fed balance sheet transition presents opportunity for elevated volatility
Non-US Sovereign	Negative	Yields remain low and even negative across much of Europe and Japan
TIPS	Positive	Attractive “safe haven” alternative to core bonds as market’s inflation expectations remain low
Municipal	Neutral	Rate risk looms and nominal yields remain fairly unattractive, but supply shortages could present tailwind

EMERGING MARKETS DEBT VIEW

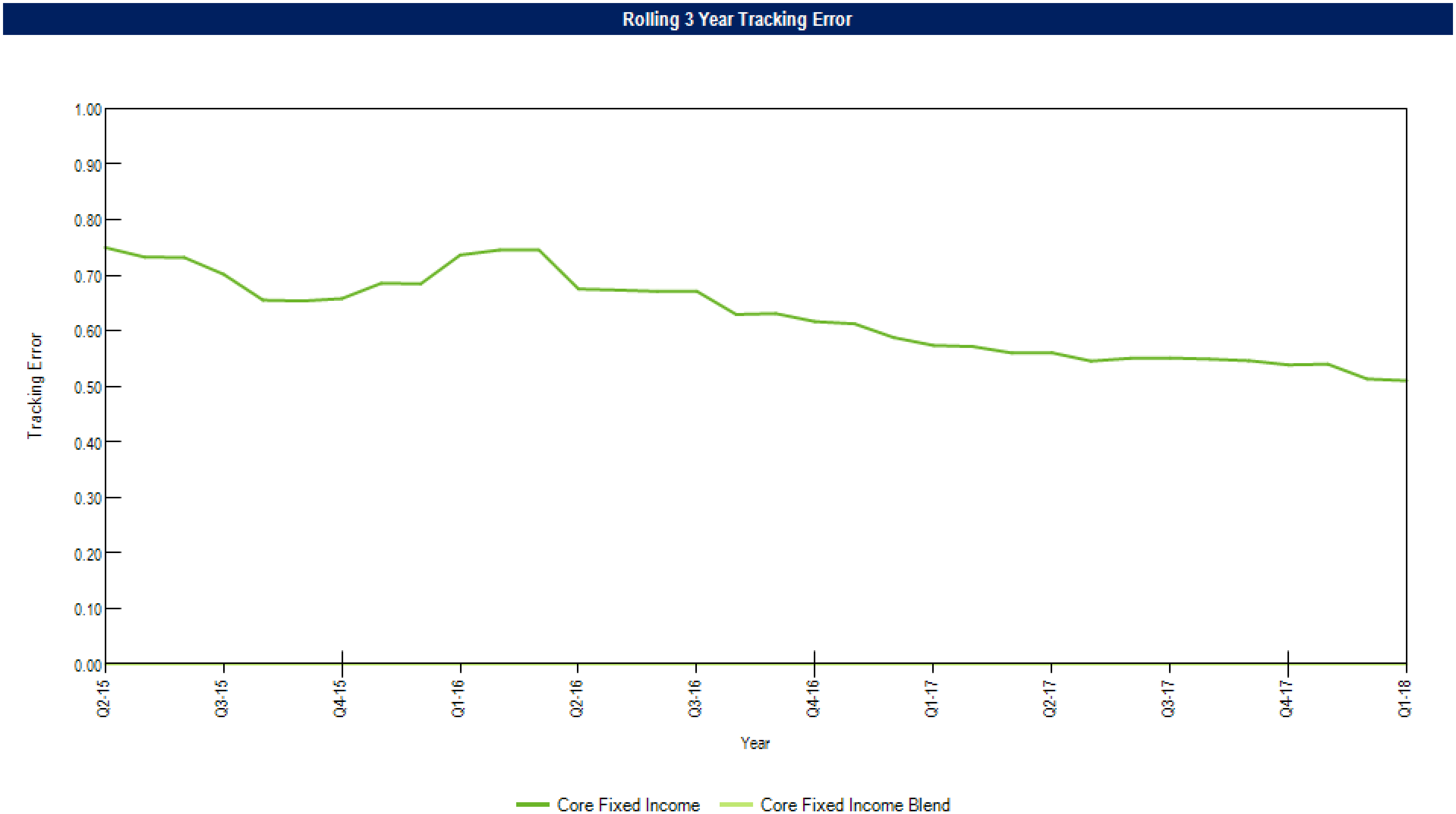
General Market Thoughts

- **EM local currency debt remains an attractive investment**
  - Favorable valuations, fundamentals, and technicals for rates and FX
- **External sovereign and corporate debt valuations well below long term averages**
  - Fundamentals are stable, but upside is limited
  - Risk/return profile less attractive today relative to local markets
- **Recommend EMD Local for nimble investors with higher risk tolerance**
  - Favor a strategic allocation to Blended EMD for clients with lower risk appetite
  - Volatility remains high – mindful of potential trade wars

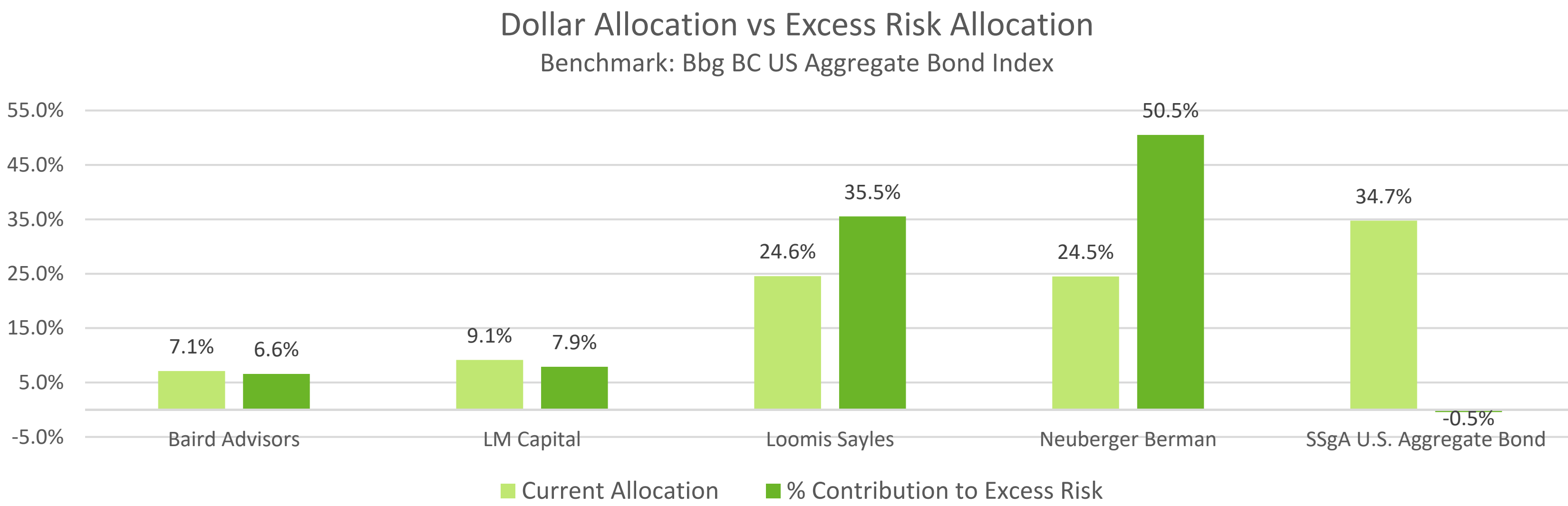
Implementation Views

Strategy	Outlook	Commentary
EMD Local	Positive	High real rates and diverging cycles relative to DM, EM FX remain attractive though volatility to persist
EMD External Sovereign	Negative	Valuations are tight, upside is limited; idiosyncratic risks and opportunities remain
EMD External Corporate	Negative	Default risk relative low, but risk return profile much less attractive today; favor active exposure to corporates through blended mandate

CORE FIXED INCOME 3 YR ROLLING TRACKING ERROR



CORE FIXED INCOME RISK BUDGETING

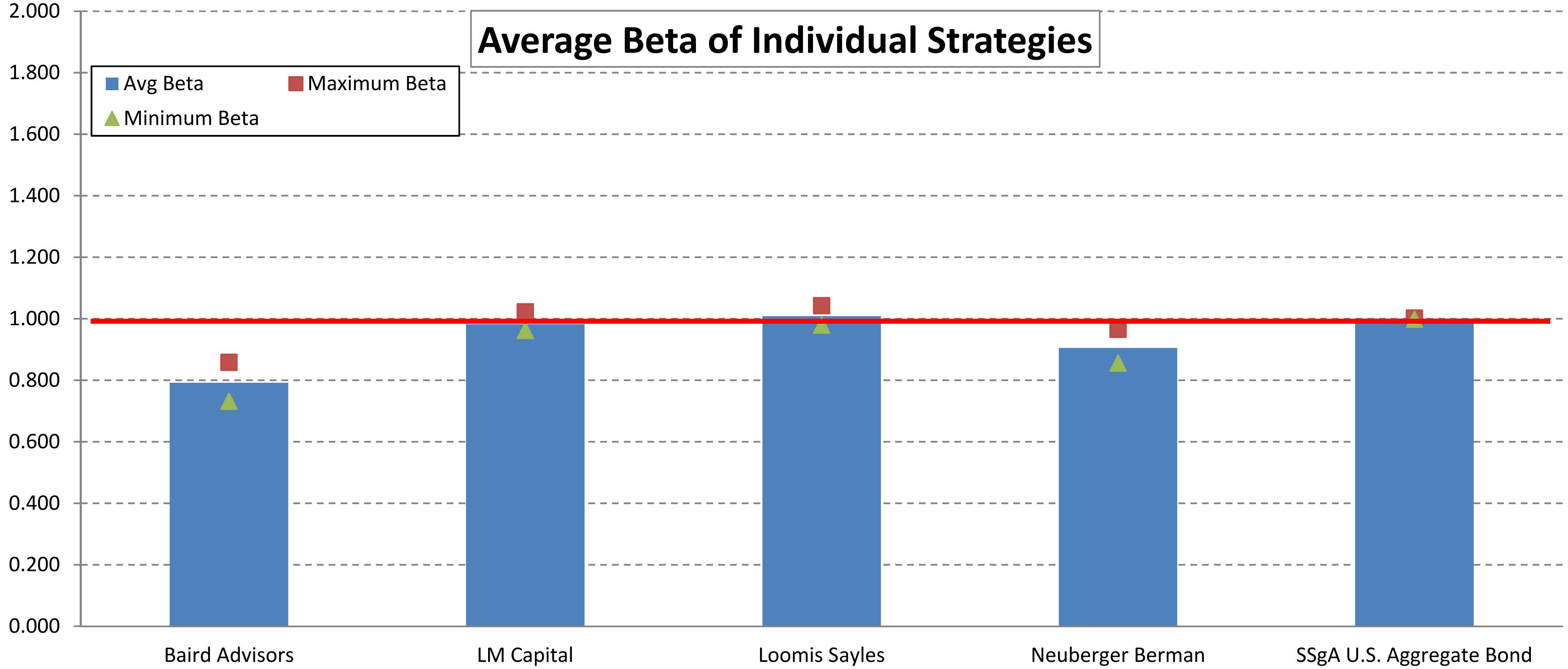


Alpha Correlations	Baird Advisors	LM Capital	Loomis Sayles	Neuberger Berman	SSgA U.S. Aggregate Bond
Baird Advisors	1	0.52	0.4	0.12	0
LM Capital	0.52	1	0.37	0.46	-0.02
Loomis Sayles	0.4	0.37	1	0.68	-0.02
Neuberger Berman	0.12	0.46	0.68	1	-0.28
SSgA U.S. Aggregate Bond	0	-0.02	-0.02	-0.28	1

Correlated   Uncorrelated

Note: Index is Bloomberg Barclays Aggregate Bond Index. Historical LACERS data used where applicable to core bonds, then eVestment composite data was used to supplement historical data.

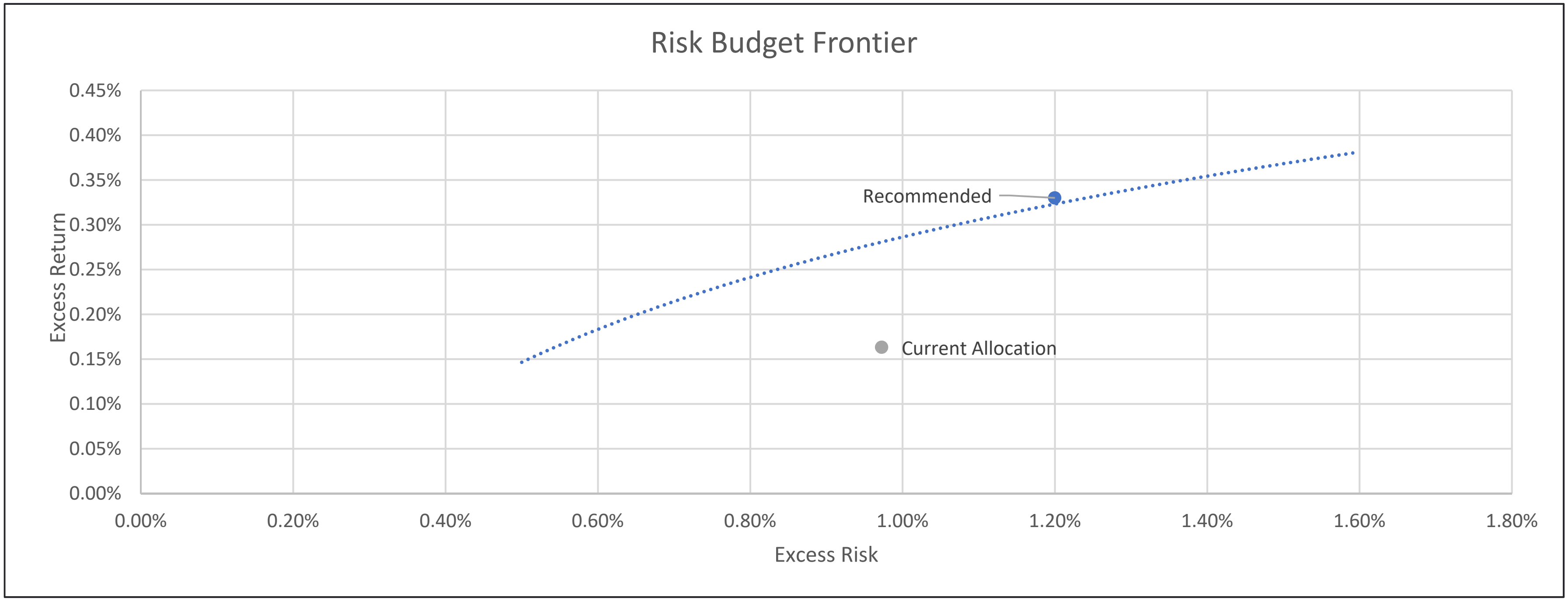
CORE FIXED INCOME



Benchmark and relative index (for Beta) the Bloomberg Barclays US Aggregate Bond Index.

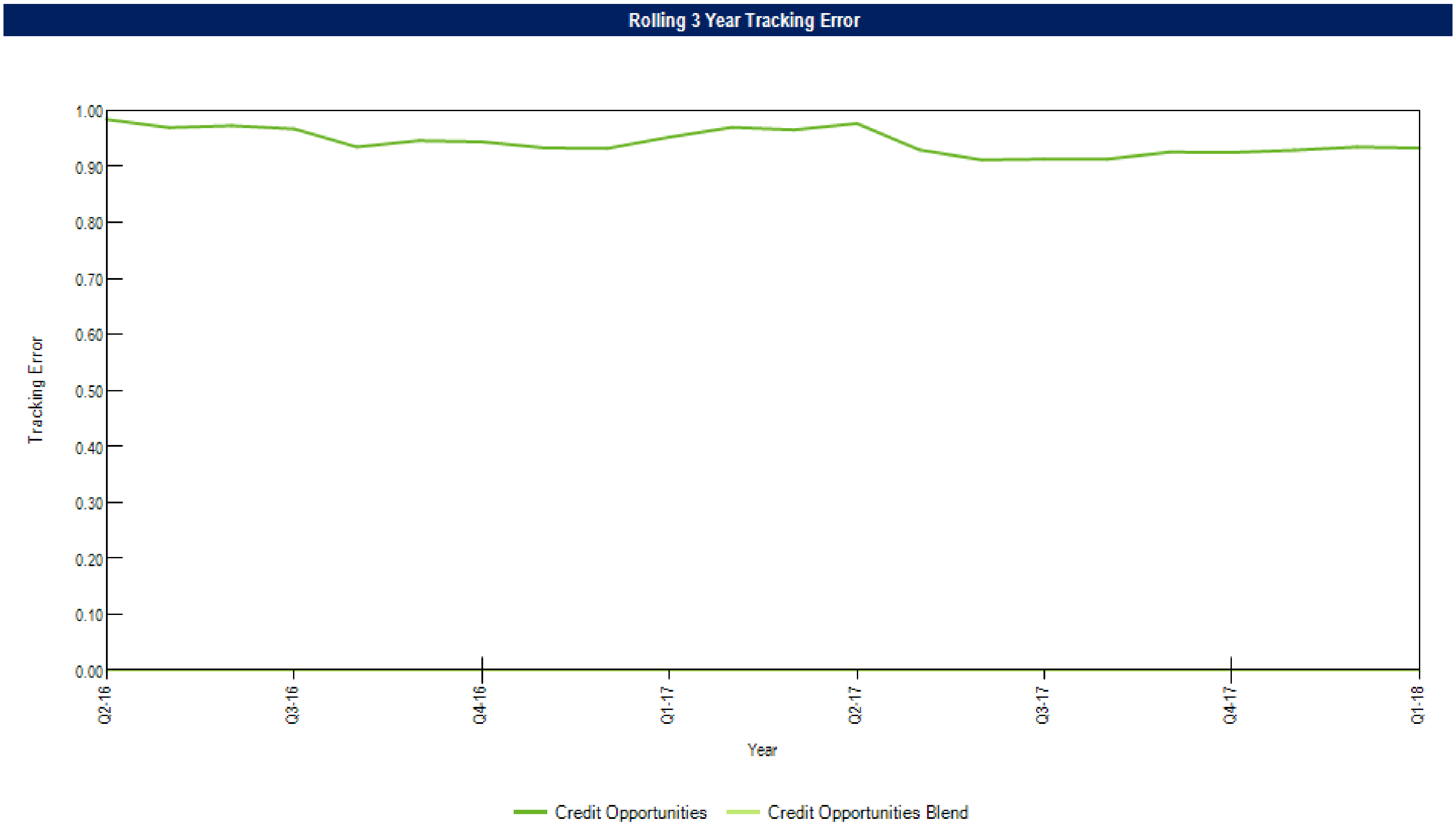
CORE FIXED INCOME RISK BUDGETING

Portfolio	Current Allocation (%)	Expected Excess Return (%)	Tracking Error (%)	Strategy Benchmark	Excess Risk Contribution (%)	Mix J Optimal Mix Constrained at 1.0% TE	Mix J Max Info Ratio Unconstrained	Recommended
SSgA US Aggregate Bond Index	34.74%	0.00%	0.06%	Bbg Barclays US Aggregate	-0.5%	0.0%	67.0%	0.0%
Baird Advisors - Intermediate Core	7.09%	0.25%	1.23%	Bbg Barclays US Govt/Credit Int	6.6%	25.7%	9.3%	25.0%
LM Capital - Core	9.14%	0.25%	0.94%	Bbg Barclays US Aggregate	7.9%	44.6%	16.3%	25.0%
Loomis Sayles - Core	24.55%	0.40%	2.08%	Bbg Barclays US Aggregate	35.5%	6.7%	0.3%	25.0%
Neuberger Berman - Core	24.48%	0.40%	1.94%	Bbg Barclays US Aggregate	50.5%	22.9%	7.1%	25.0%
Expected Excess Return	0.16%					0.29%	0.09%	0.33%
Expected Excess Risk	0.97%					1.00%	0.31%	1.20%
Information Ratio	0.17					0.29	0.30	0.27



Benchmark for Core Fixed Income is the Bloomberg Barclays US Aggregate Bond Index.

CREDIT OPPORTUNITIES 3 YR ROLLING TRACKING ERROR



CREDIT OPPORTUNITIES BENCHMARK

- **As a result of the newly approved strategic asset allocation policy the Credit Opportunities asset class has an expanded universe**

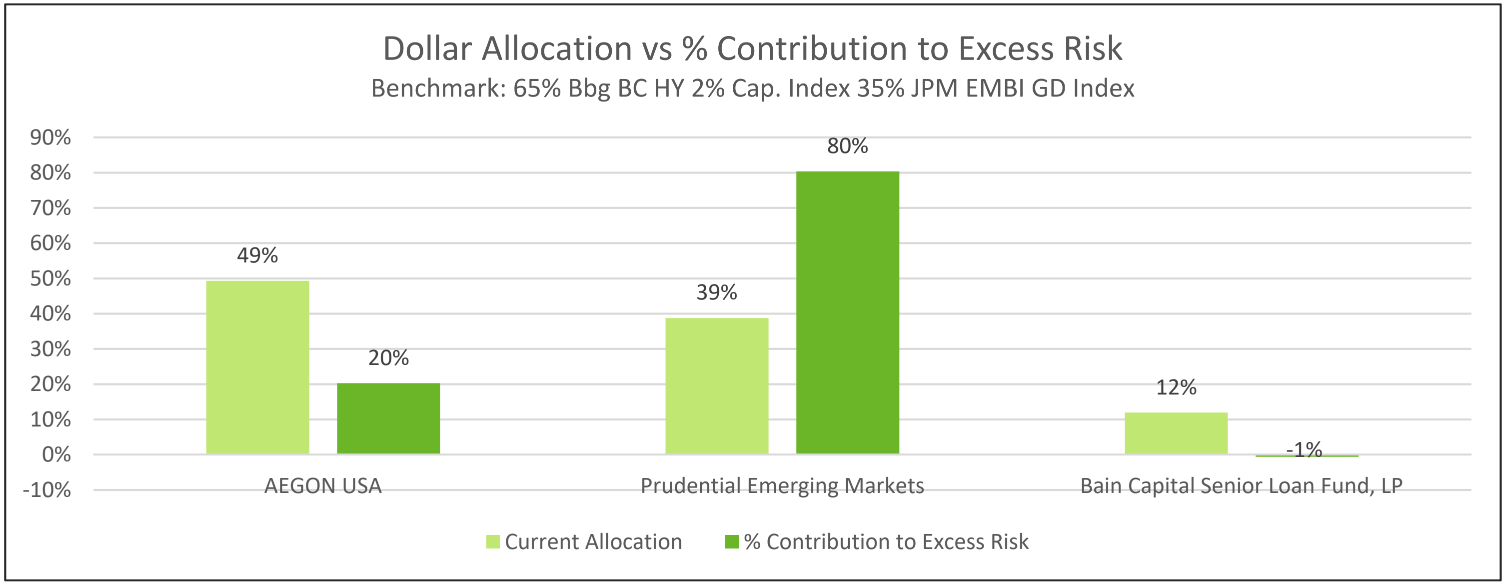
- **Restructuring the Credit Opportunities benchmark is necessary given the addition of local currency denominated Emerging Market Debt and Private Debt**

- **The proposed benchmark composition includes widely used and ubiquitously known benchmarks comprehensively tracking the leveraged loans and local currency emerging market debt universes**
  - Credit Suisse Leverage Loan Index
  - JP Morgan Government Bond - Emerging Markets Global Diversified Index

- **The current benchmark composition includes:**
  - 65% Bbg Barclays US High Yield 2% Issuer Cap
  - 35% JP Morgan EMBI-GD Index

- **The proposed benchmark composition is:**
  - 15% Bbg Barclays US High Yield 2% Issuer Cap
  - 45% Credit Suisse Leveraged Loan Index
  - 40% ½ JPM EMBI-GD + ½ JPM GBI-EM GD

CREDIT OPPORTUNITIES RISK BUDGETING - CURRENT BENCHMARK

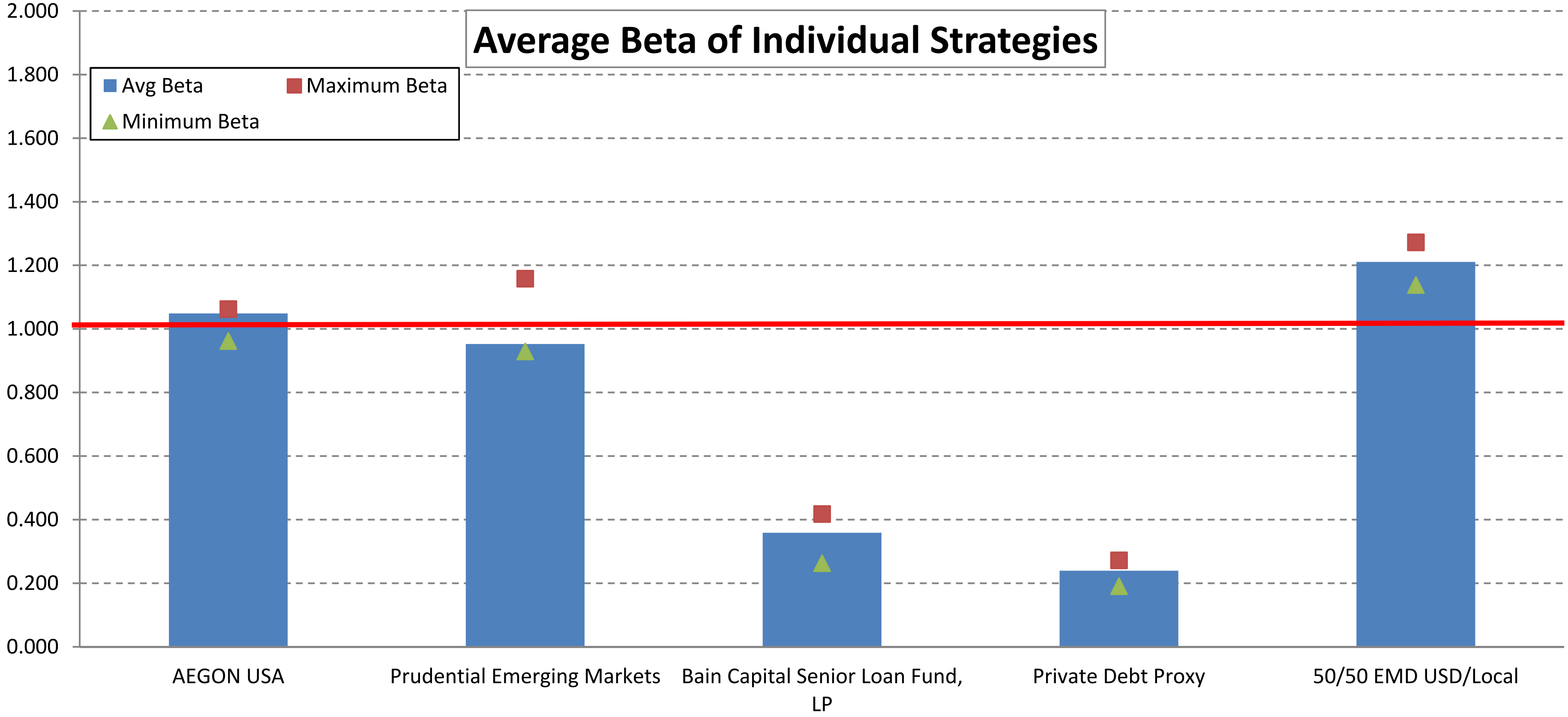


Alpha Correlations	AEGON USA	Prudential Emerging Markets	Bain Capital Senior Loan Fund, LP	Private Debt Proxy	50/50 EMD USD/Local
AEGON USA	1	-0.59	0.59	0.46	-0.5
Prudential Emerging Markets	-0.59	1	-0.61	-0.43	0.70
Bain Capital Senior Loan Fund, LP	0.59	-0.61	1	0.52	-0.47
Private Debt Proxy	0.46	-0.43	0.52	1	-0.4
50/50 EMD USD/Local	-0.5	0.70	-0.47	-0.4	1

Correlated   Uncorrelated

Benchmark for Credit Opportunities is 65% Bloomberg Barclays US High Yield 2% Capped index + 35% JPMorgan EMBI-GD index.

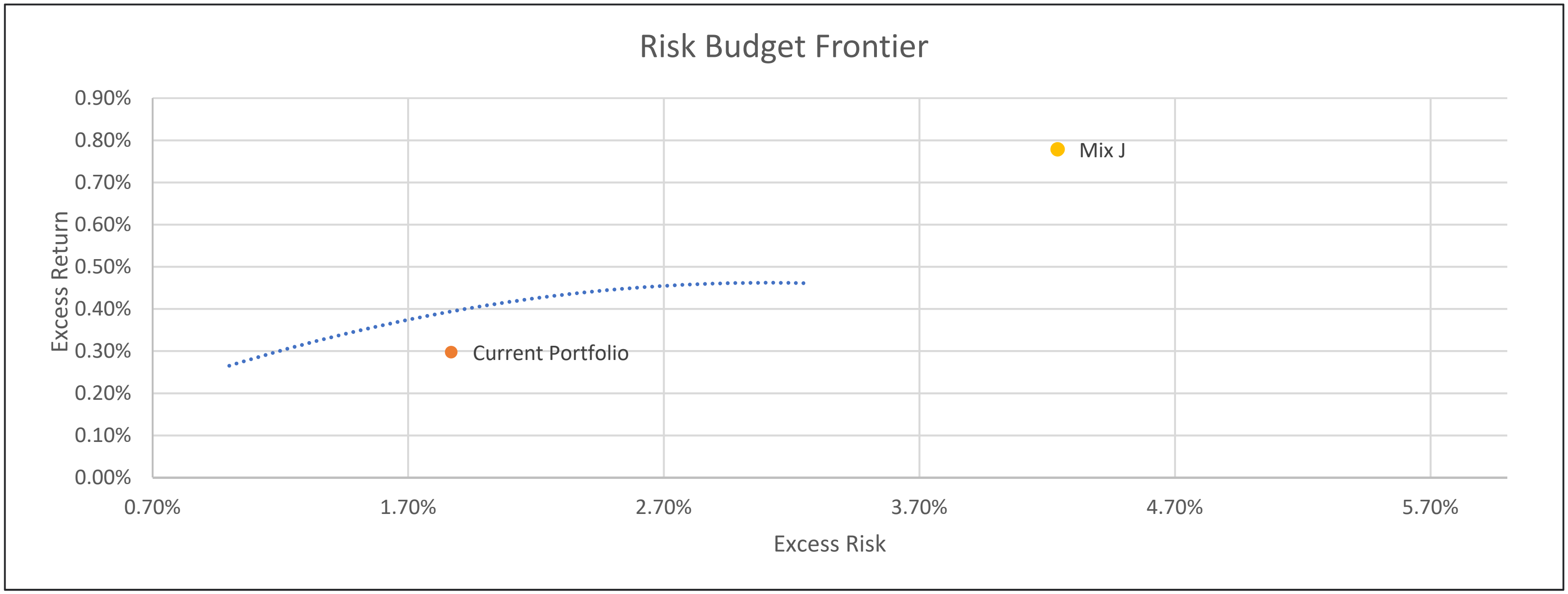
CREDIT OPPORTUNITIES – CURRENT BENCHMARK



Benchmark for Credit Opportunities is 65% Bloomberg Barclays US High Yield 2% Capped index + 35% JPMorgan EMBI-GD index.

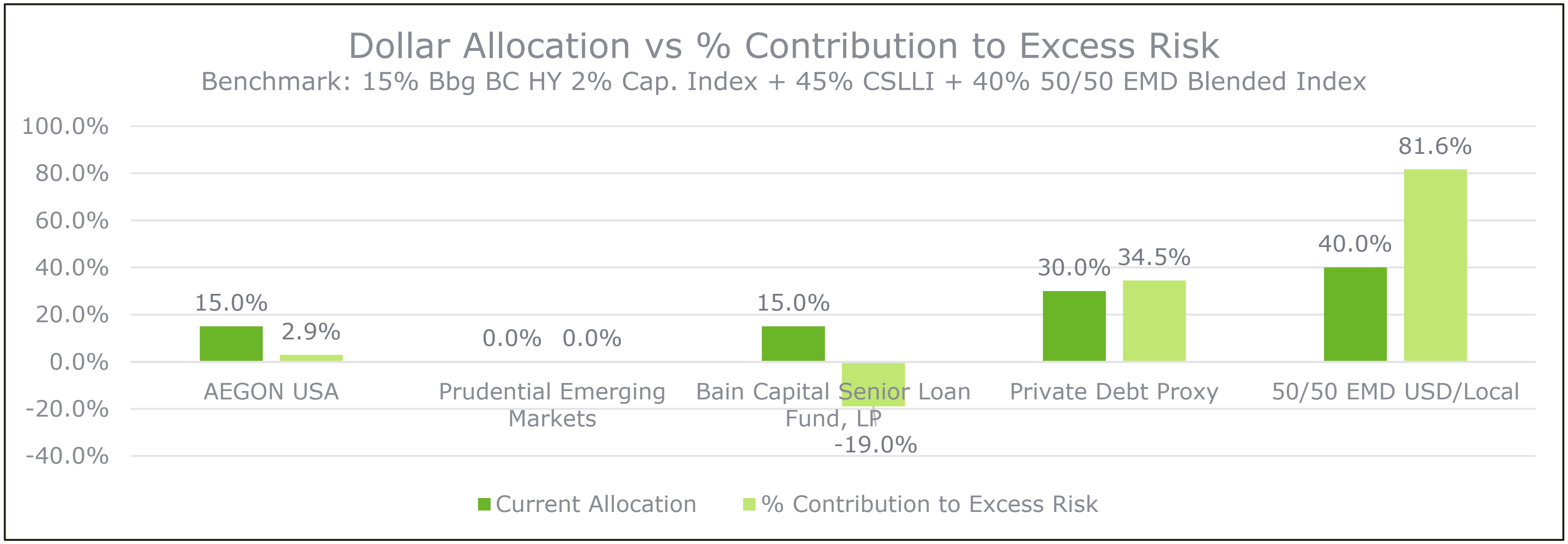
CREDIT OPPORTUNITIES RISK BUDGETING – CURRENT BENCHMARK

Portfolio	Current Allocation (%)	Expected Excess Return (%)	Tracking Error (%)	Strategy Benchmark	Excess Risk Contribution (%)	Mix J	Unconstrained Proposed Benchmark
AEGON - High Yield	49.30%	0.15%	1.64%	Bbg Barclays US High Yield 2% Issuer Cap	20.3%	15.7%	0.0%
Bain Capital - Bank Loans	11.95%	0.25%	3.11%	Credit Suisse Leveraged Loans	-0.6%	15.7%	55.3%
Prudential - Emerging Market Debt	38.75%	0.50%	3.90%	JPM EMBI Global Diversified	80.4%	0.0%	0.0%
Private Debt Proxy	0.00%	1.50%	4.45%	CS Leveraged Loans Index		29.4%	22.4%
50/50 EMD USD Local Proxy	0.00%	0.60%	12.38%	50/50 JPM EMBI GD + GBI-EMGD		39.2%	22.3%
Expected Excess Return	0.30%					0.78%	0.75%
Expected Excess Risk	1.87%					4.24%	0.95%
Information Ratio	0.16					0.18	0.78



Benchmark for Credit Opportunities is 65% Bloomberg Barclays US High Yield Capped index + 35% JPMorgan EMBI-GD index.

CREDIT OPPORTUNITIES RISK BUDGETING – PROPOSED BENCHMARK

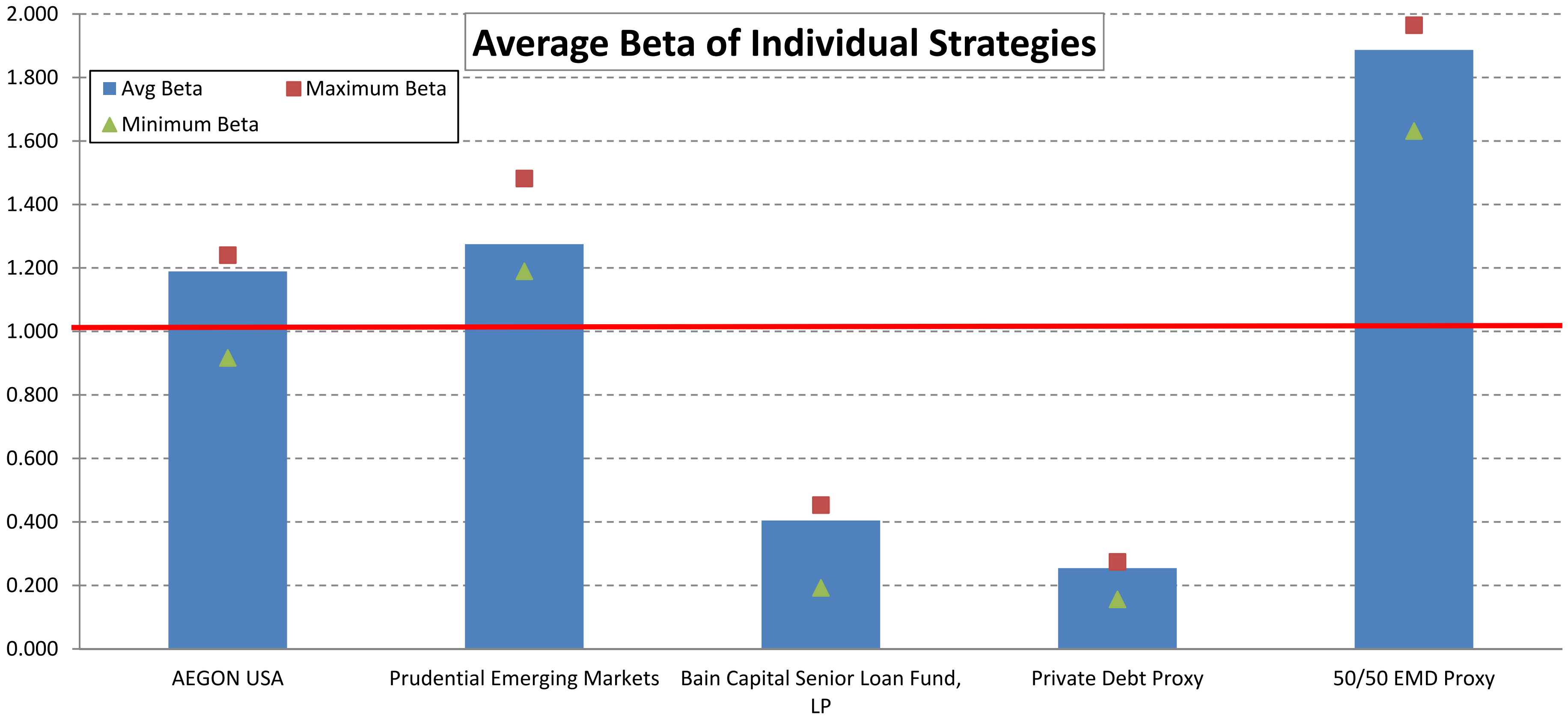


Alpha Correlations	AEGON USA	Prudential Emerging Markets	Bain Capital Senior Loan Fund, LP	Private Debt Proxy	50/50 EMD Proxy
AEGON USA	1.00	0.00	0.58	0.50	-0.73
Prudential Emerging Markets	0.00	1.00	-0.52	-0.24	0.55
Bain Capital Senior Loan Fund, LP	0.58	-0.52	1.00	0.56	-0.90
Private Debt Proxy	0.50	-0.24	0.56	1.00	-0.66
50/50 EMD Proxy	-0.73	0.55	-0.90	-0.66	1.00

Correlated   Uncorrelated

Benchmark for Credit Opportunities is 15% Bloomberg Barclays US High Yield 2% Capped index + 45% Credit Suisse Leverage Loan Index + 20% JPMorgan EMBI-GD index+ 20% JPMorgan GBI-EMGD Index.

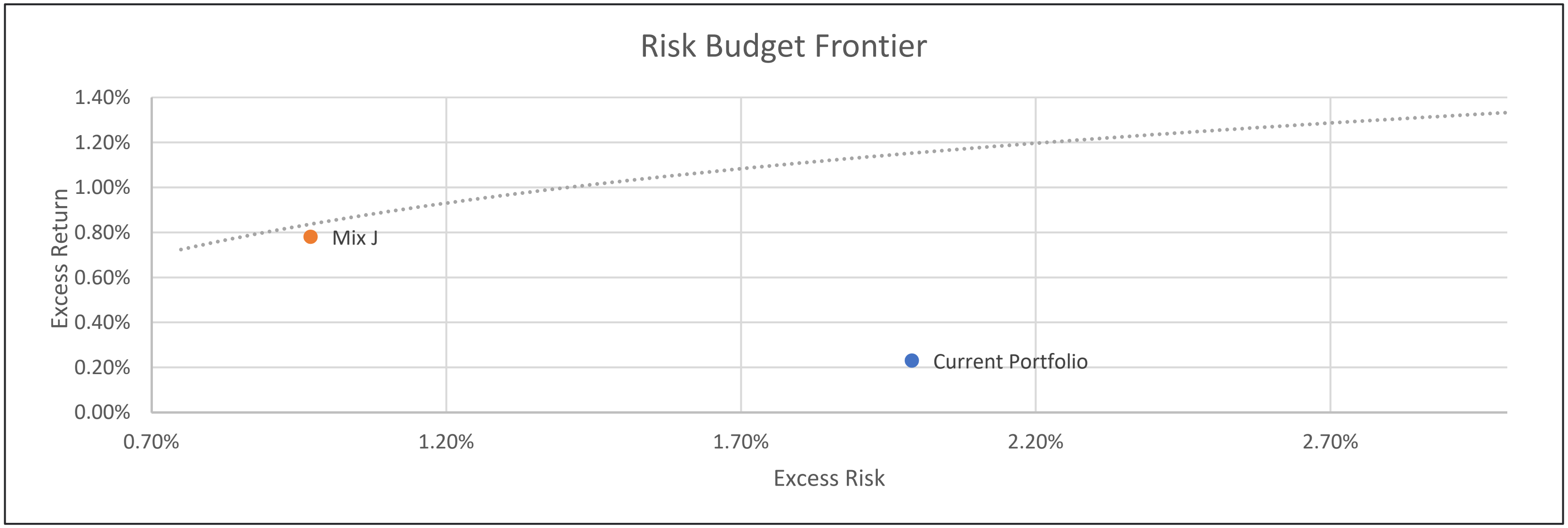
CREDIT OPPORTUNITIES – PROPOSED BENCHMARK



Benchmark for Credit Opportunities is 15% Bloomberg Barclays US High Yield 2% Capped index + 45% Credit Suisse Leverage Loan Index + 20% JPMorgan EMBI-GD index+ 20% JPMorgan GBI-EMGD Index.

CREDIT OPPORTUNITIES RISK BUDGETING – PROPOSED BENCHMARK

Portfolio	Current Allocation (%)	Expected Excess Return (%)	Tracking Error (%)	Strategy Benchmark	Excess Risk Contribution (%)	Recommended - Mix J	Mix J Max Info Ratio
AEGON - High Yield	49.30%	0.15%	2.82%	Bbg Barclays US High Yield 2% Issuer Cap	20.3%	15.69%	12.6%
Bain Capital - Bank Loans	11.95%	0.25%	3.51%	Credit Suisse Leveraged Loans	-0.6%	15.69%	35.8%
Prudential - Emerging Market Debt	38.75%	0.50%	3.03%	JPM EMBI Global Diversified	80.4%	0.00%	0.0%
Private Debt Proxy	0.00%	1.50%	4.24%	CS Leveraged Loans Index		29.41%	11.1%
50/50 EMD USD Local Proxy	0.00%	0.60%	4.02%	50/50 JPM EMBI GD + GBI-EMGD		39.22%	40.5%
Expected Excess Return	0.23%					0.78%	0.61%
Expected Excess Risk	1.99%					0.97%	0.56%
Information Ratio	0.12					0.80	1.09



Benchmark for Credit Opportunities is 15% Bloomberg Barclays US High Yield 2% Capped index + 45% Credit Suisse Leverage Loan Index + 20% JPMorgan EMBI-GD index+ 20% JPMorgan GBI-EMGD Index.

PUBLIC REAL ASSETS MARKET VIEW

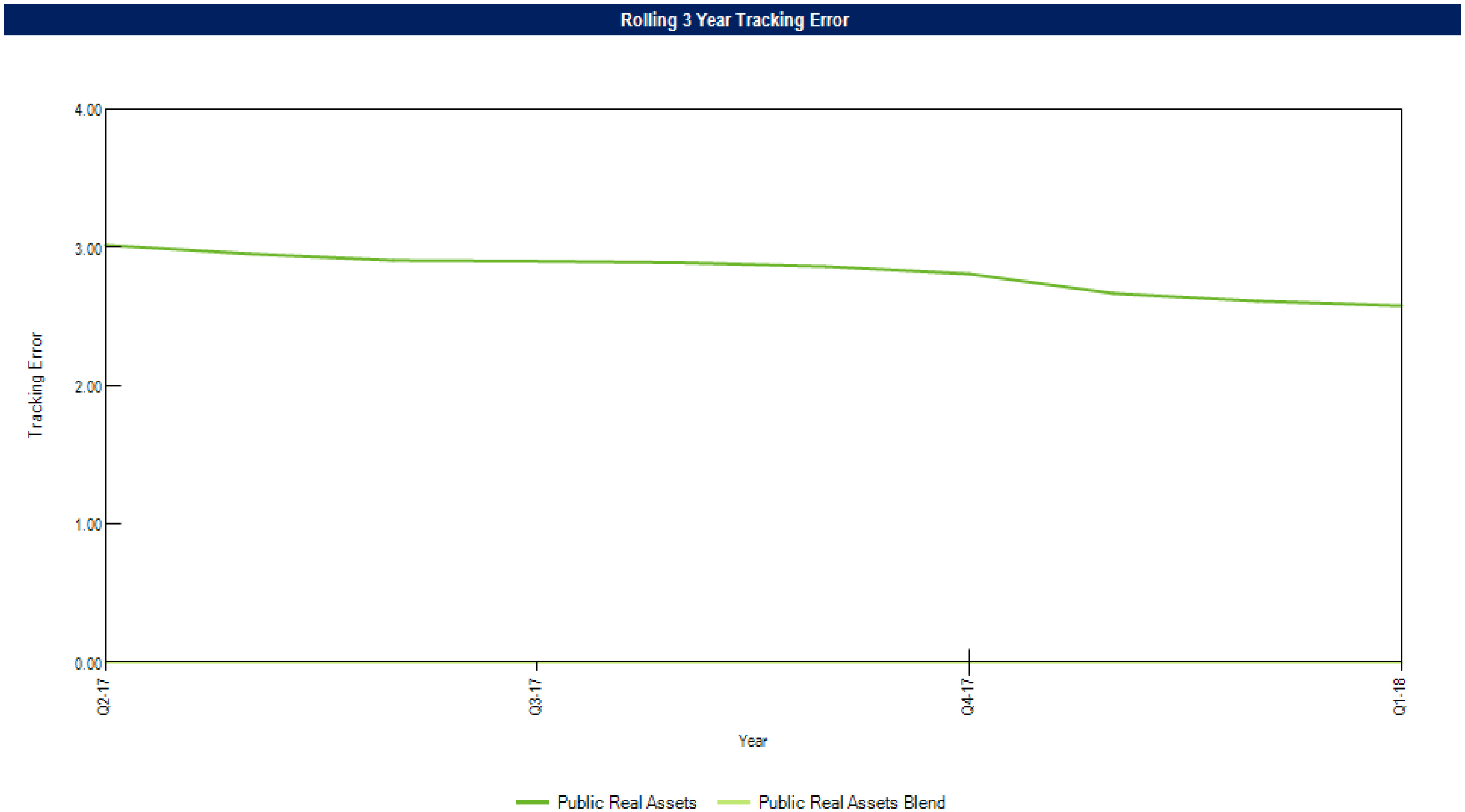
General Market Thoughts

- **REIT valuations disconnected from private comps**
- **Midstream energy decline has continued, despite improving fundamentals**
  - Attractive entry/rebalancing-point for actively managed strategies
- **Long-only commodities remain unattractive given negative roll yield**
  - May become more attractive if commodity futures curves continue to shift
- **Natural resource equities appear attractive**
  - Recent pullback in Q1 driven by mining/energy, strong outlook remains
- **Listed infrastructure offers low yields while adding volatility**
  - Significant exposure from broader equity benchmarks limits diversification benefits

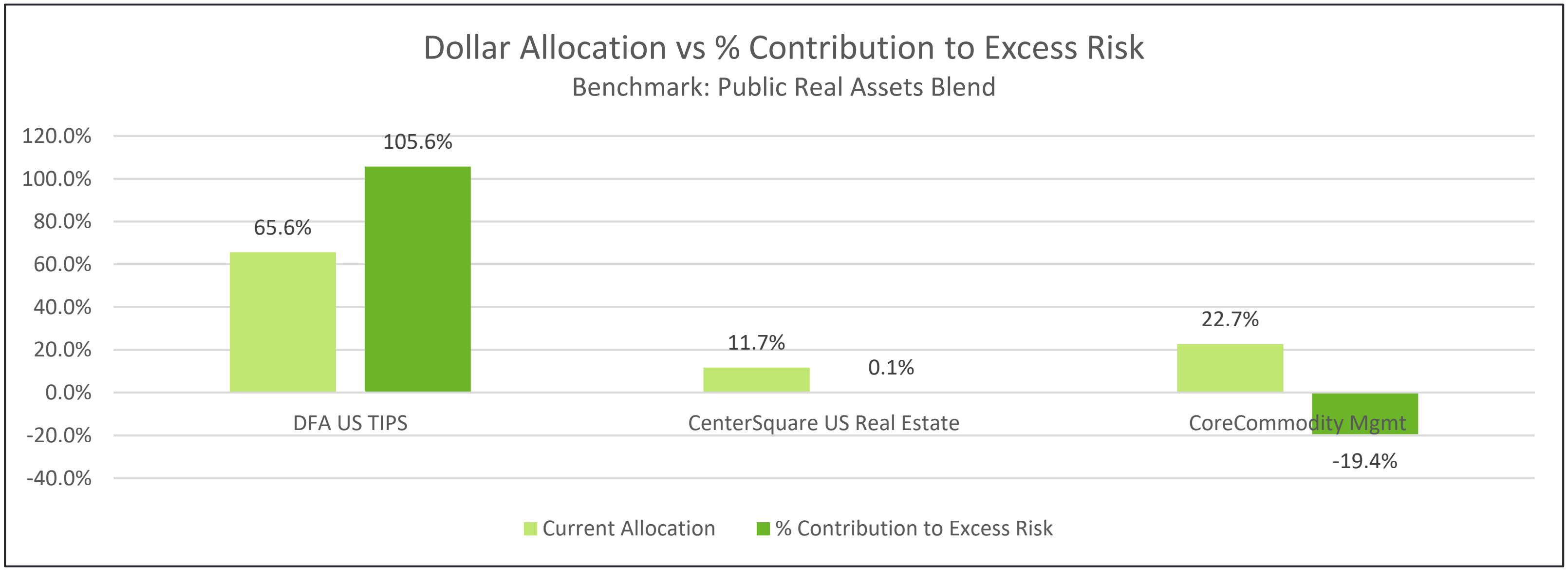
Implementation Views

Strategy	Outlook	Commentary
REITs	Neutral	Potentially rebalance existing exposure; expect volatility in the short term
MLPs/Midstream Energy	Positive	Recent underperformance in the face of balance sheet strengthening should make for a favorable entry point
Commodities (long-only)	Neutral	Despite backwardation at the back end of some commodities, near-term contango means continued negative roll yields
Natural Resource Equities	Positive	Focus on flexible mandates to be opportunistic; recent performance has been strong but multi-year opportunities remain if commodities stabilize
Listed Infrastructure	Neutral	Low yields and limited diversification benefits

PUBLIC REAL ASSETS 3 YR ROLLING TRACKING ERROR



PUBLIC REAL ASSETS RISK BUDGETING – CURRENT BENCHMARK

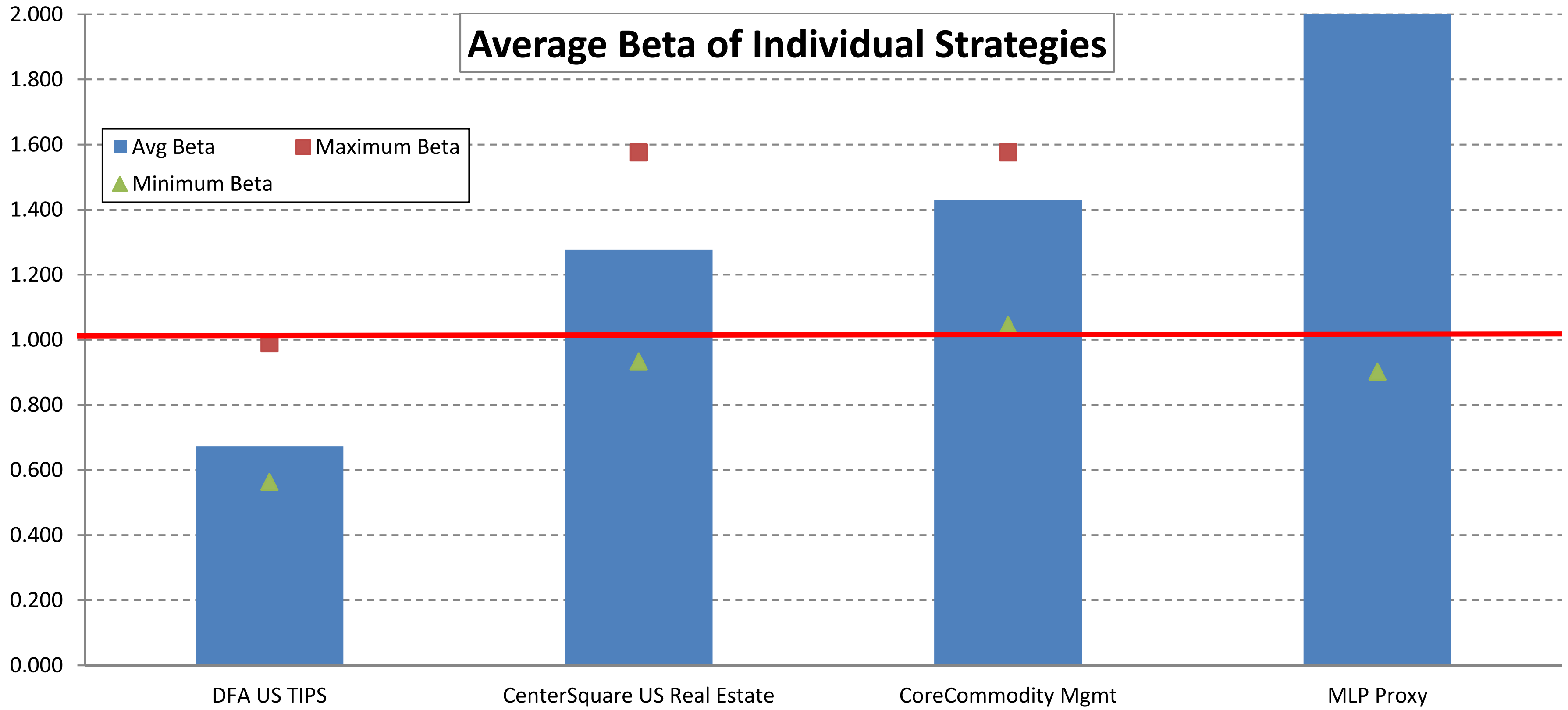


Alpha Correlations	DFA US TIPS	Center Square US Real Estate	Core Commodity Mgmt	MLP Proxy
DFA US TIPS	1.00	0.15	-0.60	-0.73
CenterSquare US Real Estate	0.15	1.00	-0.67	-0.26
CoreCommodity Mgmt	-0.60	-0.67	1.00	0.04
MLP Proxy	-0.73	-0.26	0.04	1.00

Correlated   Uncorrelated

Benchmark for Public Real Assets is BBgBarc US TIPS TR / 20% Bloomberg Commodity Index TR USD / 10% Alerian MLP TR USD / 10% FTSE NAREIT All REIT%.

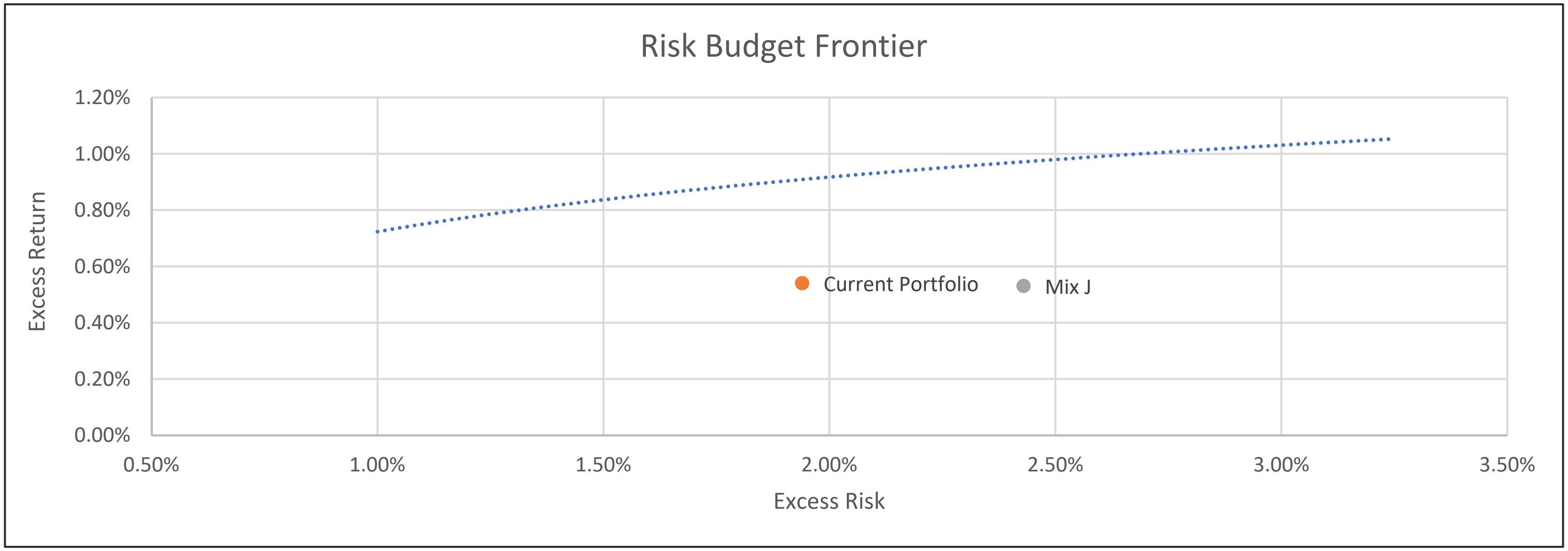
PUBLIC REAL ASSETS RISK BUDGETING – CURRENT BENCHMARK



Benchmark for Public Real Assets is BBgBarc US TIPS TR / 20% Bloomberg Commodity Index TR USD / 10% Alerian MLP TR USD / 10% FTSE NAREIT All REIT%.

PUBLIC REAL ASSETS RISK BUDGETING – CURRENT BENCHMARK

Portfolio	Current Allocation (%)	Expected Excess Return (%)	Tracking Error (%)	Strategy Benchmark	Excess Risk Contribution (%)	Unconstrained at 3% TE	Mix J Beta
DFA - US TIPS	65.62%	0.30%	4.02%	Bloomberg Barclays US TIPS	105.6%	11.0%	66.7%
CenterSquare - US REITS	11.70%	1.00%	11.90%	FTSE NAREIT All Equity REIT	0.1%	31.7%	16.7%
CoreCommodity - Commodities	22.68%	1.00%	9.41%	Bloomberg Commodity Index	-19.4%	38.1%	16.7%
MLPs	0.00%	1.50%	14.53%	Alerian MLP Index		19.3%	0.0%
Expected Excess Return	0.54%					1.02%	0.53%
Expected Excess Risk	1.94%					3.00%	2.43%
Information Ratio	0.28					0.34	0.22

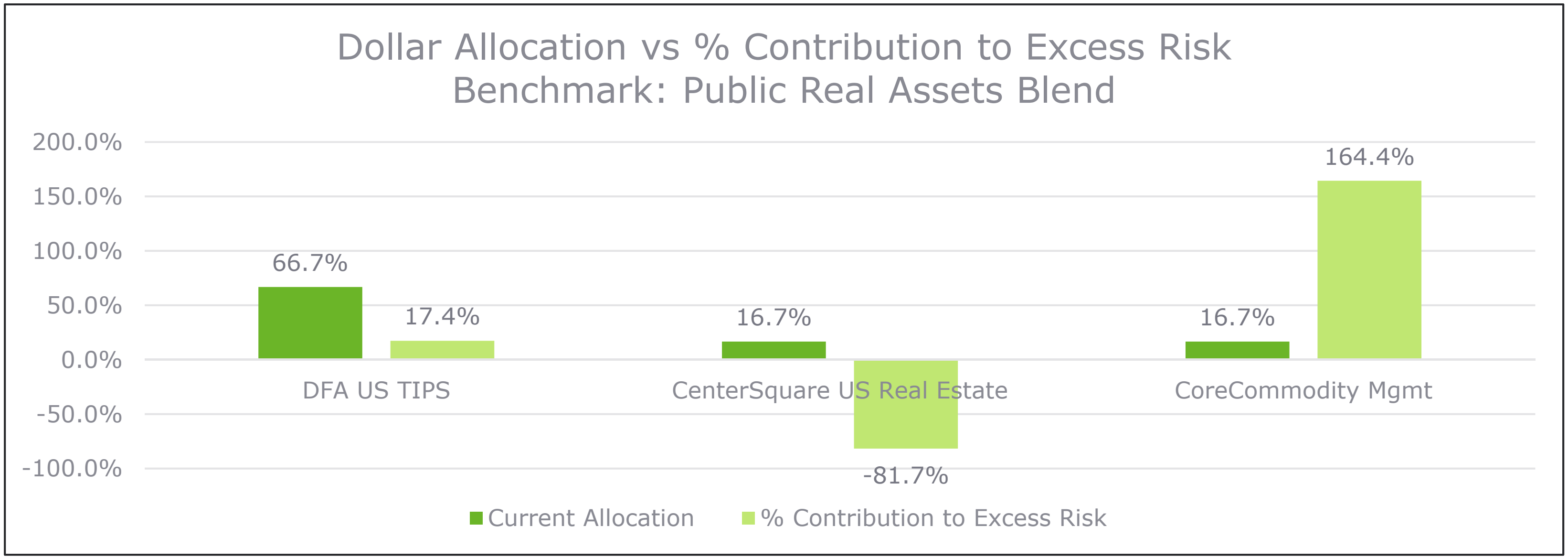


Benchmark for Public Real Assets is 60% BBgBarc US TIPS TR / 20% Bloomberg Commodity Index TR USD / 10% Alerian MLP TR USD / 10% FTSE NAREIT All REIT%.

PUBLIC REAL ASSETS BENCHMARK

- **Given approved strategic policy allocation we recommend a change to the Public Real Assets benchmark**
  - Remove Master Limited Partnerships (MLPs) from the asset class beta
- **Desire to keep Public Real Assets structure simplistic**
- **Current benchmark includes:**
  - 60% BBg BC US TIPS Index
  - 20% Bbg Commodities Index
  - 10% FTSE NAREIT ALL REIT
  - 10% Alerian MLP TR Index
- **Proposed benchmark is**
  - 66.7% BBg BC US TIPS Index
  - 16.7% FTSE NAREIT ALL REIT
  - 16.7% Bbg Commodities Index

PUBLIC REAL ASSETS RISK BUDGETING – PROPOSED BENCHMARK



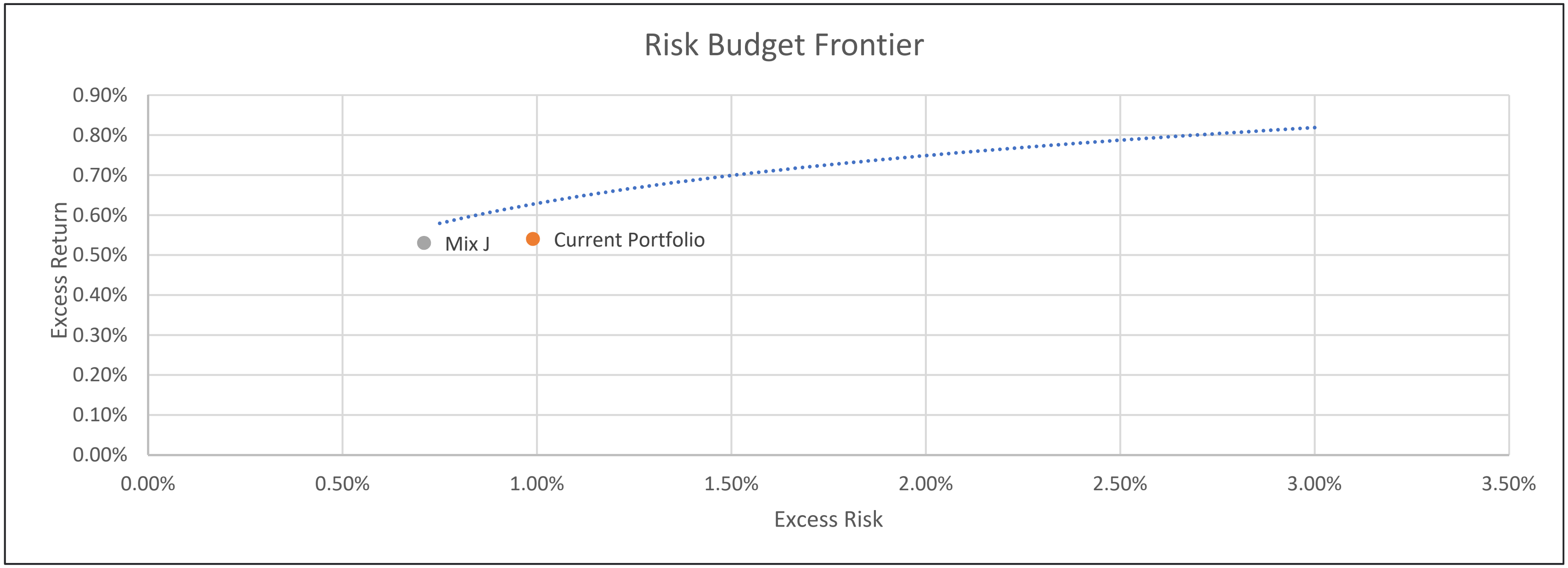
Alpha Correlations	DFA US TIPS	CenterSquare US Real Estate	CoreCommodity Mgmt	MLP Proxy
DFA US TIPS	1.00	-0.27	-0.53	-0.46
CenterSquare US Real Estate	-0.27	1.00	-0.63	0.00
CoreCommodity Mgmt	-0.53	-0.63	1.00	0.29
MLP Proxy	-0.46	0.00	0.29	1.00

Correlated   Uncorrelated

Benchmark for Public Real Assets is 66.7% BBgBarc US TIPS TR + 16.65% Bloomberg Commodity Index TR USD + 16.65% FTSE NAREIT All REIT.

PUBLIC REAL ASSETS RISK BUDGETING – PROPOSED BENCHMARK

Portfolio	Current Allocation (%)	Expected Excess Return (%)	Tracking Error (%)	Strategy Benchmark	Excess Risk Contribution (%)	Unconstrained	Mix J Recommended
DFA - US TIPS	65.62%	0.30%	2.74%	Bloomberg Barclays US TIPS	17.4%	62.7%	66.7%
CenterSquare - US REITS	11.70%	1.00%	10.93%	FTSE NAREIT All Equity REIT	-81.7%	17.1%	16.7%
CoreCommodity - Commodities	22.68%	1.00%	10.69%	Bloomberg Commodity Index	164.4%	20.1%	16.7%
Expected Excess Return	0.54%					0.56%	0.53%
Expected Excess Risk	1.94%					0.61%	0.71%
Information Ratio	0.28					0.92	0.75



Benchmark for Public Real Assets is 66.7% BBgBarc US TIPS TR + 16.65% Bloomberg Commodity Index TR USD + 16.65% FTSE NAREIT All REIT.

IMPLEMENTATION PLAN

NEW TARGET – PRIVATE MARKETS ADJUSTED

As of 7/6/2018	CURRENT		MIX J TARGET		ADJUSTMENT FOR PRIVATE EQUITY	ADJUSTMENT FOR PRIVATE DEBT	ADJUSTMENT FOR PRIVATE REAL ESTATE	New Target	DIFFERENCE
US EQUITIES									
TOTAL LARGE CAP	**3,685,786,259**	**21.66%**	**2,382,760,466**	**14.00%**	**194,169,141**		**74,657,856**	**15.58%**	**(1,034,198,795)**
TOTAL SMALL CAP	**967,202,212**	**5.68%**	**850,985,881**	**5.00%**	**69,346,122**		**26,663,520**	**5.56%**	**(20,206,689)**
NON-US EQUITIES									
TOTAL NON-US	**3,511,928,200**	**20.63%**	**2,893,351,995**	**17.00%**	**235,776,814**		**90,655,968**	**18.92%**	**(292,143,423)**
TOTAL NON-US SMALL CAP	**539,646,594**	**3.17%**	**510,591,528**	**3.00%**	**41,607,673**		**15,998,112**	**3.34%**	**28,550,719**
									-
TOTAL EMERGING MARKET	**1,153,126,645**	**6.78%**	**1,191,380,233**	**7.00%**	**97,084,571**		**37,328,928**	**7.79%**	**172,667,087**
FIXED INCOME									
TOTAL CORE BOND	**2,974,213,015**	**17.48%**	**2,340,211,172**	**13.75%**	**-**	**638,239,411**	**73,324,680**	**17.93%**	**77,562,248**
CREDIT OPPS									
High Yield	386,212,580	2.27%	340,394,352	2.00%			**10,665,408**	**2.06%**	**(35,152,820)**
EMD	299,238,759	1.76%	765,887,293	4.50%			**23,997,168**	**4.64%**	**490,645,701**
Bank Loans	95,605,790	0.56%	340,394,352	2.00%			**10,665,408**	**2.06%**	**255,453,970**
PRIVATE DEBT - new	-	0.00%	638,239,411	3.75%		(638,239,411)			-
TOTAL CREDIT OPPS	**781,057,130**	**4.59%**	**2,084,915,408**	**12.25%**				**8.77%**	**710,946,851**
REAL ASSETS									
REAL ASSETS - LIQUID	783,248,678	4.60%	1,021,183,057	6.00%			**31,996,224**	**6.19%**	**269,930,603**
REAL ESTATE	795,426,962	4.67%	1,191,380,233	7.00%			(395,953,271)	**4.67%**	**-**
TOTAL REAL ASSETS	**1,578,675,640**	**9.28%**	**2,212,563,290**	**13.00%**				**10.86%**	**269,930,603**
PRIVATE EQUITY	**1,744,776,145**	**10.25%**	**2,382,760,466**	**14.00%**	**(637,984,322)**			**10.25%**	**-**
CASH	**83,279,411**	**0.49%**	**170,197,176**	**1.00%**				**1.00%**	**86,917,766**
Aegon liquidation account	**26,367**								
TOTAL PLAN	17,019,717,615		17,019,717,615	100.00%					

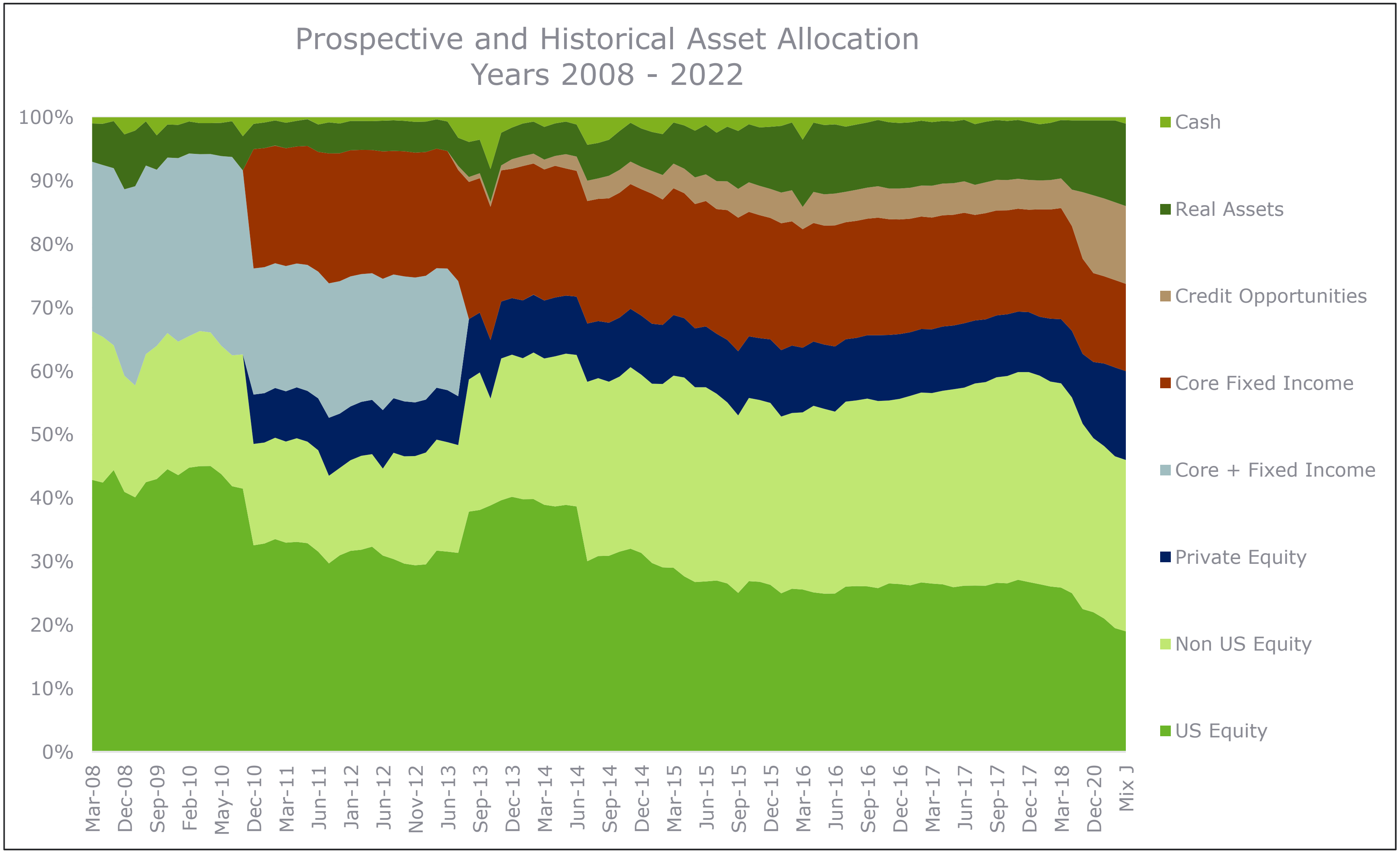
- **Additional private equity allocation temporarily held in equity**
- **New allocation to private debt temporarily held in core bonds**
- **Additional real estate allocation temporarily held in equity, core bonds, credit opportunities, and liquid real assets**

PROPOSED TIMELINE

	2018						2019						
	July	August	September	October	November	December	January	February	March	April	May	June	July
Total Plan													
Risk budget and Implementation													
Update Investment Policy Statement													
Fixed Income													
Fixed income Asset Class review													
Fixed income RFP Search Authorization													
Private Credit RFP													
High Yield RFP													
EMD RFP													
Core bond RFP													
US Equity													
Domestic Equity Asset Class Review													
US Small CapRFP Search Authorization													
Small cap emerging manager RFP													
Small cap manager RFP													
Real Assets - Liquid													
Real assets asset class review													
Non-US Equity													
Asset Class Review													
Non-US Equity RFP Search Authorization													
Emerging Market Small Cap RFP													

- **Start with fixed income asset class and small cap emerging manager searches**
- **Estimate six months per search: Board authorization, proposal analysis, Investment Committee review, due diligence, finalist interviews, Board selection and contract negotiation**

ASSET ALLOCATION



APPENDIX

DOMESTIC EQUITY RISK BUDGETING

Unconstrained optimal information ratio portfolio at a given risk budget. Consider constraints on style, size, investment beliefs and persistence of style, size and other factors in alpha generation.

	Current Portfolio	Portfolio 2	Portfolio 3	Portfolio 4	Portfolio 5	Portfolio 6	Portfolio 7	Portfolio 8	Portfolio 9	Portfolio 10
AJO	4.13%	2%	4%	5%	6%	8%	9%	11%	12%	14%
Rhumbline Advisors Russell 2000	5.85%	11%	0%	0%	0%	0%	0%	0%	0%	0%
Rhumbline Advisors Russell 2000 Growth	3.02%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Rhumbline Advisors Russell 2000 Value	2.37%	0%	0%	0%	0%	0%	0%	0%	0%	0%
EAM Investors	2.54%	0%	2%	0%	0%	0%	0%	0%	0%	0%
PanAgora	2.71%	1%	10%	12%	14%	15%	17%	18%	19%	20%
Principal Global Investors	3.34%	6%	13%	17%	21%	25%	28%	32%	35%	38%
Rhumbline Advisors S&P 500	71.81%	75%	64%	52%	44%	36%	29%	22%	14%	7%
Rhumbline Advisors Russell 1000 Growth	4.23%	6%	8%	13%	14%	16%	17%	18%	19%	20%
Exp Excess RoR	0.12%	0.06%	0.28%	0.34%	0.40%	0.45%	0.51%	0.56%	0.61%	0.66%
Exp Excess Risk	0.61%	0.26%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%	2.25%
Info Ratio	0.20	0.22	0.57	0.46	0.40	0.36	0.34	0.32	0.30	0.29

NON-U.S. EQUITY RISK BUDGETING

Unconstrained optimal information ratio portfolio at a given risk budget. Consider constraints on style, size, investment beliefs and persistence of style, size and other factors in alpha generation.

	Current Portfolio	Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 4	Portfolio 5	Portfolio 6	Portfolio 7	Portfolio 8	Portfolio 9	Portfolio 10
AQR Capital	7.10%	8%	12%	19%	23%	26%	29%	32%	34%	36%	38%
Barrow Hanley	10.10%	27%	34%	33%	30%	28%	26%	24%	22%	18%	13%
Lazard Asset Management	11.00%	6%	6%	0%	0%	0%	0%	0%	0%	0%	0%
MFS Institutional Advisors	10.40%	19%	23%	19%	14%	10%	7%	3%	0%	0%	0%
Oberweis Asset Mgmt	3.10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
SSgA World ex US IMI	35.10%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Axiom Emerging Markets	7.40%	0%	0%	2%	7%	10%	14%	17%	20%	23%	26%
DFA Emerging Markets	7.40%	8%	8%	6%	5%	4%	2%	2%	2%	2%	2%
QMA Emerging Markets	8.40%	16%	16%	21%	21%	21%	22%	22%	21%	21%	21%
Exp Excess RoR	0.36%	0.56%	0.79%	0.89%	0.94%	0.99%	1.03%	1.07%	1.10%	1.14%	1.18%
Exp Excess Risk	1.07%	1.00%	1.25%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	3.00%	3.25%
Info Ratio	0.34	0.56	0.64	0.59	0.54	0.49	0.46	0.43	0.40	0.38	0.36

CORE FIXED INCOME RISK BUDGETING

Unconstrained optimal information ratio portfolio at a given risk budget. Consider constraints on style, size, investment beliefs and persistence of style, size and other factors in alpha generation.

	Current Portfolio	Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 4	Portfolio 5	Portfolio 6	Portfolio 7	Portfolio 8	Portfolio 9	Portfolio 10
Baird Advisors	7%	14%	17%	20%	22%	25%	26%	25%	25%	23%	16%
LM Capital	9%	27%	33%	39%	44%	50%	45%	33%	15%	0%	0%
Loomis Sayles	25%	1%	2%	2%	3%	3%	7%	11%	18%	24%	29%
Neuberger Berman	25%	10%	12%	13%	15%	17%	23%	31%	43%	53%	55%
SSgA U.S. Aggregate Bond	35%	47%	37%	26%	16%	5%	0%	0%	0%	0%	0%
Exp Excess RoR	0.16%	0.15%	0.18%	0.21%	0.24%	0.27%	0.29%	0.31%	0.34%	0.36%	0.38%
Exp Excess Risk	0.97%	0.50%	0.60%	0.70%	0.80%	0.90%	1.00%	1.10%	1.30%	1.50%	1.60%
Info Ratio	0.17	0.30	0.30	0.30	0.30	0.30	0.29	0.28	0.26	0.24	0.24

CREDIT OPPORTUNITIES RISK BUDGETING – CURRENT BENCHMARK

Unconstrained optimal information ratio portfolio at a given risk budget. Consider constraints on style, size, investment beliefs and persistence of style, size and other factors in alpha generation.

	Current Portfolio	Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 4	Portfolio 5	Portfolio 6	Portfolio 7	Portfolio 8	Portfolio 9	Portfolio 10
AEGON USA	49.30%	45%	21%	5%	0%	0%	0%	0%	0%	0%	0%
Prudential Emerging Markets	11.90%	37%	45%	49%	44%	37%	31%	26%	21%	16%	11%
Bain Capital Senior Loan Fund, LP	38.80%	19%	34%	46%	56%	63%	69%	74%	79%	84%	89%
Private Debt Proxy	0.00%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
50/50 EMD USD/Local	0.00%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Exp Excess RoR	0.30%	0.25%	0.31%	0.36%	0.39%	0.41%	0.42%	0.44%	0.45%	0.46%	0.47%
Exp Excess Risk	1.87%	1.00%	1.25%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	3.00%	3.25%
Info Ratio	0.16	0.25	0.25	0.24	0.22	0.20	0.19	0.17	0.16	0.15	0.15

CREDIT OPPORTUNITIES RISK BUDGETING – PROPOSED BENCHMARK

	Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 4	Portfolio 5	Portfolio 6	Portfolio 7	Portfolio 8	Portfolio 9	Portfolio 10
AEGON USA	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Prudential Emerging Markets	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bain Capital Senior Loan Fund, LP	35%	27%	19%	11%	3%	0%	0%	0%	0%	0%
Private Debt Proxy	20%	31%	39%	47%	55%	63%	68%	73%	77%	81%
50/50 EMD USD/Local	42%	42%	42%	42%	42%	37%	32%	27%	23%	19%
Exp Excess RoR	0.74%	0.85%	0.94%	1.02%	1.09%	1.16%	1.21%	1.26%	1.29%	1.33%
Exp Excess Risk	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	3.00%
Info Ratio	0.98	0.85	0.75	0.68	0.63	0.58	0.54	0.50	0.47	0.44

PUBLIC REAL ASSETS RISK BUDGETING – CURRENT BENCHMARK

Unconstrained optimal information ratio portfolio at a given risk budget. Consider constraints on style, size, investment beliefs and persistence of style, size and other factors in alpha generation.

	Current Portfolio	Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 4	Portfolio 5	Portfolio 6	Portfolio 7	Portfolio 8	Portfolio 9	Portfolio 10
DFA US TIPS	65.62%	17%	11%	8%	5%	1%	0%	0%	0%	0%	0%
CenterSquare US Real Estate	11.70%	28%	32%	33%	35%	36%	36%	35%	34%	33%	33%
CoreCommodity Mgmt	22.68%	33%	38%	39%	40%	42%	41%	38%	36%	34%	33%
MLP Proxy	0.00%	22%	19%	20%	20%	21%	23%	27%	30%	32%	35%
Exp Excess RoR	0.54%	0.99%	1.02%	1.04%	1.07%	1.09%	1.12%	1.13%	1.15%	1.16%	1.17%
Exp Excess Risk	1.94%	2.75%	3.00%	3.25%	3.50%	3.75%	4.00%	4.25%	4.50%	4.75%	5.00%
Info Ratio	0.28	0.36	0.34	0.32	0.31	0.29	0.28	0.27	0.26	0.24	0.23

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Real Estate Portfolio

Performance Review

FOURTH QUARTER 2017

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Portfolio Funding Status

- The following slides provide a review of key information pertaining to the Los Angeles City Employees' Retirement System ("LACERS") Real Estate Portfolio (the "Portfolio") through December 31, 2017. A detailed performance report is also provided as **Exhibit A.**
- The System is above its 5.0% target to Real Estate as of year-end.

	Market Value ($ millions)*	% LACERS Plan*
LACERS Total Plan Assets	17,237	
Real Estate Target	862	5.0%
RE Market Value:		
Core	530	
Non-Core	264	
Timber	21	
Total RE Market Value	814	4.7%
Unfunded Commitments	117	0.7%
RE Market Value & Unfunded Commitments	931	5.4%
Remaining Allocation	(70)	(0.4%)

*Figures may not add due to rounding.

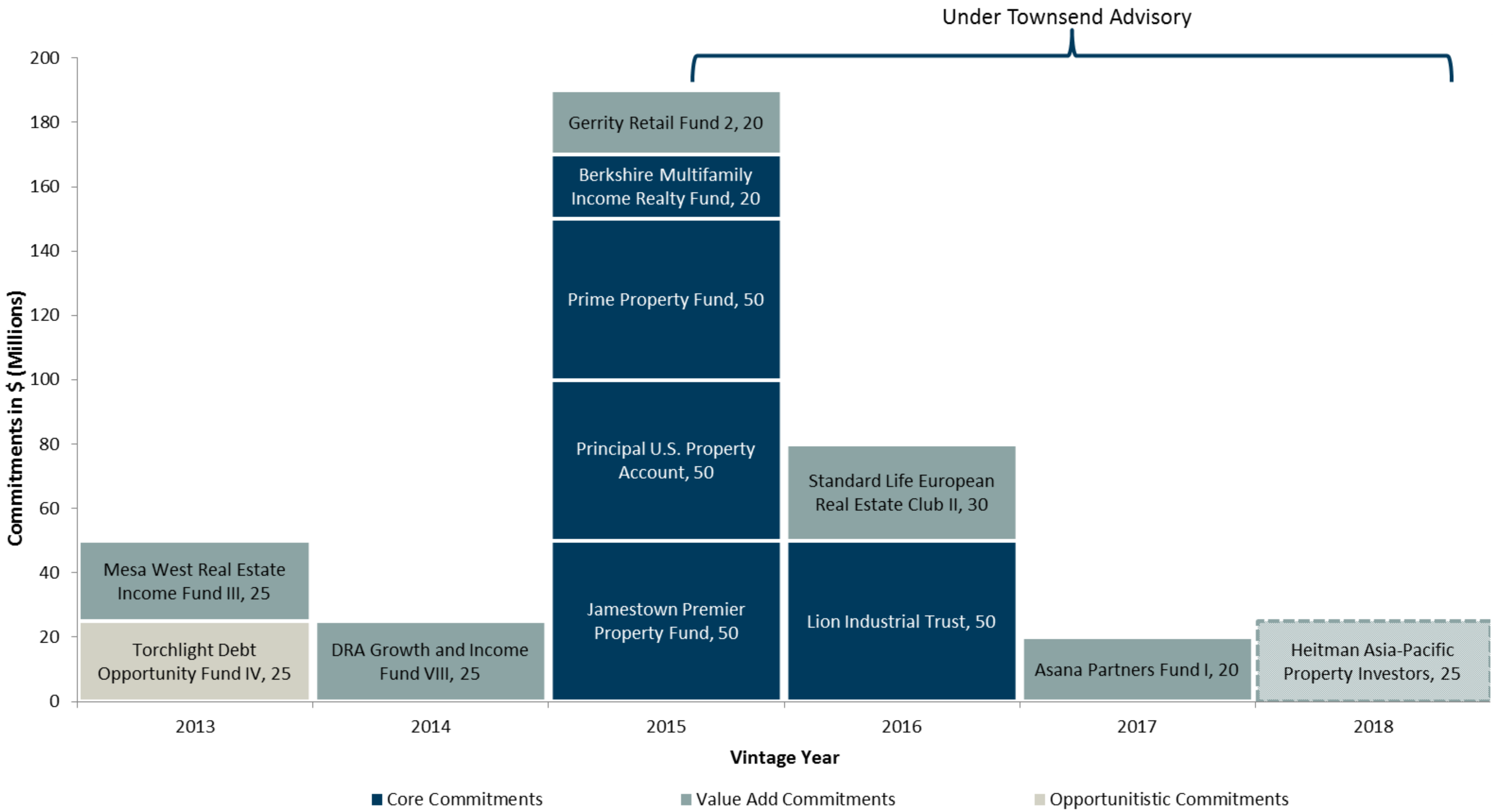
Real Estate Portfolio Composition

	Strategic Targets		*Portfolio Composition (12/31/2017)**	
	Target Allocation	**Tactical Range**	**Market Value**	**Market Value & Unfunded Commitments**
Core	**60%**	**40% - 80%**	**65.1%**	**56.9%**
Non-Core	**40%**	**20% - 60%**	**32.4%**	**40.9%**
Value Add Portfolio	*N/A*	*N/A*	*14.7%*	*21.8%*
Opportunistic Portfolio	*N/A*	*N/A*	*17.6%*	*19.1%*
Timber	**N/A**	**N/A**	**2.6%**	**2.2%**

- In May 2014, the Board approved the strategic targets displayed above in order to reflect a more conservative risk profile going-forward. At the time, the Portfolio had 30% exposure to Core and 70% exposure to Non-Core.
- Since that time, and in an effort to transition the Portfolio, the LACERS Board has approved $220 million in Core commitments, which have all been funded to date.
- The LACERS Board approved $95 million in Non-Core investments since 2014. These investments focused on Value Add strategies with pre-specified portfolios, embedded value and/or an element of current income.
- On a funded and committed basis, the LACERS Core and Non-Core allocations are in line with the strategic targets.
- The Core Portfolio utilizes 26.6% leverage, measured on a loan-to-value (LTV) basis, well below the 40.0% constraint.
- The Non-Core Portfolio has a 46.0% LTV ratio, well below the 75.0% constraint.

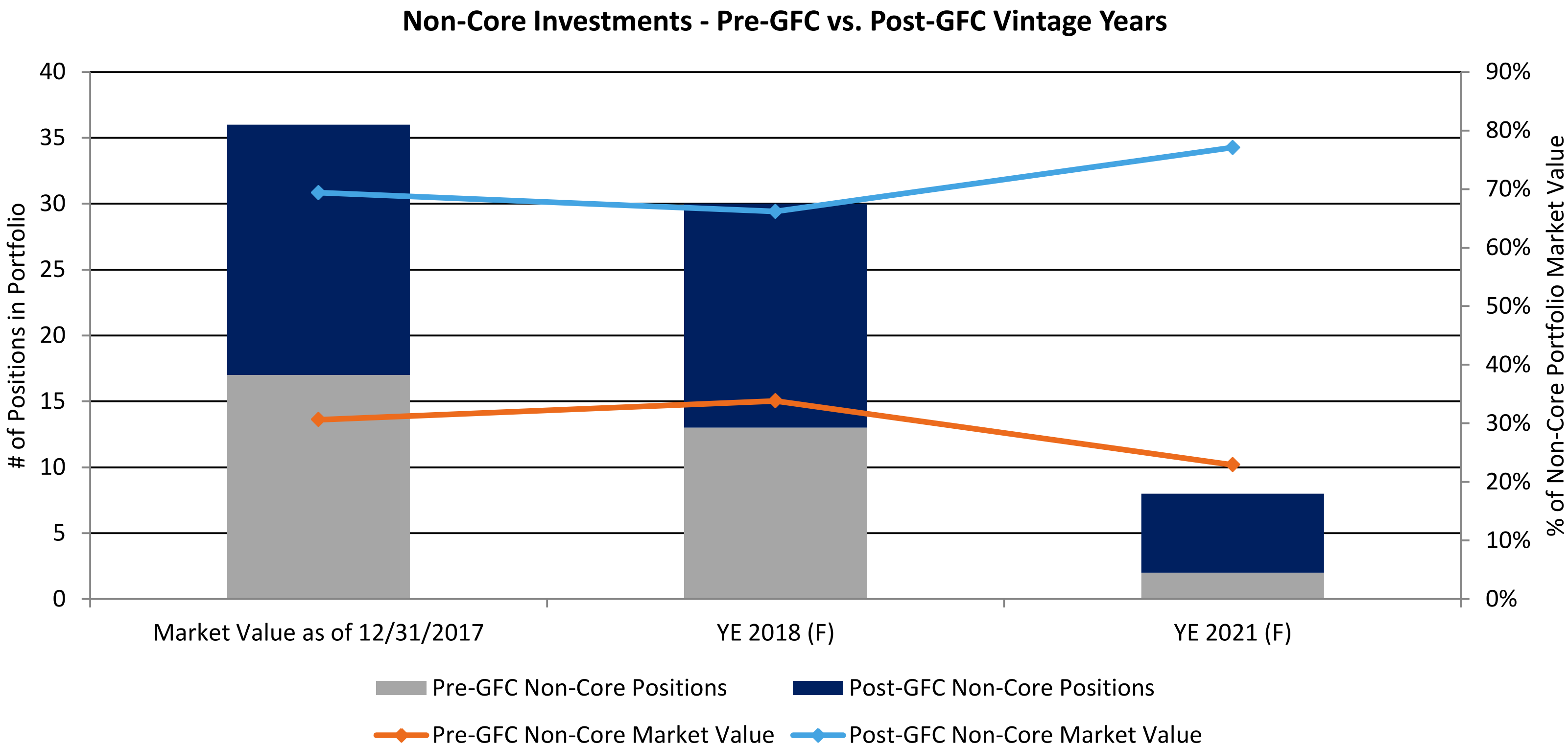
*Figures may not add due to rounding.

LACERS Commitment Activity – Last Five Years



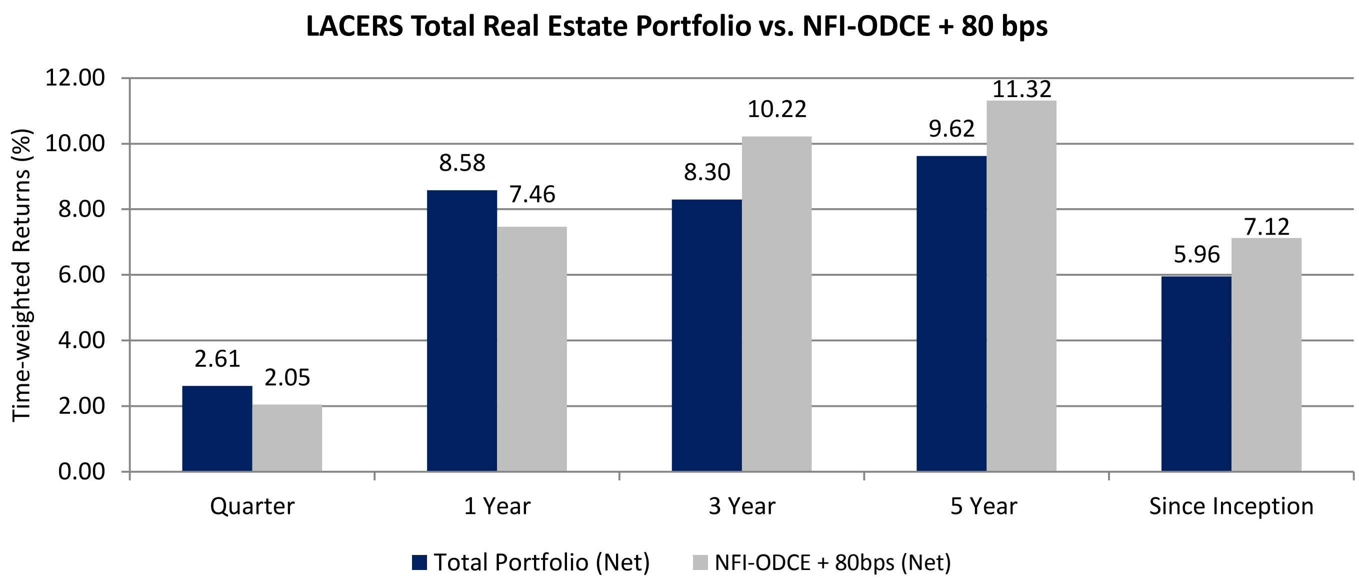
- LACERS has committed $390 million since 2013, of which $315 million (~80%) have been Townsend-initiated activities since 2015.
- 42% of Non-Core commitments since 2015 (Gerrity and Asana) met LACERS Emerging Manager guidelines.
- In the Core OECF space, there are currently no managers meeting these guidelines.
- Vintage year classifications are based on LACERS' first capital call (or expected capital call), though commitments may have been approved in prior years.
- Heitman Asia-Pacific Property Investors was approved in 2017, but had not called any capital as of December 31, 2017.

Projected Non-Core Liquidations



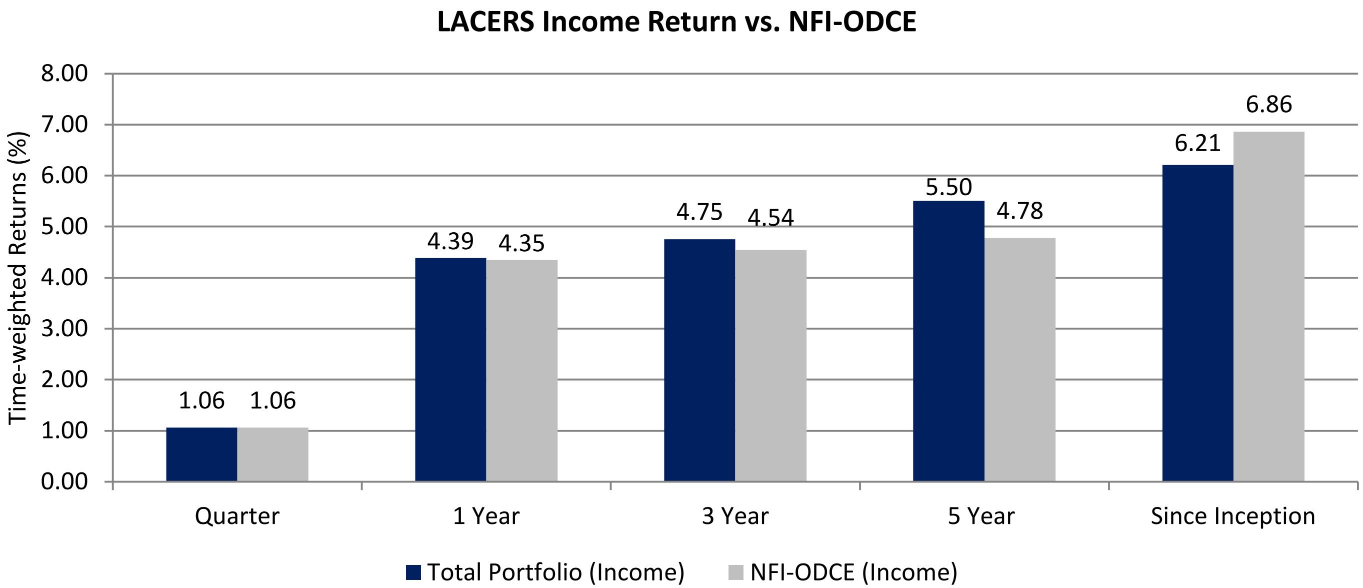
- 6 out of 36 Non-Core funds are projected to liquidate through year-end 2018, and 28 through year-end 2021.
- The number of Pre-Global Financial Crisis ("Pre-GFC") Non-Core positions is also projected to decrease significantly over the next few years. Only 13 of the Non-Core investments made before the Global Financial Crisis are projected to remain through year-end 2018 (two through year-end 2021). As of 12/31/17, there are still 17 Pre-GFC Non-Core positions in the portfolio.
- The Non-Core Portfolio, which currently consists of 31% Pre-GFC investments on a market value basis, is projected to be made up of mostly Post-GFC investments by year-end 2021 (77% of projected market value).

Total Portfolio Performance



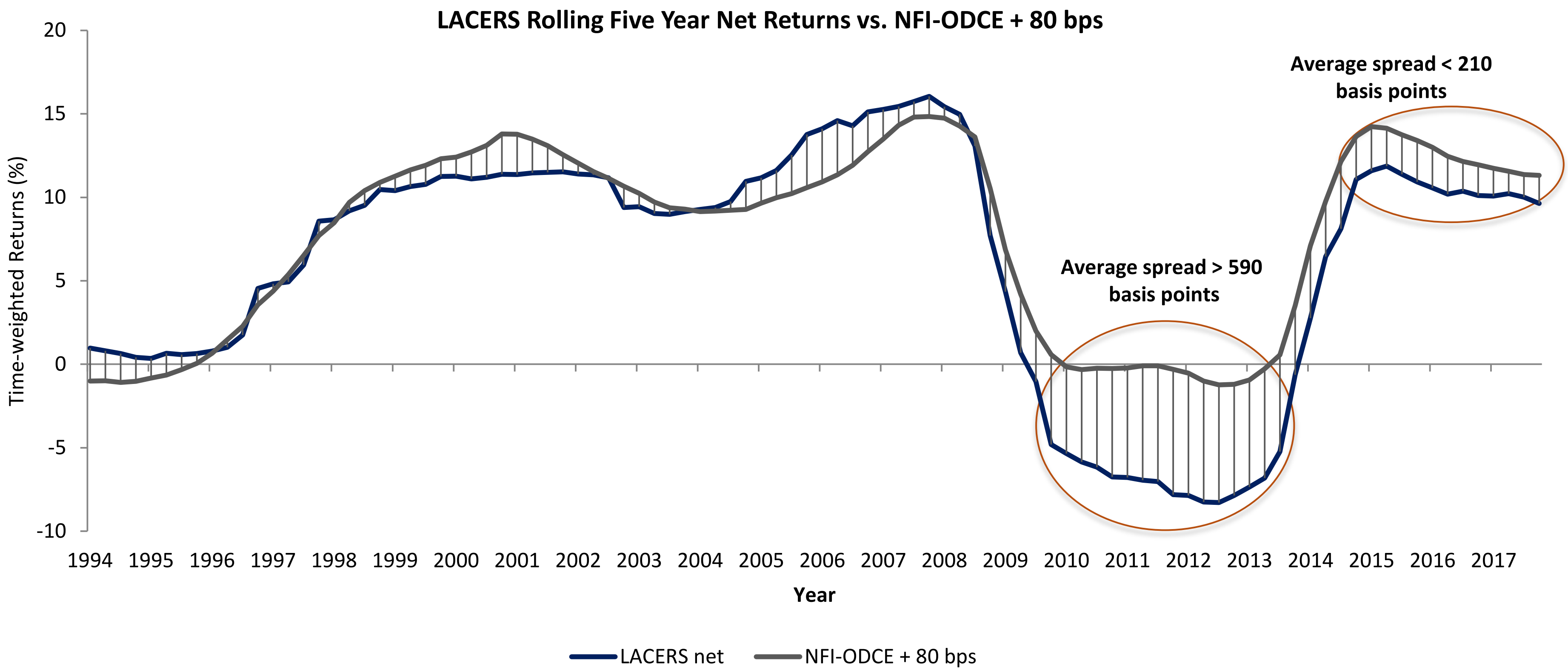
- The benchmark for the LACERS Total Real Estate Portfolio is the NFI-ODCE + 80 basis points ("bps"), measured over five year time periods, net of fees (defined below). LACERS has outperformed this benchmark over the most recent Quarter and the trailing year, but underperformed over the medium and long term, mostly due to weak performance of Non-Core legacy funds. Improving relative performance is driven by recent investment activity.
- When the LACERS benchmark was restructured in 2014, Townsend advised the Board that it could take up to five years for outperformance to begin, given the heavy concentration in Non-Core legacy funds that were expected to underperform until liquidation.
- The NFI-ODCE stands for the NCREIF Fund Index of Open-End Diversified Core Equity funds. The NFI-ODCE is a Core index that includes Core open-end diversified funds with at least 95% of their investments in US markets. The NFI-ODCE is the first of the NCREIF Fund Database products, created in May 2005, and is an index of investment returns reporting on both a historical (back to 1978) and current basis (24 active vehicles), utilizing approximately 21.3% leverage.
    - The 80 basis point ("bps") premium is a reflection of the incremental return expected from Non-Core exposure in the Portfolio, which is not included in the NFI-ODCE.

Total Portfolio Income Performance



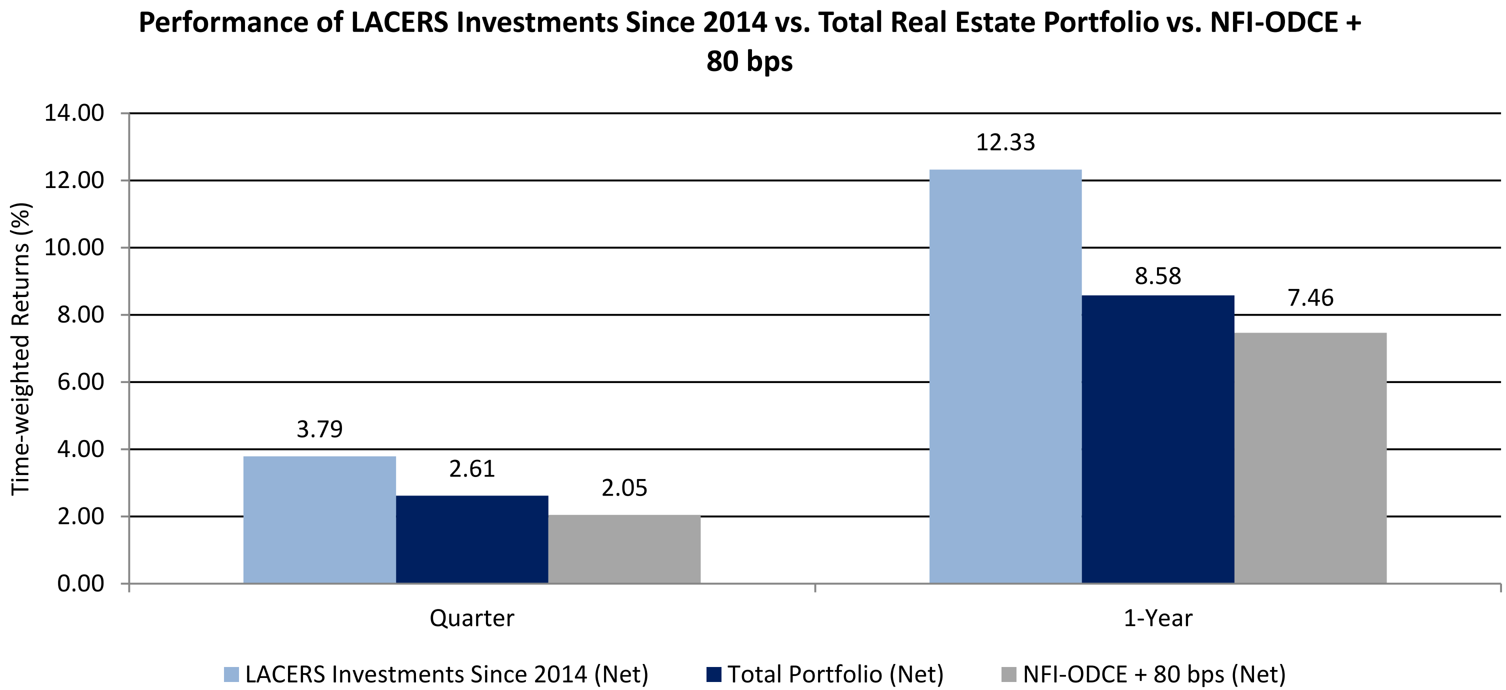
- As outlined in the Real Estate Strategic Plan, a primary objective for real estate is to generate income for the LACERS program.
- Historically, real estate has generated returns comprised primarily of income.
- The income return for the LACERS Portfolio has performed in line with or above the income return of the NFI-ODCE across all time periods with the exception of the Since Inception time period. Recent outperformance on an income basis is attributable to Townsend-advised Core investments made since 2014, which are positioned to achieve a predominant portion of their returns through income.

Improving Relative Total Portfolio Performance



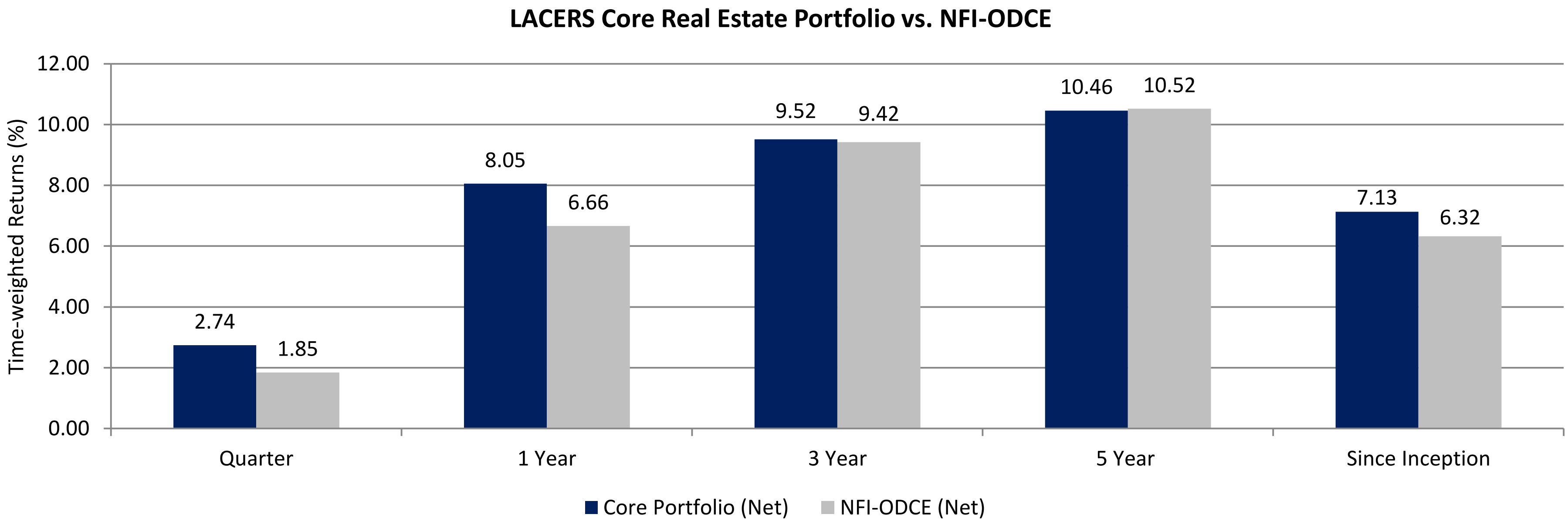
- The chart above displays rolling five-year time-weighted returns for the Total LACERS Portfolio, net of fees, relative to the benchmark.
- While LACERS continues to underperform the benchmark on a rolling five-year basis, performance should improve as accretive investments approved since 2014 continue to fund into the Portfolio and legacy investments fully liquidate. The number of positions in the Portfolio is projected to decline by roughly 10% through year-end 2018.
- Townsend also analyzed this performance trend by strategy within the LACERS Portfolio. The same trend existed by strategy but Core holdings tracked the benchmark closer than Non-Core strategies.

Post-GFC Investments Accretive to Performance



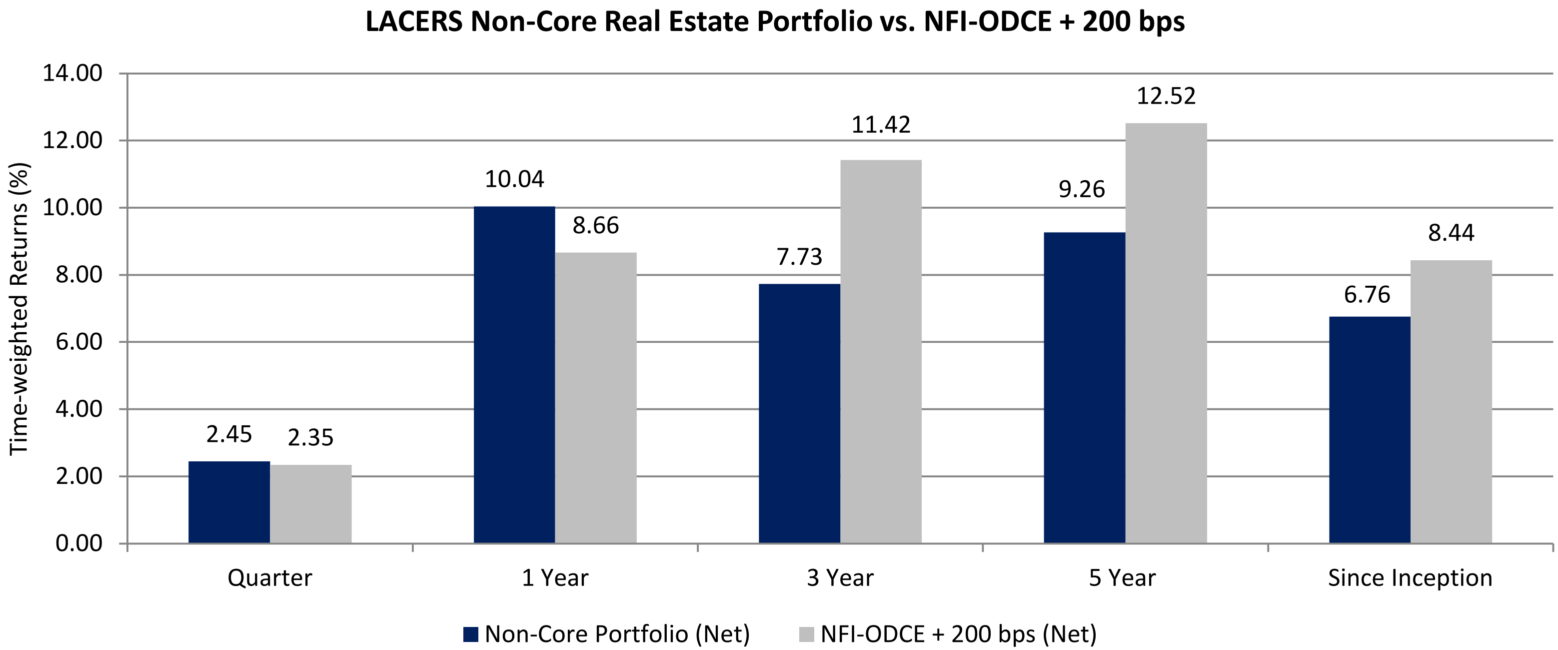
- Since 2014, Townsend has recommended ten investments to LACERS staff and nine (including two emerging managers) ultimately were brought forth for Board recommendation. The first of these investments to call capital was Jamestown Premier Property Fund in 3Q15. Eight of these Townsend-advised investments have called capital to-date and are included in performance figures throughout the report. Core investments include Berkshire, Jamestown, Lion Industrial Trust, Prime, and Principal. Non-Core investments include Gerrity, Standard Life, and Asana, and Heitman Asia.
- Performance of Townsend-advised investments since 2014 exceeds performance of the Total Portfolio and the benchmark over the trailing year and these investments are expected to drive performance going forward.

Relative Performance by Strategy: Core



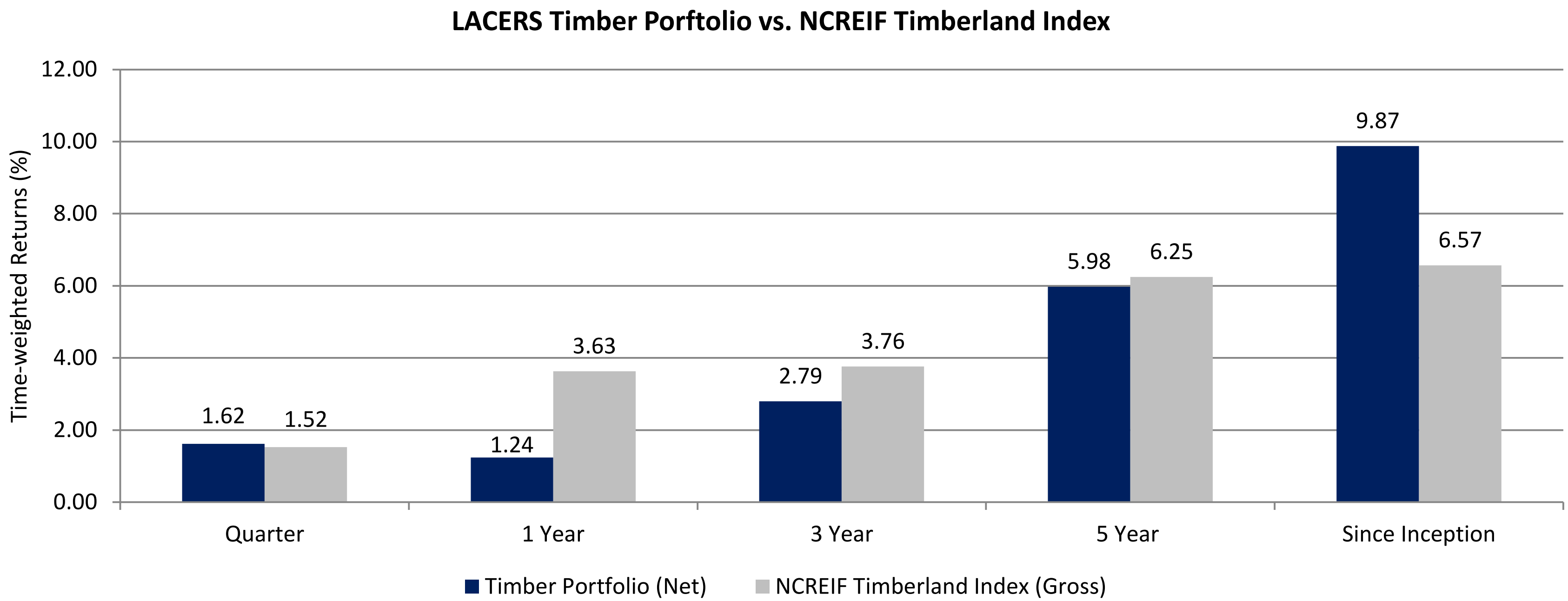
- The LACERS Core benchmark is the NFI-ODCE, measured over five year time periods, net of fees.
- The Core Portfolio outperformed the benchmark across all time periods except for the five-year period (underperformed by 6 basis points).
- Jamestown and CMCT were the largest contributors to Core performance over the Quarter, outperforming the NFI-ODCE by 650 bps and 400 bps respectively.
- Berkshire, CIM VI and JP Morgan Strategic Property Fund lagged the NFI-ODCE, with underperformance ranging from 20 to 70 bps.
- Townsend-advised investments approved by the LACERS Board in 2015 are positioned to outperform the NFI-ODCE with a predominant portion of return coming through income. Over the most recent Quarter, three of these investments (Jamestown, Lion Industrial Trust, and Prime Property Fund) outperformed the NFI-ODCE.

Relative Performance by Strategy: Non-Core



- The LACERS Non-Core benchmark is the NFI-ODCE + 200 bps, measured over five-year time periods, net of fees. The 200 bps premium is a reflection of the incremental return expected from additional risk inherent in Non-Core strategies.
- The Non-Core Portfolio outperformed the NFI-ODCE + 200 bps benchmark over the most recent Quarter and the trailing year. Underperformance over long time periods is mostly due to Non-Core legacy funds that are due to liquidate over the next few years. As discussed on page 5, there are currently 17 Non-Core funds in the portfolio that were committed to before the Global Financial Crisis. As these funds liquidate and approved investments are funded, Non-Core portfolio performance is expected to improve, as has already shown through three consecutive Quarters of outperformance.

Relative Performance by Strategy: Timber



- The Timber Portfolio, net of fees, outperformed its benchmark, the NCREIF Timberland Index, gross of fees, over the most recent Quarter and since inception time periods, but underperformed over all other time periods.
- Outperformance over the long-term is mostly related to strong performance of Hancock ForesTree V, which was fully liquidated by year-end 2015.
- The LACERS active timberland investment is Hancock Timberland IX. The Fund's assets are located in the United States (87%, split between the South and the Northwest) and Chile (13%). The Northwest region was the strongest performing region in the NCREIF Timberland Index over the Quarter.
- Income returns for timber investments tend to be infrequent and are realized through harvest. To date, there has been no meaningful income from the fund due to limited harvest activity during a period of lower timber prices. This has impacted total returns.
- Further, all assets in Hancock Timberland IX are appraised at year-end, which is why appreciation usually remains relatively flat from the First Quarter through the Third Quarter of each year. The effect of year-end appraisals is demonstrated in the annualized returns.

Real Estate Portfolio Diversification

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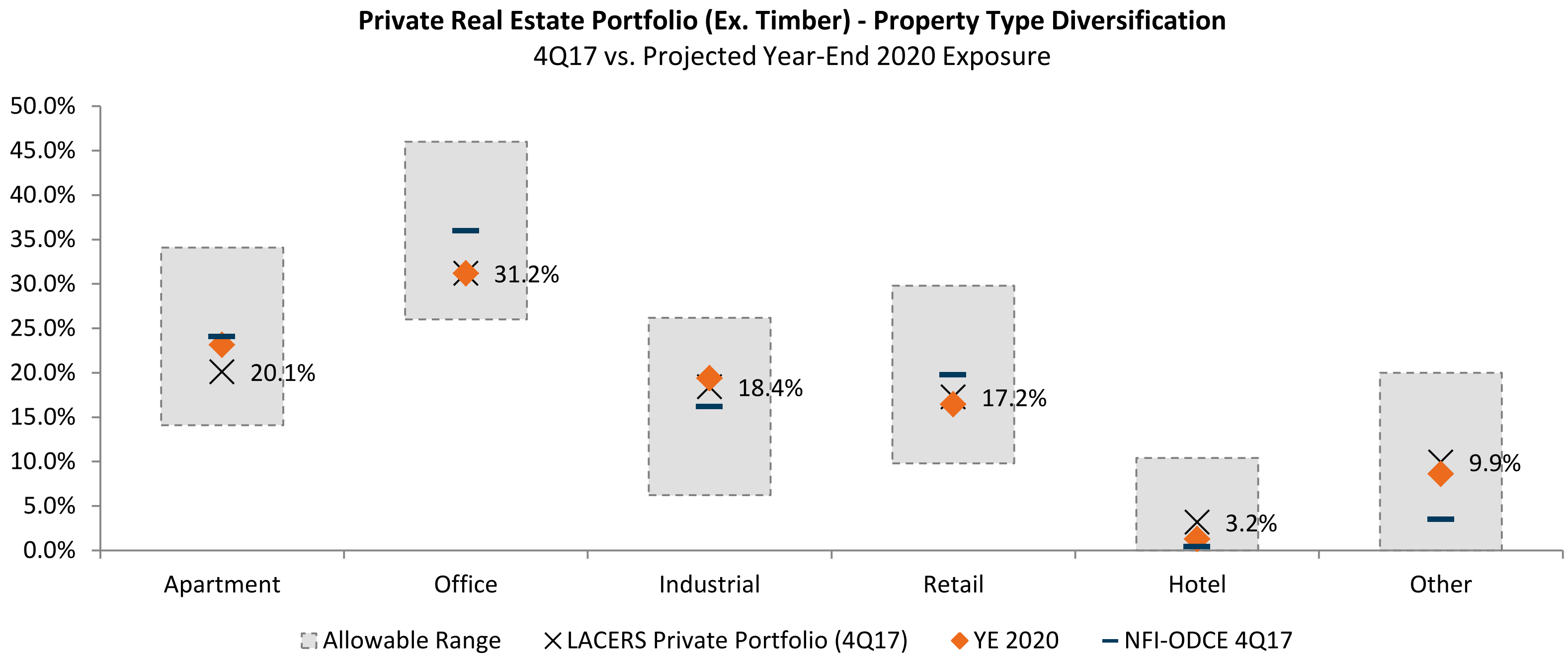

- The diversification of the Private Portfolio is measured against the diversification of the NFI-ODCE ± 10.0% with up to 20.0% of the Portfolio allowed in “Other”. Currently, the “Other” category includes investments in alternative property types including Self Storage, Student Housing, Senior Housing, For Sale Residential, and Land.

Real Estate Portfolio Diversification

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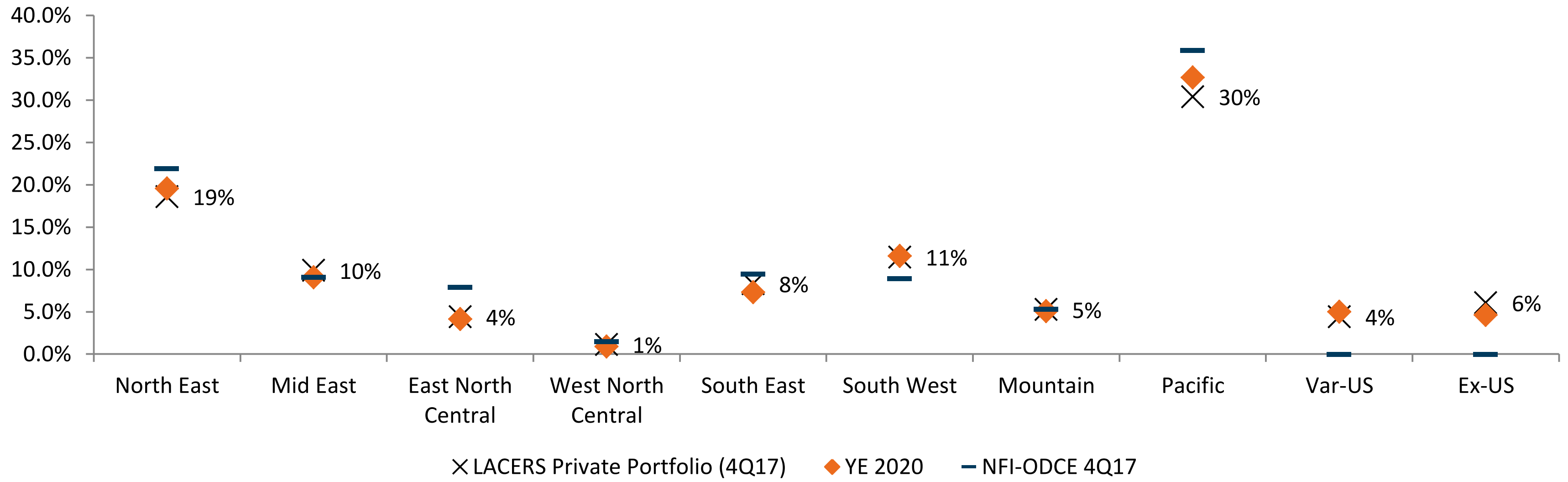
Private Real Estate Portfolio (Ex. Timber) – Geographic Diversification
4Q17 vs. Projected Year-End 2020 Exposure



- The diversification goal of the Private Portfolio is to be well diversified across the US. The only constraint is a 30.0% maximum allocation to Ex-US investments. NFI-ODCE diversification is provided as a benchmark.
- The LACERS Projected Private Portfolio (YE 2020) includes all commitments approved by the Board.
- The Portfolio currently has an aggregate exposure to the Los Angeles metropolitan area of 8.8%, with a 4.9% exposure to Los Angeles City. The NFI-ODCE's exposure to the Los Angeles metropolitan area is 9.6%*.
- During the Second Quarter 2017, the LACERS Board approved a $25 million commitment to Heitman Asia-Pacific Property Investors. This investment will offset other liquidating ex-US investments.
- The 6% Ex-US exposure can be broken out into Europe (3.9%), Asia (1.4%), Emerging Americas (0.7%) and Other.

*Collected by Townsend bi-annually, as of 3Q17. Based on % NAV.

Exhibit A: Performance Flash Report

Portfolio Composition ($)								
Total Plan Assets	**Allocation**		**Market Value**		**Unfunded Commitments**		**Remaining Allocation**	
17,237,000,000	861,850,000	5.0%	814,452,881	4.7%	116,916,873	0.7%	-69,519,754	-0.4%

Performance Summary	Quarter (%)		1 Year (%)		3 Year (%)		5 Year (%)	
	TGRS	**TNET**	**TGRS**	**TNET**	**TGRS**	**TNET**	**TGRS**	**TNET**
LACERS	3.1	2.6	10.0	8.6	9.7	9.6	11.3	9.6
NFI-ODCE + 80 basis points	2.3	2.0	8.4	7.5	11.2	10.2	12.3	11.3

Funding Status ($)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)
Core Portfolio	**1989**	**378,867,553**	**432,028,488**	**0**	**106,259,576**	**529,968,941**	**65.1**	**56.9**
Non-Core Portfolio	**1990**	**968,407,806**	**934,437,840**	**116,916,873**	**699,748,411**	**263,639,726**	**32.4**	**40.9**
Value Added Portfolio	1990	318,531,885	252,244,483	82,985,935	167,953,753	120,065,734	14.7	21.8
Opportunistic Portfolio	1996	649,875,921	682,193,357	33,930,938	531,794,658	143,573,992	17.6	19.1
Timber Portfolio	**1999**	**20,000,000**	**18,601,851**	**0**	**1,209,619**	**20,844,214**	**2.6**	**2.2**
Total Current Portfolio								
LACERS	**1989**	**1,367,275,359**	**1,385,068,179**	**116,916,873**	**807,217,606**	**814,452,881**	**100.0**	**100.0**

Funding Status ($)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)
Core								
Berkshire Multifamily Income Realty Fund	2015	20,000,000	20,000,000	0	1,414,816	23,842,031	2.9	2.6
CIM Commercial Trust Corporation (“CMCT”)	2014	40,000,000	46,417,723	0	32,790,384	22,535,483	2.8	2.4
CIM VI (Urban REIT), LLC	2012	25,000,000	25,000,000	0	3,985,717	30,348,090	3.7	3.3
INVESCO Core Real Estate	2004	63,867,553	109,001,167	0	50,078,501	163,678,336	20.1	17.6
Jamestown Premier Property Fund	2015	50,000,000	50,543,930	0	8,053,727	51,841,096	6.4	5.6
JP Morgan Strategic Property Fund	2005	30,000,000	30,421,882	0	2,858,499	64,412,834	7.9	6.9
Lion Industrial Trust - 2007	2016	50,000,000	50,643,786	0	3,281,869	59,548,690	7.3	6.4
Prime Property Fund	2015	50,000,000	50,000,000	0	3,796,063	54,585,896	6.7	5.9
Principal U.S. Property Account	2015	50,000,000	50,000,000	0	0	59,176,485	7.3	6.4
Core	**1989**	**378,867,553**	**432,028,488**	**0**	**106,259,576**	**529,968,941**	**65.1**	**56.9**
Timber								
Hancock Timberland XI	2012	20,000,000	18,601,851	0	1,209,619	20,844,214	2.6	2.2
Timber	**1999**	**20,000,000**	**18,601,851**	**0**	**1,209,619**	**20,844,214**	**2.6**	**2.2**
Value Added								
Almanac Realty Securities VI	2012	25,000,000	15,475,571	3,750,000	12,384,263	9,183,767	1.1	1.4
Asana Partners Fund I	2016	20,000,000	7,810,965	12,189,035	0	8,628,406	1.1	2.2
CBRE Strategic Partners IV	2005	25,000,000	25,000,000	0	1,068,123	0	0.0	0.0
Cornerstone Enhanced Mortgage Fund I	2012	25,000,000	13,436,224	11,563,777	16,057,544	1,223,137	0.2	1.4
DRA Growth and Income Fund VII	2011	25,000,000	26,015,000	740,000	31,810,576	16,488,373	2.0	1.8
DRA Growth and Income Fund VIII	2014	25,000,000	28,187,182	1,904,407	11,399,553	22,513,374	2.8	2.6
Gerrity Retail Fund 2	2015	20,000,000	14,564,251	5,513,603	1,629,155	15,039,427	1.8	2.2
Heitman Asia-Pacific Property Investors	2017	25,000,000	0	25,000,000	0	-305,042	0.0	2.7
JP Morgan Alternative Property Fund	2006	25,000,000	25,000,000	0	18,465,738	238,560	0.0	0.0
Mesa West Real Estate Income Fund III	2013	25,000,000	18,939,181	17,371,586	14,747,200	8,691,628	1.1	2.8
RREEF America REIT III - 1410	2005	15,000,000	18,301,718	0	14,970,900	0	0.0	0.0
Standard Life Investments European Real Estate Club II	2015	28,531,885	28,134,410	1,333,507	501,893	37,741,796	4.6	4.2
The Realty Associates Fund IX, L.P.	2010	15,000,000	15,000,000	0	23,429,474	622,308	0.1	0.1
Urdang Value Added Fund II	2008	20,000,000	16,379,981	3,620,020	21,489,334	0	0.0	0.4
Value Added	**1990**	**318,531,885**	**252,244,483**	**82,985,935**	**167,953,753**	**120,065,734**	**14.7**	**21.8**
Total Current Portfolio								
LACERS	**1989**	**1,367,275,359**	**1,385,068,179**	**116,916,873**	**807,217,606**	**814,452,881**	**100.0**	**100.0**

Funding Status ($)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)
Opportunistic								
Apollo CPI Europe I	2006	25,533,001	22,385,238	1,785,474	11,493,929	610,930	0.1	0.3
Bristol Value II, L.P.	2012	20,000,000	17,572,245	8,458,068	8,282,450	13,232,538	1.6	2.3
Bryanston Retail Opportunity Fund	2005	10,000,000	4,271,584	5,885,919	9,569,780	3,460,182	0.4	1.0
California Smart Growth Fund IV	2006	30,000,000	31,522,663	33,153	31,885,362	4,980,749	0.6	0.5
Canyon Johnson Urban Fund II	2005	10,000,000	8,988,718	1,011,296	3,974,652	29,108	0.0	0.1
CBRE Strategic Partners UK Fund III	2007	29,868,578	25,901,670	0	4,057,594	0	0.0	0.0
CIM Real Estate Fund III	2007	15,000,000	16,763,475	0	20,587,454	7,605,423	0.9	0.8
CityView LA Urban Fund I	2007	25,000,000	61,482,527	2,271,500	73,592,830	267,724	0.0	0.3
Colony Investors VIII	2007	30,000,000	28,963,224	1,023,167	12,378,404	748,407	0.1	0.2
DRA Growth and Income Fund VI	2007	25,000,000	16,788,945	0	25,879,936	2,645,539	0.3	0.3
Genesis Workforce Housing Fund II	2006	20,000,000	19,999,316	0	29,103,609	-44,467	0.0	0.0
Integrated Capital Hospitality Fund	2009	10,000,000	6,006,797	798,641	2,728,129	3,925,468	0.5	0.5
LaSalle Asia Fund II	2005	25,000,000	24,016,560	0	25,752,817	231,047	0.0	0.0
Latin America Investors III	2008	20,000,000	20,686,689	0	3,886,924	4,839,234	0.6	0.5
Lone Star Fund VII	2011	15,000,000	14,075,468	924,533	24,557,560	211,702	0.0	0.1
Lone Star Real Estate Fund II	2011	15,000,000	13,291,475	1,708,525	19,126,315	1,503,449	0.2	0.3
Lowe Hospitality Investment Partners	2004	25,000,000	36,431,477	0	20,981,277	0	0.0	0.0
MacFarlane Urban Real Estate Fund II	2008	40,000,000	40,679,342	1	10,884,155	0	0.0	0.0
RECP Fund IV, L.P.	2008	40,000,000	49,225,878	3,077,052	23,162,694	37,183,814	4.6	4.3
Southern California Smart Growth Fund	2004	10,000,000	18,836,734	68,213	16,800,333	1,011,416	0.1	0.1
Stockbridge Real Estate Fund II	2006	30,000,000	30,000,000	0	4,049,560	10,353,669	1.3	1.1
The Buchanan Fund V	2007	30,000,000	27,000,000	3,000,000	22,340,980	3,558,864	0.4	0.7
Torchlight Debt Opportunity Fund II	2007	25,000,000	24,703,453	0	14,101,920	7,955,313	1.0	0.9
Torchlight Debt Opportunity Fund III	2009	25,000,000	24,890,796	0	36,181,825	1,924,890	0.2	0.2
Torchlight Debt Opportunity Fund IV	2013	24,474,342	24,483,106	0	13,976,023	19,360,720	2.4	2.1
Tuckerman Group Residential Income & Value Added Fund	2004	25,000,000	26,064,010	0	25,409,679	949,171	0.1	0.1
Walton Street Real Estate Fund V	2006	25,000,000	25,000,001	0	13,764,440	6,565,556	0.8	0.7
Walton Street Real Estate Fund VI	2009	25,000,000	22,161,966	3,885,396	23,284,027	10,463,546	1.3	1.5
Opportunistic	**1996**	**649,875,921**	**682,193,357**	**33,930,938**	**531,794,658**	**143,573,992**	**17.6**	**19.1**
Private Real Estate Portfolio Only (ex. Timber)	**1989**	**1,347,275,359**	**1,366,466,328**	**116,916,873**	**806,007,987**	**793,608,667**	**97.4**	**97.8**
Non-Core Portfolio	**1990**	**968,407,806**	**934,437,840**	**116,916,873**	**699,748,411**	**263,639,726**	**32.4**	**40.9**
Total Current Portfolio								
LACERS	**1989**	**1,367,275,359**	**1,385,068,179**	**116,916,873**	**807,217,606**	**814,452,881**	**100.0**	**100.0**

Returns (%)	Market Value ($)	Quarter				1 Year				3 Year			
		INC[2]	APP[2]	TGRS[2]	TNET[2]	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET
Core													
Berkshire Multifamily Income Realty Fund	23,842,031	1.1	0.3	1.4	1.3	4.1	1.3	5.4	4.7				
CIM Commercial Trust Corporation ("CMCT") [1]	22,535,483	0.7	5.2	5.8	5.8	2.5	0.3	2.8	2.8	3.0	0.7	3.7	3.7
CIM VI (Urban REIT), LLC	30,348,090	1.0	0.5	1.4	1.1	4.0	1.1	5.2	3.7	4.2	2.7	7.0	5.6
INVESCO Core Real Estate	163,678,336	0.9	1.4	2.3	2.2	3.7	4.6	8.4	8.0	3.9	6.6	10.7	10.4
Jamestown Premier Property Fund	51,841,096	1.2	9.4	10.6	8.3	4.8	12.7	18.0	14.2				
JP Morgan Strategic Property Fund	64,412,834	1.0	0.8	1.8	1.6	4.2	2.9	7.2	6.2	4.8	5.2	10.2	9.2
Lion Industrial Trust - 2007	59,548,690	1.3	1.6	3.0	2.6	5.4	8.6	14.4	12.3				
Prime Property Fund	54,585,896	1.0	1.3	2.3	2.1	4.1	5.6	9.9	8.8				
Principal U.S. Property Account	59,176,485	1.1	1.0	2.1	1.8	4.7	4.3	9.1	8.1				
Core	**529,968,941**	**1.0**	**2.1**	**3.1**	**2.7**	**4.1**	**4.9**	**9.2**	**8.1**	**4.3**	**5.9**	**10.4**	**9.5**
Timber													
Hancock Timberland XI	20,844,214	-0.2	2.1	1.8	1.6	0.1	2.0	2.1	1.2	-0.4	4.1	3.7	2.8
Timber	**20,844,214**	**-0.2**	**2.1**	**1.8**	**1.6**	**0.1**	**2.0**	**2.1**	**1.2**	**-0.4**	**4.1**	**3.7**	**2.8**
Value Added													
Almanac Realty Securities VI	9,183,767	1.9	-3.5	-1.6	-1.8	7.5	-6.7	0.4	-0.3	7.0	5.3	12.6	11.4
Asana Partners Fund I	8,628,406	0.6	7.0	7.7	4.2								
CBRE Strategic Partners IV [3]	0												
Cornerstone Enhanced Mortgage Fund I	1,223,137	2.1	0.0	2.1	2.0	7.2	0.0	7.2	6.6	9.7	0.0	9.7	8.4
DRA Growth and Income Fund VII	16,488,373	3.8	3.9	7.7	6.0	10.2	19.8	31.5	26.0	10.9	17.5	29.8	23.5
DRA Growth and Income Fund VIII	22,513,374	1.9	0.6	2.5	2.0	11.6	2.4	14.2	11.7	12.8	2.0	15.0	12.1
Gerrity Retail Fund 2	15,039,427	2.1	1.0	3.1	2.6	8.7	1.0	9.8	7.6				
Heitman Asia-Pacific Property Investors [4]	-305,042												
JP Morgan Alternative Property Fund [3]	238,560												
Mesa West Real Estate Income Fund III	8,691,628	3.2	0.0	3.2	2.6	12.6	0.0	12.6	10.1	12.5	-0.2	12.3	9.7
RREEF America REIT III - 1410 [3]	0												
Standard Life Investments European Real Estate Club II	37,741,796	1.0	7.0	8.0	7.8	0.9	32.6	33.8	32.6				
The Realty Associates Fund IX, L.P. [3]	622,308												
Urdang Value Added Fund II [3]	0												
Value Added	**120,065,734**	**1.9**	**3.0**	**4.8**	**4.1**	**7.3**	**10.4**	**18.3**	**15.7**	**7.8**	**7.5**	**15.8**	**13.2**
Total Portfolio													
LACERS	**814,452,881**	**1.1**	**2.0**	**3.1**	**2.6**	**4.4**	**5.5**	**10.0**	**8.6**	**4.8**	**4.8**	**9.7**	**8.3**
Indices													
NFI-ODCE (Core)		1.1	1.0	2.1	1.8	4.3	3.2	7.6	6.7	4.5	5.7	10.4	9.4
NFI-ODCE + 80 bps (Total Portfolio)				2.3	2.0			8.4	7.5			11.2	10.2
NFI-ODCE + 200 bps (Non-Core Portfolio)				2.6	2.3			9.6	8.7			12.4	11.4
NFI -ODCE + 50 bps (Value Add)				2.2	2.0			8.1	7.2			10.9	9.9
NFI -ODCE + 300 bps (Opportunistic)				2.8	2.6			10.6	9.7			13.4	12.4
NCREIF Timberland Property Index "NTI"		0.7	0.8	1.5		2.8	0.8	3.6		2.7	1.1	3.8	

* Net IRR and Equity Multiple may be missing due to hard coded data.

[1] Originally CIM IV. Data shown only reflects performance since the formation of CMCT. Combined, CIM IV/CMCT has achieved a 6.3% net IRR nad 1.3x net equity multiple since inception (1Q06).

[2] INC: Income Return; APP: Appreciation Return; TGRS: Total Gross Return; TNET: Total Net Return. Please refer to Exhibit C for more detailed definitions.

[3] Liquidating investment. Time-weighted returns are excluded as they are no longer meaningful.

[4] Negative Market Value represents fees owed to the manager. No capital had been called as of quarter-end.

Returns (%)	Market Value ($)	5 Year				Inception				TWR Calculation Inception	Net IRR*	Equity Multiple*
		INC	APP	TGRS	TNET	INC	APP	TGRS	TNET			
Core												
Berkshire Multifamily Income Realty Fund	23,842,031					4.4	3.4	7.9	7.1	1Q16	11.8	1.3
CIM Commercial Trust Corporation ("CMCT") [1]	22,535,483					3.3	1.9	5.2	5.2	1Q14	5.2	1.2
CIM VI (Urban REIT), LLC	30,348,090	4.0	4.3	8.5	7.1	3.8	6.2	10.2	8.9	3Q12	7.9	1.4
INVESCO Core Real Estate	163,678,336	4.2	7.3	11.8	11.4	5.3	2.9	8.3	7.8	4Q04	7.8	2.0
Jamestown Premier Property Fund	51,841,096					4.7	8.4	13.3	10.6	3Q15	10.6	1.2
JP Morgan Strategic Property Fund	64,412,834	5.0	6.3	11.5	10.4	5.4	2.2	7.7	6.7	4Q05	6.8	2.2
Lion Industrial Trust - 2007	59,548,690					5.6	8.7	14.7	12.5	1Q16	12.6	1.2
Prime Property Fund	54,585,896					4.2	5.7	10.1	9.0	1Q16	9.0	1.2
Principal U.S. Property Account	59,176,485					4.8	4.9	9.9	8.9	4Q15	8.8	1.2
Core	**529,968,941**	**4.4**	**6.6**	**11.3**	**10.5**	**6.5**	**1.5**	**8.0**	**7.1**	**1Q89**	**5.8**	**1.4**
Timber												
Hancock Timberland XI	20,844,214	-0.5	5.7	5.2	4.3	-0.6	6.5	5.9	5.1	2Q12	4.7	1.2
Timber	**20,844,214**	**4.5**	**2.7**	**7.8**	**6.0**	**5.1**	**5.8**	**11.3**	**9.9**	**4Q99**	**10.3**	**1.7**
Value Added												
Almanac Realty Securities VI	9,183,767	8.6	7.7	16.7	14.4	8.6	7.7	16.7	14.4	1Q13	14.7	1.4
Asana Partners Fund I	8,628,406					1.2	16.7	18.1	10.8	2Q17	19.3	1.1
CBRE Strategic Partners IV [3]	0									1Q06	-33.4	0.0
Cornerstone Enhanced Mortgage Fund I	1,223,137	10.3	0.5	10.8	9.2	11.5	1.3	12.8	11.2	4Q12	9.3	1.3
DRA Growth and Income Fund VII	16,488,373	12.2	12.3	25.6	20.7	12.4	10.7	24.2	19.6	1Q12	19.4	1.9
DRA Growth and Income Fund VIII	22,513,374					12.7	1.8	14.7	11.8	4Q14	12.2	1.2
Gerrity Retail Fund 2	15,039,427					9.1	5.1	14.5	11.3	4Q15	8.9	1.1
Heitman Asia-Pacific Property Investors [4]	-305,042									1Q18		
JP Morgan Alternative Property Fund [3]	238,560									1Q06	-4.2	0.7
Mesa West Real Estate Income Fund III	8,691,628					12.4	0.1	12.6	8.7	4Q13	8.3	1.2
RREEF America REIT III - 1410 [3]	0									1Q06	-2.7	0.8
Standard Life Investments European Real Estate Club II	37,741,796					1.1	19.0	20.3	19.2	1Q16	21.9	1.4
The Realty Associates Fund IX, L.P. [3]	622,308									3Q10	10.5	1.6
Urdang Value Added Fund II [3]	0									2Q08	6.1	1.3
Value Added	**120,065,734**	**7.9**	**5.6**	**13.9**	**11.6**	**7.7**	**2.3**	**10.1**	**8.2**	**4Q90**		
Total Portfolio												
LACERS	**814,452,881**	**5.5**	**5.5**	**11.3**	**9.6**	**6.2**	**1.4**	**7.6**	**6.0**	**1Q89**		
Indices												
NFI-ODCE (Core)		4.8	6.5	11.5	10.5	6.9	0.5	7.3	6.3	1Q89		
NFI-ODCE + 80 bps (Total Portfolio)				12.3	11.3			8.1	7.1	1Q89		
NFI-ODCE + 200 bps (Non-Core Portfolio)				13.5	12.5			9.5	8.4	4Q90		
NFI -ODCE + 50 bps (Value Add)				12.0	11.0			8.0	6.9	4Q90		
NFI -ODCE + 300 bps (Opportunistic)				14.5	13.5			12.3	11.2	4Q96		
NCREIF Timberland Property Index "NTI"		2.7	3.4	6.2		3.3	3.2	6.6		4Q99		

* Net IRR and Equity Multiple may be missing due to hard coded data.

[1] Originally CIM IV. Data shown only reflects performance since the formation of CMCT. Combined, CIM IV/CMCT has achieved a 6.3% net IRR nad 1.3x net equity multiple since inception (1Q06).

[2] INC: Income Return; APP: Appreciation Return; TGRS: Total Gross Return; TNET: Total Net Return. Please refer to Exhibit C for more detailed definitions.

[3] Liquidating investment. Time-weighted returns are excluded as they are no longer meaningful.

[4] Negative Market Value represents fees owed to the manager. No capital had been called as of quarter-end.

Returns (%)	Market Value ($)	Quarter				1 Year				3 Year			
		INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET
Opportunistic													
Apollo CPI Europe I [2]	610,930												
Bristol Value II, L.P.	13,232,538	0.2	14.4	14.6	14.2	2.4	14.4	17.1	15.3	2.9	9.0	12.0	10.1
Bryanston Retail Opportunity Fund	3,460,182	0.0	-24.7	-24.8	-24.8	-0.1	-22.0	-22.1	-22.4	-0.3	23.2	22.9	22.2
California Smart Growth Fund IV	4,980,749	0.7	7.0	7.8	6.5	5.5	15.1	21.3	19.8	4.5	10.8	15.6	14.6
Canyon Johnson Urban Fund II [2]	29,108												
CBRE Strategic Partners UK Fund III [2]	0												
CIM Real Estate Fund III [1]	7,605,423	-0.7	3.1	2.4	2.0	0.3	6.4	6.8	5.3	7.6	-2.4	6.8	5.4
CityView LA Urban Fund I [2]	267,724												
Colony Investors VIII [2]	748,407												
DRA Growth and Income Fund VI	2,645,539	3.2	0.0	3.2	2.5	7.7	-2.7	4.7	2.9	6.5	7.2	14.1	10.5
Genesis Workforce Housing Fund II [2]	-44,467												
Integrated Capital Hospitality Fund	3,925,468	-10.5	-11.5	-21.9	-22.2	-5.5	-11.5	-17.6	-18.7	-8.4	-13.4	-22.5	-23.3
LaSalle Asia Fund II [2]	231,047												
Latin America Investors III	4,839,234	-0.5	-17.3	-17.8	-18.6	-3.6	-18.8	-21.9	-24.6	-3.1	-17.0	-19.7	-22.1
Lone Star Fund VII [2]	211,702												
Lone Star Real Estate Fund II	1,503,449	2.0	0.7	2.7	2.5	6.6	-7.0	-0.7	5.4	5.1	12.6	18.1	16.8
Lowe Hospitality Investment Partners [2]	0												
MacFarlane Urban Real Estate Fund II [2]	0												
RECP Fund IV, L.P.	37,183,814	2.9	1.3	4.2	3.7	3.4	10.9	14.6	12.4	2.5	7.3	9.9	7.9
Southern California Smart Growth Fund [1]	1,011,416	0.0	0.0	0.0	0.0	-1.1	0.0	-1.1	-1.1	14.6	4.7	20.0	19.1
Stockbridge Real Estate Fund II	10,353,669	-0.1	0.4	0.3	0.2	1.5	19.6	21.2	20.6	0.0	6.3	6.3	5.4
The Buchanan Fund V	3,558,864	0.3	-1.6	-1.3	-1.5	2.6	-0.2	2.3	1.3	2.4	5.4	7.8	6.7
Torchlight Debt Opportunity Fund II	7,955,313	0.0	0.7	0.7	0.6	2.5	0.8	3.4	3.1	3.7	1.7	5.3	5.0
Torchlight Debt Opportunity Fund III	1,924,890	2.9	11.4	14.3	11.2	10.1	13.3	24.4	18.2	10.7	12.1	23.8	17.8
Torchlight Debt Opportunity Fund IV	19,360,720	2.5	2.0	4.5	3.1	10.6	4.3	15.2	11.3	9.3	3.5	13.0	10.3
Tuckerman Group Residential Income & Value Added Fund [2]	949,171												
Walton Street Real Estate Fund V	6,565,556	0.3	2.4	2.7	2.5	4.7	-0.3	4.5	3.5	3.8	2.1	6.1	4.8
Walton Street Real Estate Fund VI	10,463,546	0.6	1.9	2.4	2.1	3.3	5.7	9.2	7.9	2.5	2.9	5.4	4.2
Opportunistic	**143,573,992**	**0.8**	**1.0**	**1.7**	**1.2**	**3.5**	**4.0**	**7.7**	**6.0**	**3.9**	**1.9**	**5.9**	**4.2**
Private Real Estate Portfolio Only (ex. Timber)	**793,608,667**	**1.1**	**2.0**	**3.1**	**2.6**	**4.5**	**5.5**	**10.2**	**8.8**	**4.9**	**4.8**	**9.9**	**8.4**
Non-Core Portfolio	**263,639,726**	**1.2**	**1.8**	**3.1**	**2.4**	**5.1**	**6.7**	**12.1**	**10.0**	**5.4**	**4.1**	**9.8**	**7.7**
Total Portfolio													
LACERS	**814,452,881**	**1.1**	**2.0**	**3.1**	**2.6**	**4.4**	**5.5**	**10.0**	**8.6**	**4.8**	**4.8**	**9.7**	**8.3**
Indices													
NFI-ODCE (Core)		1.1	1.0	2.1	1.8	4.3	3.2	7.6	6.7	4.5	5.7	10.4	9.4
NFI-ODCE + 80 bps (Total Portfolio)				2.3	2.0			8.4	7.5			11.2	10.2
NFI-ODCE + 200 bps (Non-Core Portfolio)				2.6	2.3			9.6	8.7			12.4	11.4
NFI -ODCE + 50 bps (Value Add)				2.2	2.0			8.1	7.2			10.9	9.9
NFI -ODCE + 300 bps (Opportunistic)				2.8	2.6			10.6	9.7			13.4	12.4
NCREIF Timberland Property Index "NTI"		0.7	0.8	1.5		2.8	0.8	3.6		2.7	1.1	3.8	

* Net IRR and Equity Multiple may be missing due to hard coded data.

1 'Broken' TWR – In a series of quarterly returns for an investment line item, a single quarter of significant volatility and/or temporary negative market value will 'break' the time weighted calculation and period returns (including since inception) must start anew in a subsequent quarter. Depending upon the timing of the break, TWRs may never accurately reflect performance of the investment line item. Line item data continues to be reflected in the sub-portfolio and portfolio totals, however for the individual line item, the internal rate of return ("IRR") becomes a more appropriate data point for evaluation.

2 Liquidating investment.

Returns (%)	Market Value ($)	5 Year				Inception				TWR Calculation Inception	Net IRR*	Equity Multiple*
		INC	APP	TGRS	TNET	INC	APP	TGRS	TNET			
Opportunistic												
Apollo CPI Europe I [2]	610,930									4Q06	-9.3	0.5
Bristol Value II, L.P.	13,232,538	3.5	12.6	16.4	14.4	3.5	12.6	16.4	14.4	1Q13	11.9	1.2
Bryanston Retail Opportunity Fund	3,460,182	1.5	22.9	24.5	23.3	8.1	23.1	30.6	27.0	2Q05	79.7	3.1
California Smart Growth Fund IV	4,980,749	3.8	11.4	15.6	14.3	2.5	0.4	2.8	0.4	1Q07	2.6	1.2
Canyon Johnson Urban Fund II [2]	29,108									3Q05	-10.5	0.4
CBRE Strategic Partners UK Fund III [2]	0									3Q07	-24.5	0.2
CIM Real Estate Fund III [1]	7,605,423	5.5	1.8	8.5	7.2	-9.4	11.7	1.9	-12.9	1Q09	10.5	1.7
CityView LA Urban Fund I [2]	267,724									3Q07	11.8	1.2
Colony Investors VIII [2]	748,407									4Q07	-11.6	0.5
DRA Growth and Income Fund VI	2,645,539	6.9	13.5	21.1	15.6	8.9	4.4	13.7	9.0	2Q08	11.0	1.7
Genesis Workforce Housing Fund II [2]	-44,467									2Q07	8.7	1.5
Integrated Capital Hospitality Fund	3,925,468	-1.6	-4.9	-7.8	-8.6	6.0	1.9	5.2	3.2	3Q11	2.5	1.1
LaSalle Asia Fund II [2]	231,047									4Q05	1.8	1.1
Latin America Investors III	4,839,234	-2.2	-13.6	-15.6	-19.0	-3.4	-9.9	-13.2	-16.9	1Q09	-19.6	0.4
Lone Star Fund VII [2]	211,702									3Q11	50.3	1.8
Lone Star Real Estate Fund II	1,503,449	8.6	17.8	27.8	23.0	10.7	22.3	34.7	27.4	3Q11	27.0	1.6
Lowe Hospitality Investment Partners [2]	0									3Q04	-17.7	0.6
MacFarlane Urban Real Estate Fund II [2]	0									2Q08	-16.8	0.3
RECP Fund IV, L.P.	37,183,814	2.1	6.7	8.9	7.0	3.7	-7.1	-3.6	-7.7	4Q08	4.3	1.2
Southern California Smart Growth Fund [1]	1,011,416	9.1	9.4	19.3	17.6	1.9	6.0	6.7	5.9	1Q05	-2.0	0.9
Stockbridge Real Estate Fund II	10,353,669	-1.8	19.0	16.9	15.6	-10.1	-10.2	-19.1	-21.5	4Q06	-8.0	0.5
The Buchanan Fund V	3,558,864	4.0	8.5	12.8	11.6	-2.0	1.2	-0.8	-2.6	3Q07	-0.7	1.0
Torchlight Debt Opportunity Fund II	7,955,313	4.5	4.6	9.2	8.6	12.7	-9.1	3.2	1.5	1Q08	-1.5	0.9
Torchlight Debt Opportunity Fund III	1,924,890	12.7	22.7	37.4	26.7	12.0	15.0	28.3	20.2	3Q09	13.8	1.5
Torchlight Debt Opportunity Fund IV	19,360,720					9.9	3.2	13.3	10.4	4Q13	10.2	1.4
Tuckerman Group Residential Income & Value Added Fund [2]	949,171									4Q04	0.2	1.0
Walton Street Real Estate Fund V	6,565,556	3.8	4.8	8.8	7.4	2.3	-0.5	1.8	-0.2	4Q06	-2.4	0.8
Walton Street Real Estate Fund VI	10,463,546	3.0	6.1	9.3	8.0	-11.2	16.8	2.2	-3.1	3Q09	9.3	1.5
Opportunistic	**143,573,992**	**5.1**	**4.4**	**9.6**	**7.5**	**4.3**	**3.1**	**7.5**	**3.8**	**4Q96**		
Private Real Estate Portfolio Only (ex. Timber)	**793,608,667**	**5.5**	**5.6**	**11.4**	**9.7**	**6.2**	**1.3**	**7.6**	**5.9**	**1Q89**		
Non-Core Portfolio	**263,639,726**	**6.2**	**5.1**	**11.5**	**9.3**	**6.6**	**2.6**	**9.3**	**6.8**	**4Q90**		
Total Portfolio												
LACERS	**814,452,881**	**5.5**	**5.5**	**11.3**	**9.6**	**6.2**	**1.4**	**7.6**	**6.0**	**1Q89**		
Indices												
NFI-ODCE (Core)		4.8	6.5	11.5	10.5	6.9	0.5	7.3	6.3	1Q89		
NFI-ODCE + 80 bps (Total Portfolio)				12.3	11.3			8.1	7.1	1Q89		
NFI-ODCE + 200 bps (Non-Core Portfolio)				13.5	12.5			9.5	8.4	4Q90		
NFI -ODCE + 50 bps (Value Add)				12.0	11.0			8.0	6.9	4Q90		
NFI -ODCE + 300 bps (Opportunistic)				14.5	13.5			12.3	11.2	4Q96		
NCREIF Timberland Property Index "NTI"		2.7	3.4	6.2		3.3	3.2	6.6		4Q99		

* Net IRR and Equity Multiple may be missing due to hard coded data.

1 'Broken' TWR – In a series of quarterly returns for an investment line item, a single quarter of significant volatility and/or temporary negative market value will 'break' the time weighted calculation and period returns (including since inception) must start anew in a subsequent quarter. Depending upon the timing of the break, TWRs may never accurately reflect performance of the investment line item. Line item data continues to be reflected in the sub-portfolio and portfolio totals, however for the individual line item, the internal rate of return ("IRR") becomes a more appropriate data point for evaluation.

2 Liquidating investment.

TOWNSEND® GROUP
an Aon company

Returns (%)	Market Value ($)	2017		2016		2015		2014		2013		2012	
		TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET
Core													
Berkshire Multifamily Income Realty Fund	23,842,031	5.4	4.7	10.4	9.5								
CIM Commercial Trust Corporation (“CMCT”)	22,535,483	2.8	2.8	3.3	3.3	5.0	5.0	9.7	9.7				
CIM VI (Urban REIT), LLC	30,348,090	5.2	3.7	2.6	2.4	13.4	11.0	15.0	13.5	6.8	5.4	13.8	13.1
INVESCO Core Real Estate	163,678,336	8.4	8.0	9.2	8.9	14.7	14.3	12.4	11.9	14.3	13.8	8.7	8.2
Jamestown Premier Property Fund	51,841,096	18.0	14.2	6.7	5.4	8.5	7.0						
JP Morgan Strategic Property Fund	64,412,834	7.2	6.2	8.4	7.3	15.2	14.1	11.1	10.1	15.9	14.8	12.1	11.0
Lion Industrial Trust - 2007	59,548,690	14.4	12.3	14.9	12.8								
Prime Property Fund	54,585,896	9.9	8.8	10.4	9.2								
Principal U.S. Property Account	59,176,485	9.1	8.1	10.1	9.0	3.0	2.8						
Core	**529,968,941**	**9.2**	**8.1**	**8.7**	**7.9**	**13.4**	**12.7**	**11.8**	**11.3**	**13.3**	**12.5**	**9.6**	**8.9**
Timber													
Hancock Timberland XI	20,844,214	2.1	1.2	3.5	2.6	5.4	4.6	5.2	4.6	9.9	8.9	8.1	7.6
Timber	**20,844,214**	**2.1**	**1.2**	**3.5**	**2.6**	**5.4**	**4.5**	**8.1**	**4.5**	**20.9**	**17.8**	**9.9**	**8.9**
Value Added													
Almanac Realty Securities VI	9,183,767	0.4	-0.3	15.2	14.3	23.5	21.2	15.2	12.8	31.6	26.1		
Asana Partners Fund I	8,628,406	18.1	10.8										
CBRE Strategic Partners IV	0												
Cornerstone Enhanced Mortgage Fund I	1,223,137	7.2	6.6	10.9	9.2	11.1	9.4	5.5	5.0	20.0	16.4	12.8	12.3
DRA Growth and Income Fund VII	16,488,373	31.5	26.0	35.2	28.8	22.9	16.2	20.3	17.7	18.7	15.5	17.6	14.3
DRA Growth and Income Fund VIII	22,513,374	14.2	11.7	14.7	11.8	16.0	12.9	2.7	2.1				
Gerrity Retail Fund 2	15,039,427	9.8	7.6	21.4	17.7	1.7	0.6						
Heitman Asia-Pacific Property Investors	-305,042												
JP Morgan Alternative Property Fund	238,560												
Mesa West Real Estate Income Fund III	8,691,628	12.6	10.1	11.2	8.8	13.0	10.2	13.3	8.7	3.2	-0.6		
RREEF America REIT III - 1410	0												
Standard Life Investments European Real Estate Club II	37,741,796	33.8	32.6	8.1	7.1								
The Realty Associates Fund IX, L.P.	622,308												
Urdang Value Added Fund II	0												
Value Added	**120,065,734**	**18.3**	**15.7**	**14.6**	**12.1**	**14.5**	**11.7**	**12.6**	**10.9**	**9.5**	**7.9**	**17.1**	**15.6**
Total Portfolio													
LACERS	**814,452,881**	**10.0**	**8.6**	**8.1**	**6.8**	**11.2**	**9.5**	**13.7**	**11.9**	**13.5**	**11.4**	**12.8**	**11.0**
Indices													
NFI-ODCE (Core)		7.6	6.7	8.8	7.8	15.0	14.0	12.5	11.5	13.9	12.9	10.9	9.8
NFI-ODCE + 80 bps (Total Portfolio)		8.0	7.1	9.6	8.6	15.8	14.8	13.3	12.3	14.7	13.7	11.7	10.6
NFI-ODCE + 200 bps (Non-Core Portfolio)		8.6	7.7	10.8	9.8	17.0	16.0	14.5	13.5	15.9	14.9	12.9	11.8
NFI-ODCE + 50 bps (Value Add)		7.9	6.9	9.3	8.3	15.5	14.5	13.0	12.0	14.4	13.4	11.4	10.3
NFI-ODCE + 300 bps (Opportunistic)		9.1	8.2	11.8	10.8	18.0	17.0	15.5	14.5	16.9	15.9	13.9	12.8
NCREIF Timberland Index (Timber)		3.6		2.7		5.0		10.5		9.7		7.8	

Returns (%)	Market Value ($)	2011		2010		2009		2008		2007		2006		2005	
		TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET
Core															
Berkshire Multifamily Income Realty Fund	23,842,031														
CIM Commercial Trust Corporation (“CMCT”)	22,535,483														
CIM VI (Urban REIT), LLC	30,348,090														
INVESCO Core Real Estate	163,678,336	16.9	16.4	16.7	16.1	-32.2	-32.6	-4.6	-5.0	13.6	13.1	19.2	18.6	20.8	20.2
Jamestown Premier Property Fund	51,841,096														
JP Morgan Strategic Property Fund	64,412,834	15.9	14.8	14.1	13.0	-26.5	-27.4	-8.1	-9.0	16.6	15.6	16.6	15.5	5.3	5.3
Lion Industrial Trust - 2007	59,548,690														
Prime Property Fund	54,585,896														
Principal U.S. Property Account	59,176,485														
Core	**529,968,941**	**15.6**	**14.8**	**16.1**	**15.2**	**-26.4**	**-27.1**	**-4.9**	**-5.6**	**14.4**	**13.6**	**17.7**	**16.9**	**21.2**	**20.7**
Timber															
Hancock Timberland XI	20,844,214														
Timber	**20,844,214**	**3.9**	**4.2**	**2.9**	**2.7**	**-7.4**	**-5.5**	**7.6**	**6.5**	**22.1**	**17.3**	**24.8**	**22.5**	**26.8**	**23.0**
Value Added															
Almanac Realty Securities VI	9,183,767														
Asana Partners Fund I	8,628,406														
CBRE Strategic Partners IV	0														
Cornerstone Enhanced Mortgage Fund I	1,223,137														
DRA Growth and Income Fund VII	16,488,373														
DRA Growth and Income Fund VIII	22,513,374														
Gerrity Retail Fund 2	15,039,427														
Heitman Asia-Pacific Property Investors	-305,042														
JP Morgan Alternative Property Fund	238,560														
Mesa West Real Estate Income Fund III	8,691,628														
RREEF America REIT III - 1410	0														
Standard Life Investments European Real Estate Club II	37,741,796														
The Realty Associates Fund IX, L.P.	622,308														
Urdang Value Added Fund II	0														
Value Added	**120,065,734**	**18.3**	**16.2**	**4.1**	**1.8**	**-38.5**	**-39.4**	**-20.7**	**-20.0**	**17.8**	**15.2**	**15.3**	**12.9**	**26.0**	**23.1**
Total Portfolio															
LACERS	**814,452,881**	**12.6**	**10.8**	**13.0**	**10.3**	**-34.4**	**-35.9**	**-22.5**	**-23.6**	**14.5**	**11.3**	**20.2**	**17.4**	**25.4**	**22.3**
Indices															
NFI-ODCE (Core)		16.0	15.0	16.4	15.3	-29.8	-30.4	-10.0	-10.7	16.0	14.8	16.3	15.3	21.4	20.2
NFI-ODCE + 80 bps (Total Portfolio)		16.8	15.8	17.2	16.1	-29.0	-29.6	-9.2	-9.9	16.8	15.6	17.1	16.1	22.2	21.0
NFI-ODCE + 200 bps (Non-Core Portfolio)		18.0	17.0	18.4	17.3	-27.8	-28.4	-8.0	-8.7	18.0	16.8	18.3	17.3	23.4	22.2
NFI-ODCE + 50 bps (Value Add)		16.5	15.5	16.9	15.8	-29.3	-29.9	-9.5	-10.2	16.5	15.3	16.8	15.8	21.9	20.7
NFI-ODCE + 300 bps (Opportunistic)		19.0	18.0	19.4	18.3	-26.8	-27.4	-7.0	-7.7	19.0	17.8	19.3	18.3	24.4	23.2
NCREIF Timberland Index (Timber)		1.6		-0.1		-4.7		9.5		18.4		13.7		19.4	

Returns (%)	Market Value ($)	2017		2016		2015		2014		2013		2012	
		TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET
Opportunistic													
Apollo CPI Europe I	610,930												
Bristol Value II, L.P.	13,232,538	17.1	15.3	11.0	9.1	8.2	6.1	12.4	10.6	35.0	33.0		
Bryanston Retail Opportunity Fund	3,460,182	-22.1	-22.4	-2.5	-2.8	144.0	142.1	7.3	5.8	50.5	47.5	40.1	37.2
California Smart Growth Fund IV	4,980,749	21.3	19.8	5.9	5.4	20.3	19.2	17.9	16.2	13.1	11.6	19.9	18.3
Canyon Johnson Urban Fund II	29,108												
CBRE Strategic Partners UK Fund III	0												
CIM Real Estate Fund III	7,605,423	6.8	5.3	5.4	4.0	8.3	7.1	11.0	9.8	11.1	9.9	20.8	19.4
CityView LA Urban Fund I	267,724												
Colony Investors VIII	748,407												
DRA Growth and Income Fund VI	2,645,539	4.7	2.9	11.3	8.3	27.4	21.1	49.0	32.7	17.6	15.1	4.3	2.1
Genesis Workforce Housing Fund II	-44,467												
Integrated Capital Hospitality Fund	3,925,468	-17.6	-18.7	-34.0	-34.6	-14.6	-15.2	28.2	27.2	12.1	11.0	96.8	87.9
LaSalle Asia Fund II	231,047												
Latin America Investors III	4,839,234	-21.9	-24.6	-4.9	-6.9	-30.3	-32.8	0.4	-4.6	-17.9	-22.4	-60.0	-62.6
Lone Star Fund VII	211,702												
Lone Star Real Estate Fund II	1,503,449	-0.7	5.4	16.4	13.8	42.5	32.9	58.3	44.7	30.5	22.3	40.2	30.6
Lowe Hospitality Investment Partners	0												
MacFarlane Urban Real Estate Fund II	0												
RECP Fund IV, L.P.	37,183,814	14.6	12.4	6.9	5.3	8.3	6.2	6.4	4.6	8.5	6.7	23.4	21.1
Southern California Smart Growth Fund	1,011,416	-1.1	-1.1	44.3	43.3	21.0	19.2	21.8	19.3	14.9	11.4	-33.5	-33.6
Stockbridge Real Estate Fund II	10,353,669	21.2	20.6	-4.7	-5.5	3.9	2.6	24.4	22.8	46.5	43.7	3.2	0.7
The Buchanan Fund V	3,558,864	2.3	1.3	20.1	18.8	2.1	0.9	19.2	17.8	22.4	21.2	10.2	9.2
Torchlight Debt Opportunity Fund II	7,955,313	3.4	3.1	-2.3	-2.6	15.7	15.2	6.7	6.0	24.6	23.5	24.5	23.1
Torchlight Debt Opportunity Fund III	1,924,890	24.4	18.2	14.2	10.4	33.6	25.4	92.7	65.6	33.8	20.3	17.7	15.2
Torchlight Debt Opportunity Fund IV	19,360,720	15.2	11.3	11.8	9.8	12.0	9.8	13.9	10.4	3.6	3.0		
Tuckerman Group Residential Income & Value Added Fund	949,171												
Walton Street Real Estate Fund V	6,565,556	4.5	3.5	2.1	0.7	11.9	10.4	13.2	11.7	12.9	11.2	9.5	7.8
Walton Street Real Estate Fund VI	10,463,546	9.2	7.9	-5.4	-6.6	13.5	12.2	14.8	13.4	16.0	14.3	12.1	10.4
Opportunistic	**143,573,992**	**7.7**	**6.0**	**2.8**	**1.3**	**7.2**	**5.3**	**15.7**	**12.9**	**15.3**	**12.3**	**12.5**	**10.1**
Private Real Estate Portfolio Only (ex. Timber)	**793,608,667**	**10.2**	**8.8**	**8.2**	**6.9**	**11.3**	**9.6**	**13.8**	**12.0**	**13.4**	**11.4**	**12.8**	**11.1**
Non-Core Portfolio	**263,639,726**	**12.1**	**10.0**	**7.5**	**5.6**	**9.8**	**7.6**	**14.7**	**12.3**	**13.6**	**11.0**	**14.0**	**11.9**
Total Portfolio													
LACERS	**814,452,881**	**10.0**	**8.6**	**8.1**	**6.8**	**11.2**	**9.5**	**13.7**	**11.9**	**13.5**	**11.4**	**12.8**	**11.0**
Indices													
NFI-ODCE (Core)		7.6	6.7	8.8	7.8	15.0	14.0	12.5	11.5	13.9	12.9	10.9	9.8
NFI-ODCE + 80 bps (Total Portfolio)		8.0	7.1	9.6	8.6	15.8	14.8	13.3	12.3	14.7	13.7	11.7	10.6
NFI-ODCE + 200 bps (Non-Core Portfolio)		8.6	7.7	10.8	9.8	17.0	16.0	14.5	13.5	15.9	14.9	12.9	11.8
NFI-ODCE + 50 bps (Value Add)		7.9	6.9	9.3	8.3	15.5	14.5	13.0	12.0	14.4	13.4	11.4	10.3
NFI-ODCE + 300 bps (Opportunistic)		9.1	8.2	11.8	10.8	18.0	17.0	15.5	14.5	16.9	15.9	13.9	12.8
NCREIF Timberland Index (Timber)		3.6		2.7		5.0		10.5		9.7		7.8	

Returns (%)	Market Value ($)	2011		2010		2009		2008		2007		2006		2005	
		TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET
Opportunistic															
Apollo CPI Europe I	610,930														
Bristol Value II, L.P.	13,232,538														
Bryanston Retail Opportunity Fund	3,460,182	-4.3	-7.2	20.9	18.3	12.8	10.2	73.9	69.4	-43.1	-45.5	112.8	98.1	161.3	143.3
California Smart Growth Fund IV	4,980,749	26.7	24.6	20.1	17.0	-34.6	-38.0	-46.3	-48.6	3.0	-2.5				
Canyon Johnson Urban Fund II	29,108														
CBRE Strategic Partners UK Fund III	0														
CIM Real Estate Fund III	7,605,423	21.8	19.8	15.3	-13.8	-53.5	-83.5	-117.3	-113.8						
CityView LA Urban Fund I	267,724														
Colony Investors VIII	748,407														
DRA Growth and Income Fund VI	2,645,539	32.6	29.1	15.9	11.1	-10.2	-14.7	-6.9	-10.3						
Genesis Workforce Housing Fund II	-44,467														
Integrated Capital Hospitality Fund	3,925,468	6.0	2.6												
LaSalle Asia Fund II	231,047														
Latin America Investors III	4,839,234	-32.5	-34.9	20.8	15.3	100.5	93.8								
Lone Star Fund VII	211,702														
Lone Star Real Estate Fund II	1,503,449	45.3	30.8												
Lowe Hospitality Investment Partners	0														
MacFarlane Urban Real Estate Fund II	0														
RECP Fund IV, L.P.	37,183,814	2.4	-1.4	12.5	4.3	-45.6	-54.8	-40.0	-40.0						
Southern California Smart Growth Fund	1,011,416	-5.3	-5.4	-7.5	-7.7	-40.5	-40.6	-19.2	-19.3	75.6	75.3	82.2	81.0	-212.5	-216.2
Stockbridge Real Estate Fund II	10,353,669	7.2	4.2	21.8	16.8	-86.3	-86.8	-83.4	-84.0	-27.9	-31.9	91.0	80.1		
The Buchanan Fund V	3,558,864	10.4	9.4	8.1	6.3	-45.9	-48.2	-30.5	-33.0	1.1	-1.1				
Torchlight Debt Opportunity Fund II	7,955,313	23.7	22.0	41.4	36.1	29.9	23.6	-68.7	-69.7						
Torchlight Debt Opportunity Fund III	1,924,890	1.2	1.0	12.7	2.8	26.4	22.7								
Torchlight Debt Opportunity Fund IV	19,360,720														
Tuckerman Group Residential Income & Value Added Fund	949,171														
Walton Street Real Estate Fund V	6,565,556	10.1	8.0	48.0	44.0	-27.8	-31.1	-47.7	-48.7	10.3	8.6	7.2	6.6		
Walton Street Real Estate Fund VI	10,463,546	14.3	12.3	173.3	162.1	-78.1	-84.0								
Opportunistic	**143,573,992**	**8.8**	**6.5**	**17.1**	**12.6**	**-39.0**	**-41.6**	**-36.6**	**-39.2**	**10.6**	**4.6**	**31.4**	**24.5**	**32.0**	**25.2**
Private Real Estate Portfolio Only (ex. Timber)	**793,608,667**	**12.8**	**10.9**	**13.3**	**10.5**	**-35.1**	**-36.7**	**-23.1**	**-24.3**	**14.3**	**11.1**	**20.1**	**17.2**	**25.4**	**22.3**
Non-Core Portfolio	**263,639,726**	**11.9**	**9.6**	**12.2**	**8.5**	**-38.8**	**-40.7**	**-30.0**	**-31.3**	**14.2**	**10.0**	**21.1**	**17.1**	**28.9**	**24.2**
Total Portfolio															
LACERS	**814,452,881**	**12.6**	**10.8**	**13.0**	**10.3**	**-34.4**	**-35.9**	**-22.5**	**-23.6**	**14.5**	**11.3**	**20.2**	**17.4**	**25.4**	**22.3**
Indices															
NFI-ODCE (Core)		16.0	15.0	16.4	15.3	-29.8	-30.4	-10.0	-10.7	16.0	14.8	16.3	15.3	21.4	20.2
NFI-ODCE + 80 bps (Total Portfolio)		16.8	15.8	17.2	16.1	-29.0	-29.6	-9.2	-9.9	16.8	15.6	17.1	16.1	22.2	21.0
NFI-ODCE + 200 bps (Non-Core Portfolio)		18.0	17.0	18.4	17.3	-27.8	-28.4	-8.0	-8.7	18.0	16.8	18.3	17.3	23.4	22.2
NFI-ODCE + 50 bps (Value Add)		16.5	15.5	16.9	15.8	-29.3	-29.9	-9.5	-10.2	16.5	15.3	16.8	15.8	21.9	20.7
NFI-ODCE + 300 bps (Opportunistic)		19.0	18.0	19.4	18.3	-26.8	-27.4	-7.0	-7.7	19.0	17.8	19.3	18.3	24.4	23.2
NCREIF Timberland Index (Timber)		1.6		-0.1		-4.7		9.5		18.4		13.7		19.4	

Quarterly Cash Flow Activity ($)	Beginning Market Value	Contributions	Distributions	Withdrawals	Gross Income	Manager Fees	Appreciation	Ending Market Value	LTV (%)
Core									
Berkshire Multifamily Income Realty Fund	23,867,683	0	330,218	0	263,594	38,806	79,778	23,842,031	45.0
CIM Commercial Trust Corporation (“CMCT”)	28,074,602	0	117,463	7,002,590	178,114	0	1,402,820	22,535,483	31.6
CIM VI (Urban REIT), LLC	30,258,939	0	234,216	0	291,471	104,299	136,194	30,348,090	0.0
INVESCO Core Real Estate	160,151,805	1,289,325	1,275,563	0	1,399,897	133,399	2,246,271	163,678,336	25.2
Jamestown Premier Property Fund	48,261,482	72,392	486,352	0	579,670	1,143,503	4,557,407	51,841,096	34.5
JP Morgan Strategic Property Fund	63,427,486	0	0	0	633,312	152,897	504,933	64,412,834	23.3
Lion Industrial Trust - 2007	58,445,068	55,455	453,485	0	781,270	243,316	963,698	59,548,690	34.8
Prime Property Fund	53,994,141	0	532,219	0	542,468	130,801	712,307	54,585,896	17.4
Principal U.S. Property Account	58,114,158	0	0	0	631,575	140,551	571,301	59,176,485	22.4
Core	**524,595,364**	**1,417,172**	**3,429,516**	**7,002,590**	**5,301,371**	**2,087,572**	**11,174,709**	**529,968,941**	**26.6**
Timber									
Hancock Timberland XI	20,667,705	0	157,882	0	-50,323	45,698	430,412	20,844,214	0.0
Timber	**20,667,705**	**0**	**157,882**	**0**	**-50,323**	**45,698**	**430,412**	**20,844,214**	**0.0**
Value Added									
Almanac Realty Securities VI	10,031,174	0	255,135	418,961	183,131	17,727	-338,715	9,183,767	64.0
Asana Partners Fund I	7,891,887	400,000	0	0	50,945	271,860	557,434	8,628,406	53.5
CBRE Strategic Partners IV	110,531	0	0	110,531	0	0	0	0	0.0
Cornerstone Enhanced Mortgage Fund I	5,249,251	0	92,517	4,033,361	108,678	8,946	32	1,223,137	0.0
DRA Growth and Income Fund VII	17,840,509	0	2,322,222	0	610,705	269,890	629,271	16,488,373	64.0
DRA Growth and Income Fund VIII	22,933,844	592,593	1,464,586	0	429,634	114,446	136,335	22,513,374	66.4
Gerrity Retail Fund 2	14,051,222	762,742	140,268	0	293,814	68,750	140,668	15,039,427	57.9
Heitman Asia-Pacific Property Investors	-233,207	0	0	0	-44,376	1,951	-25,507	-305,042	151.0
JP Morgan Alternative Property Fund	222,923	0	0	0	-5,471	0	21,108	238,560	69.1
Mesa West Real Estate Income Fund III	11,902,489	0	152,198	3,322,480	333,899	69,822	-260	8,691,628	63.0
RREEF America REIT III - 1410	142,642	0	0	139,012	-3,432	199	0	0	0.0
Standard Life Investments European Real Estate Club II	35,016,942	0	0	0	350,552	81,160	2,455,462	37,741,796	34.5
The Realty Associates Fund IX, L.P.	1,727,296	0	1,119,577	0	21,394	4,506	-2,299	622,308	0.0
Urdang Value Added Fund II	91,815	0	84,625	0	-47,786	0	40,596	0	0.0
Value Added	**126,979,318**	**1,755,335**	**5,631,128**	**8,024,345**	**2,281,687**	**909,257**	**3,614,125**	**120,065,734**	**53.4**
Total Portfolio									
LACERS	**835,873,964**	**4,228,194**	**19,978,093**	**27,222,282**	**8,722,904**	**3,909,858**	**16,738,052**	**814,452,881**	**33.8**

Quarterly Cash Flow Activity ($)	Beginning Market Value	Contributions	Distributions	Withdrawals	Gross Income	Manager Fees	Appreciation	Ending Market Value	LTV (%)
Opportunistic									
Apollo CPI Europe I	892,602	0	0	256,056	-4,726	0	-20,891	610,930	0.0
Bristol Value II, L.P.	11,330,532	342,857	66,159	0	22,284	48,197	1,651,221	13,232,538	35.7
Bryanston Retail Opportunity Fund	4,603,849	0	0	0	-1,721	4,136	-1,137,810	3,460,182	70.7
California Smart Growth Fund IV	6,534,707	74,582	0	2,010,320	42,739	74,582	413,623	4,980,749	0.0
Canyon Johnson Urban Fund II	29,543	0	0	0	-435	0	0	29,108	0.0
CBRE Strategic Partners UK Fund III	227,900	0	0	228,428	686	0	-157	0	0.0
CIM Real Estate Fund III	8,300,983	0	864,948	0	-61,476	28,921	259,785	7,605,423	32.9
CityView LA Urban Fund I	2,454,817	7,669	2,239,788	0	-17,373	7,669	70,068	267,724	0.0
Colony Investors VIII	2,306,955	0	0	1,763,348	20,400	5,800	190,200	748,407	0.0
DRA Growth and Income Fund VI	2,648,229	0	68,000	0	84,313	19,003	0	2,645,539	45.0
Genesis Workforce Housing Fund II	139,741	0	182,439	0	-1,769	0	0	-44,467	0.0
Integrated Capital Hospitality Fund	5,047,377	0	0	0	-527,465	15,762	-578,682	3,925,468	47.1
LaSalle Asia Fund II	214,150	0	0	0	15,686	0	1,211	231,047	0.0
Latin America Investors III	5,946,882	0	0	0	-29,578	50,192	-1,027,878	4,839,234	26.6
Lone Star Fund VII	294,394	0	55,146	0	3,715	-9,884	-41,144	211,702	91.3
Lone Star Real Estate Fund II	2,150,915	0	184,006	510,507	36,993	3,271	13,326	1,503,449	23.0
Lowe Hospitality Investment Partners	76,930	0	0	56,391	-20,539	0	0	0	0.0
MacFarlane Urban Real Estate Fund II	271,520	0	270,541	0	-979	0	0	0	0.0
RECP Fund IV, L.P.	36,883,922	630,579	1,691,081	0	1,065,491	199,850	494,753	37,183,814	31.0
Southern California Smart Growth Fund	1,011,251	0	0	0	165	0	0	1,011,416	69.2
Stockbridge Real Estate Fund II	10,331,893	0	0	0	-8,547	8,808	39,131	10,353,669	48.3
The Buchanan Fund V	3,613,777	0	0	0	12,385	9,567	-57,731	3,558,864	21.9
Torchlight Debt Opportunity Fund II	8,578,861	0	674,726	0	1,233	4,136	54,081	7,955,313	23.5
Torchlight Debt Opportunity Fund III	2,979,871	0	1,327,709	0	70,890	75,874	277,712	1,924,890	0.0
Torchlight Debt Opportunity Fund IV	21,358,737	0	2,618,137	0	490,066	268,914	398,968	19,360,720	16.1
Tuckerman Group Residential Income & Value Added Fund	7,550,124	0	0	6,665,633	-83,659	13,585	161,924	949,171	0.0
Walton Street Real Estate Fund V	7,094,732	0	0	704,664	20,318	8,404	163,574	6,565,556	48.4
Walton Street Real Estate Fund VI	10,756,383	0	516,887	0	61,072	30,544	193,522	10,463,546	59.4
Opportunistic	**163,631,577**	**1,055,687**	**10,759,567**	**12,195,347**	**1,190,169**	**867,331**	**1,518,806**	**143,573,992**	**37.7**
Private Real Estate Portfolio Only (ex. Timber)	**815,206,259**	**4,228,194**	**19,820,211**	**27,222,282**	**8,773,227**	**3,864,160**	**16,307,640**	**793,608,667**	**34.4**
Non-Core Portfolio	**290,610,895**	**2,811,022**	**16,390,695**	**20,219,692**	**3,471,856**	**1,776,588**	**5,132,931**	**263,639,726**	**46.0**
Total Portfolio									
LACERS	**835,873,964**	**4,228,194**	**19,978,093**	**27,222,282**	**8,722,904**	**3,909,858**	**16,738,052**	**814,452,881**	**33.8**

Property Type Diversification (%)	Apartment	Office	Industrial	Retail	Hotel	Other
Core						
Berkshire Multifamily Income Realty Fund	100.0	-	-	-	-	-
CIM Commercial Trust Corporation (“CMCT”)	-	83.1	-	-	11.8	5.1
CIM VI (Urban REIT), LLC	57.3	27.9	-	14.8	-	0.0
INVESCO Core Real Estate	31.6	33.9	14.8	19.7	-	0.1
Jamestown Premier Property Fund	-	70.1	-	17.2	-	12.7
JP Morgan Strategic Property Fund	21.3	40.2	10.6	26.4	-	1.6
Lion Industrial Trust - 2007	-	-	100.0	-	-	-
Prime Property Fund	24.4	34.1	16.2	16.4	-	8.9
Principal U.S. Property Account	11.2	41.9	22.4	16.7	1.3	6.6
Core	**23.9**	**35.5**	**21.3**	**15.4**	**0.6**	**3.3**
Timber						
Hancock Timberland XI	-	-	-	-	-	100.0
Timber	**-**	**-**	**-**	**-**	**-**	**100.0**
Value Added						
Almanac Realty Securities VI	29.0	7.0	-	6.1	54.5	3.4
Asana Partners Fund I	-	-	-	100.0	-	-
CBRE Strategic Partners IV	-	-	-	-	-	-
Cornerstone Enhanced Mortgage Fund I	-	100.0	-	-	-	-
DRA Growth and Income Fund VII	35.1	21.5	26.8	16.6	-	-
DRA Growth and Income Fund VIII	10.2	26.0	10.0	50.9	-	2.9
Gerrity Retail Fund 2	-	-	-	100.0	-	-
Heitman Asia-Pacific Property Investors	-	-	-	-	-	-
JP Morgan Alternative Property Fund	-	-	-	-	-	-
Mesa West Real Estate Income Fund III	27.8	60.6	-	-	11.6	-
RREEF America REIT III - 1410	-	-	-	-	-	-
Standard Life Investments European Real Estate Club II	-	40.2	46.2	13.6	-	-
The Realty Associates Fund IX, L.P.	-	100.0	-	-	-	-
Urdang Value Added Fund II	-	-	-	-	-	-
Value Added	**11.0**	**26.9**	**20.1**	**36.3**	**5.0**	**0.8**
Total Portfolio						
LACERS	**19.6**	**31.0**	**17.9**	**16.8**	**3.4**	**11.3**
Indices						
NFI-ODCE	**24.1**	**36.0**	**16.2**	**19.8**	**0.4**	**3.5**

Property Type Diversification (%)	Apartment	Office	Industrial	Retail	Hotel	Other
Opportunistic						
Apollo CPI Europe I	-	-	-	-	-	-
Bristol Value II, L.P.	12.1	49.9	17.1	-	-	20.9
Bryanston Retail Opportunity Fund	-	-	-	100.0	-	-
California Smart Growth Fund IV	3.3	-	53.1	0.4	-	43.2
Canyon Johnson Urban Fund II	-	-	-	-	-	-
CBRE Strategic Partners UK Fund III	-	-	-	-	-	-
CIM Real Estate Fund III	13.6	7.7	-	13.6	4.1	60.9
CityView LA Urban Fund I	100.0	-	-	-	-	-
Colony Investors VIII	-	96.7	-	-	-	3.3
DRA Growth and Income Fund VI	-	42.2	-	57.8	-	-
Genesis Workforce Housing Fund II	-	-	-	-	-	-
Integrated Capital Hospitality Fund	-	-	-	-	100.0	-
LaSalle Asia Fund II	-	-	-	-	-	-
Latin America Investors III	-	10.4	-	-	-	89.6
Lone Star Fund VII	-	-	-	-	-	100.0
Lone Star Real Estate Fund II	-	38.9	0.5	2.9	16.8	41.0
Lowe Hospitality Investment Partners	-	-	-	-	-	-
MacFarlane Urban Real Estate Fund II	-	-	-	-	-	-
RECP Fund IV, L.P.	22.8	8.1	4.5	-	10.7	53.9
Southern California Smart Growth Fund	-	-	-	-	-	-
Stockbridge Real Estate Fund II	-	43.6	-	-	24.2	32.1
The Buchanan Fund V	84.0	-	-	-	-	16.0
Torchlight Debt Opportunity Fund II	0.0	99.9	0.0	0.1	0.0	0.0
Torchlight Debt Opportunity Fund III	1.5	87.7	0.8	7.0	1.5	1.5
Torchlight Debt Opportunity Fund IV	21.9	16.1	11.5	23.3	18.2	9.1
Tuckerman Group Residential Income & Value Added Fund	-	-	-	-	-	100.0
Walton Street Real Estate Fund V	-	-	-	2.1	43.9	53.9
Walton Street Real Estate Fund VI	5.6	9.2	-	7.1	6.0	72.1
Opportunistic	**13.7**	**22.1**	**6.2**	**8.2**	**12.7**	**37.0**
Private Real Estate Portfolio Only (ex. Timber)	**20.1**	**31.8**	**18.4**	**17.2**	**3.5**	**9.0**
Non-Core Portfolio	**12.4**	**24.3**	**12.6**	**21.1**	**9.2**	**20.4**
Total Portfolio						
LACERS	**19.6**	**31.0**	**17.9**	**16.8**	**3.4**	**11.3**
Indices						
NFI-ODCE	**24.1**	**36.0**	**16.2**	**19.8**	**0.4**	**3.5**

Geographic Diversification (%)	North East	Mid East	East North Central	West North Central	South East	South West	Mountain	Pacific	Var-US	Ex-US
Core										
Berkshire Multifamily Income Realty Fund	5.5	9.0	10.7	-	24.7	15.1	7.9	27.1	-	-
CIM Commercial Trust Corporation ("CMCT")	-	24.0	-	-	-	9.3	-	66.7	-	-
CIM VI (Urban REIT), LLC	61.6	-	-	-	-	21.1	-	17.3	-	-
INVESCO Core Real Estate	16.6	9.2	3.5	0.9	2.7	13.7	10.2	43.3	-	-
Jamestown Premier Property Fund	54.0	19.9	-	-	1.9	-	-	24.3	-	-
JP Morgan Strategic Property Fund	24.0	7.7	4.7	0.0	6.6	13.7	2.6	40.7	-	-
Lion Industrial Trust - 2007	19.7	2.2	8.7	2.4	14.5	16.7	2.8	33.0	-	-
Prime Property Fund	21.7	8.0	9.3	2.0	11.8	9.0	4.3	33.7	-	-
Principal U.S. Property Account	15.5	9.2	4.6	1.8	9.0	13.7	10.1	36.2	-	-
Core	**22.9**	**9.1**	**4.7**	**1.0**	**6.9**	**12.6**	**5.8**	**37.0**	-	-
Timber										
Hancock Timberland XI	-	-	-	-	-	-	-	21.6	65.1	13.3
Timber	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**21.6**	**65.1**	**13.3**
Value Added										
Almanac Realty Securities VI	-	-	-	-	-	-	-	-	100.0	-
Asana Partners Fund I	-	45.0	-	-	15.2	39.8	-	-	-	-
CBRE Strategic Partners IV	-	-	-	-	-	-	-	-	-	-
Cornerstone Enhanced Mortgage Fund I	-	-	-	-	-	-	100.0	-	-	-
DRA Growth and Income Fund VII	-	9.9	2.4	6.5	20.0	37.7	9.4	14.1	-	-
DRA Growth and Income Fund VIII	3.8	11.4	27.5	11.2	18.4	13.3	1.8	12.6	-	-
Gerrity Retail Fund 2	-	-	-	-	-	-	-	100.0	-	-
Heitman Asia-Pacific Property Investors	-	-	-	-	-	-	-	-	-	-
JP Morgan Alternative Property Fund	-	-	-	-	-	-	-	-	-	-
Mesa West Real Estate Income Fund III	12.0	23.0	5.2	-	15.8	17.4	10.9	15.8	-	-
RREEF America REIT III - 1410	-	-	-	-	-	-	-	-	-	-
Standard Life Investments European Real Estate Club II	-	-	-	-	-	-	-	-	-	100.0
The Realty Associates Fund IX, L.P.	-	-	-	-	-	-	100.0	-	-	-
Urdang Value Added Fund II	-	-	-	-	-	-	-	-	-	-
Value Added	**1.6**	**8.4**	**5.9**	**3.0**	**8.4**	**11.8**	**3.9**	**18.0**	**7.6**	**31.4**
Total Portfolio										
LACERS	**17.3**	**8.5**	**4.0**	**1.1**	**7.4**	**9.9**	**4.7**	**28.8**	**11.6**	**6.8**
Indices										
NFI-ODCE	**21.9**	**9.1**	**7.9**	**1.5**	**9.5**	**8.9**	**5.3**	**35.9**	**-**	**-**

Geographic Diversification (%)	North East	Mid East	East North Central	West North Central	South East	South West	Mountain	Pacific	Var-US	Ex-US
Opportunistic										
Apollo CPI Europe I	-	-	-	-	-	-	-	-	-	-
Bristol Value II, L.P.	38.9	-	-	-	52.9	-	8.2	-	-	-
Bryanston Retail Opportunity Fund	17.0	0.0	9.6	0.2	1.7	11.4	13.2	46.9	-	-
California Smart Growth Fund IV	-	-	-	-	-	-	-	100.0	-	-
Canyon Johnson Urban Fund II	-	-	-	-	-	-	-	-	-	-
CBRE Strategic Partners UK Fund III	-	-	-	-	-	-	-	-	-	-
CIM Real Estate Fund III	26.7	-	18.2	-	32.2	0.1	5.6	16.6	-	0.7
CityView LA Urban Fund I	-	-	-	-	-	-	-	100.0	-	-
Colony Investors VIII	0.2	-	-	-	-	-	-	83.8	-	16.0
DRA Growth and Income Fund VI	5.0	-	-	5.3	37.1	-	52.5	-	-	-
Genesis Workforce Housing Fund II	-	-	-	-	-	-	-	-	-	-
Integrated Capital Hospitality Fund	-	54.7	-	-	31.7	13.6	-	-	-	-
LaSalle Asia Fund II	-	-	-	-	-	-	-	-	-	-
Latin America Investors III	-	-	-	-	-	-	-	-	-	100.0
Lone Star Fund VII	-	6.7	-	-	18.0	1.5	-	-	70.0	3.8
Lone Star Real Estate Fund II	-	-	-	-	-	-	-	-	94.9	5.1
Lowe Hospitality Investment Partners	-	-	-	-	-	-	-	-	-	-
MacFarlane Urban Real Estate Fund II	-	-	-	-	-	-	-	-	-	-
RECP Fund IV, L.P.	28.9	23.6	-	-	-	1.2	0.0	19.1	-	27.1
Southern California Smart Growth Fund	-	-	-	-	-	-	-	-	-	-
Stockbridge Real Estate Fund II	-	-	-	-	-	-	-	100.0	-	-
The Buchanan Fund V	-	-	-	-	-	84.0	-	16.0	-	-
Torchlight Debt Opportunity Fund II	-	-	-	-	-	-	-	-	100.0	-
Torchlight Debt Opportunity Fund III	-	-	-	-	-	-	-	-	100.0	-
Torchlight Debt Opportunity Fund IV	-	-	-	-	-	-	-	-	100.0	-
Tuckerman Group Residential Income & Value Added Fund	100.0	-	-	-	-	-	-	-	-	-
Walton Street Real Estate Fund V	-	12.3	-	-	35.7	-	4.2	11.6	-	36.2
Walton Street Real Estate Fund VI	51.8	14.5	4.3	1.4	8.6	5.7	4.8	4.4	-	4.5
Opportunistic	**17.7**	**9.9**	**1.7**	**0.2**	**11.9**	**3.4**	**3.3**	**17.5**	**21.7**	**12.7**
Private Real Estate Portfolio Only (ex. Timber)	**18.6**	**9.9**	**4.4**	**1.1**	**8.3**	**11.5**	**5.3**	**30.4**	**4.4**	**6.1**
Non-Core Portfolio	**10.1**	**11.4**	**3.9**	**1.5**	**11.1**	**9.3**	**4.2**	**17.3**	**13.2**	**18.1**
Total Portfolio										
LACERS	**17.3**	**8.5**	**4.0**	**1.1**	**7.4**	**9.9**	**4.7**	**28.8**	**11.6**	**6.8**
Indices										
NFI-ODCE	**21.9**	**9.1**	**7.9**	**1.5**	**9.5**	**8.9**	**5.3**	**35.9**	**-**	**-**

Advisory Disclosures and Definitions

Disclosure
Trade Secret and Confidential.

Past performance is not indicative of future results.

Investing involves risk, including the possible loss of principal.

Returns are presented on a time weighted basis and shown both gross and net of underlying third party fees and expenses and may include income, appreciation and/or other earnings. In addition, investment level Net IRR's and equity multiples are reported.

The Townsend Group, on behalf of its client base, collects quarterly limited partner/client level performance data based upon inputs from the underlying investment managers. Data collection is for purposes of calculating investment level performance as well as aggregating and reporting client level total portfolio performance. Quarterly limited partner/client level performance data is collected directly[1] from the investment managers via a secure data collection site.

[1]In select instances where underlying investment managers have ceased reporting limited partner/client level performance data directly to The Townsend Group via a secure data collection site, The Townsend Group may choose to input performance data on behalf of its client based upon the investment managers quarterly capital account statements which are supplied to The Townsend Group and the client alike.

Benchmarks
The potential universe of available real asset benchmarks are infinite. Any one benchmark, or combination thereof, may be utilized on a gross or net of fees basis with or without basis point premiums attached. These benchmarks may also utilize a blended composition with varying weighting methodologies, including market weighted and static weighted approaches.

Exhibit B: Real Estate Market Update

United States Real Estate Market Update (4Q17)

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General

- The S&P 500 produced a gross total return of 6.6% during the Quarter, as markets have continued to rally on the back of tax cuts. MSCI US REIT index produced a more moderate return of 1.4%. REITS underperformed the broader equities market by 16.8%. Consumer Sentiment improved during the Quarter, concluding the year at 95.9. US 10 year treasury bond yields expanded 7 bps during the Quarter.

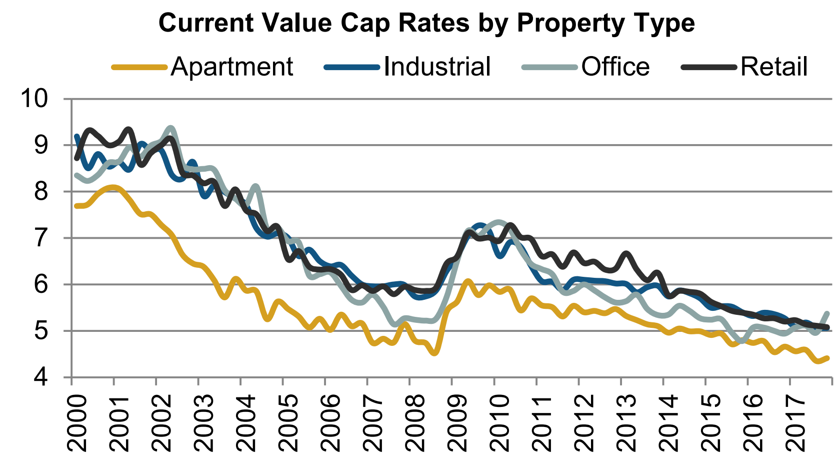
- Macro indicators for U.S. real estate continue to be positive; GDP grew at an annualized rate of 2.6% in the 4th Quarter. With the conclusion of December, the economy has now experienced 87 consecutive months of job growth. For 2017, headline inflation remained healthy at 2.1%, near the Fed's 2% target. The Federal Reserve has continued to tighten their policy, in light of improving economic data, and raised base rates to 1.25-1.5%. In 2018, the consensus expectation is three rate hikes.

Commercial Real Estate

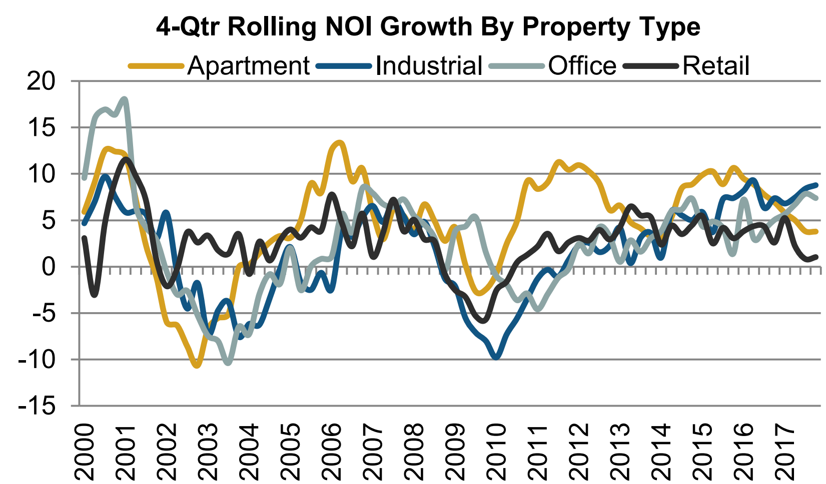
- In 2016, $124.1bn of aggregate capital was raised by US real estate funds. 2017, Private Equity Real Estate Funds have raised 111.6bn. Continuing on trend since 2012, 2017 has witnessed the largest average fund size at $444m; this trend which has strengthened as capital has concentrated in a small group of established managers.

- Transaction cap rates (5.87%) on average expanded 5 bps during the 4th Quarter of 2017. Office experienced an expansion of current value cap rates of 40 bps; other sectors remained relatively flat.

- 10 year treasury bond yields compressed an expanded 7 bps to 2.4% during the quarter and, subsequent to quarter end, have continued to expand. A combination of fiscal stimulus and tightening from the fed has increased the investor's expectation of inflation.



Source: NCREIF



Source: NCREIF

Sources: Bureau of Economic Analysis, U.S. Census Bureau, Federal Reserve Board, NCREIF, Cushman and Wakefield, Real Capital Analytics, Bloomberg LP., Preqin, University of Michigan

United States Property Matrix (4Q17)

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INDUSTRIAL

- As of 4Q17, Industrial properties returned 3.3% and outperformed the NPI by 149 bps.
- With nearly 82 million square feet of net absorption in 4Q17 (the highest fourth quarter number on record), 2017 demand reached 245 million square feet. This represents a 6.1% decline from 2016 totals.
- Midsized product (100,000 – 500,000 square feet) significantly increased from 2016 deal volumes, with 73% of transactions falling into this category.
- Construction levels remain elevated, with new deliveries reaching 232.7 million square feet in 2017, with many markets reaching historical highs in new deliveries. Speculative development was 75% of total deliveries for 2017 speaking to continued demand.
- A 20 bps reduction in vacancy has resulted in another all-time low of 5.0%. Strong demand has pushed asking rents up 5.4% year-over-year and now stand at $5.50 PSF.

MULTIFAMILY

- Sales volumes decreased by 8.3% in 2017. Despite the slowdown, multifamily led all other property types in terms of transaction volume for the third straight year, speaking to the strong liquidity that remains in the market.
- Primary market transaction activity represented 40.3% of activity, down from 44.0% in 2016. New supply has continued to drive investors' cautious outlook on primary markets.
- Acquisitions by REITs decreased by 23%, as pricing has made it difficult to underwrite required return hurdles. Meanwhile, foreign investment increased 16%, with Canada and Singapore accounting for 66% of foreign investment.
- Annual rent growth ended the year at 2.3%. Concessions continue to increase in many markets nationally, a product of increased supply coming to market.
- The apartment sector delivered a 1.6% return during the Quarter, underperforming the NPI by 18 bps.

OFFICE

- The Office sector returned 1.7% in 4Q17, 15bps below the NPI.
- For the year, the office market recorded occupancy growth of 36.4 million square feet, 13% less than 2016 numbers, representing a third consecutive year of slowed occupancy growth.
- As a result of slowed expansion activity, vacancy has increased to 14.9%, with levels anticipated to increase through 2018 and 2019.
- Construction starts have dropped sharply in 2017 by 29%, with construction volumes dropping below the 100 million square feet level for the first time in three years.
- New supply has provided some upside for landlords with completions commanding a 43% premium to existing Class A space. Pricing discounts to Core product, as well as increased deliveries, has resulted in suburban office product being able to increase asking rents at a greater pace than urban assets.

RETAIL

- Transaction volumes totaled $51.5 billion for 2017, a 22.5% decrease from the prior year. Secondary markets seeing strong population and job growth experienced growth, but not enough to offset the decline in gateway markets.
- Lifestyle centers and malls had transaction volume declines of 48.5% and 53.5%, respectively. One bright spot was general purpose centers, which experienced a 10.5% increase.
- Growth in rent for 2017 was 5.5%, marking a slowdown from that seen in 2016. Store closure announcements remain a headwind for rent growth going forward.
- Institutional retail investment declined 41.8% in 2017. REIT acquisitions increased by 12.0%, focused primarily on general purpose centers. Foreign investment declined by 56.7%, with core assets remaining the predominate component of activity.
- As of 4Q17, the retail sector delivered a quarterly return of 1.3%, which underperformed the NPI by 52 bps.

Sources: Real Capital Analytics, Bloomberg LP, Green Street, US Census Bureau, NCREIF, Jones Lang LaSalle, REIS, Cushman and Wakefield

Global Real Estate Market Update (4Q17)

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GLOBAL

- Global investment activity during 4Q 2017 totaled $228 billion, marking a 10% increase as compared to 4Q 2016 levels. This brings full-year 2017 volumes to $698 billion, which is 6% higher than last year's total. The strong 4Q 2017 performance demonstrated investors' confidence in the real estate sector despite continued political uncertainty. Overall, 2017 produced record volumes for investment activity in the post-crisis era, driven by broad-based growth, low interest rates, and lack of inflationary pressure. Looking forward, global investment volumes in 2018 are expected to soften by 5% - 10% to around $650 billion due to a relative lack of product combined with continued investor discipline. However, investors are still keen to access the sector and will look for new strategies as the prominence of single-asset transactions has started to decline.

Direct Commercial Real Estate Investment - Regional Volumes, 2016 - 2017

$ US Billions	Q3 2017	Q4 2017	% Change Q3 17 - Q4 17	Q4 2016	% Change Q4 16 - Q4 17	FY 2016	FY 2017	% Change FY 16 - FY 17
Americas	61	66	8%	78	-15%	285	249	-13%
EMEA	73	110	51%	84	31%	245	300	22%
Asia Pacific	35	52	49%	45	16%	131	149	14%
Total	169	228	35%	207	10%	661	698	6%

Source: Jones Lang LaSalle, January 2018

EUROPE

- European investment increased 31% y/y in 4Q 2017, for a full-year volume of $300 billion. This was a 22% increase over full-year 2016 volumes and was the strongest year since 2007. Growth was strong across all regions, with investment volumes up 57% in the Benelux region, 24% in Southern Europe, and 27% in the Nordics as compared to 2016. Central and Eastern Europe rose 3% to $19 billion, surpassing the previous cyclical peak in 2006 by 29%. The U.K. showed continuous recovery following the impact of Brexit, with 4Q volumes up 80% y/y and totaling $79 billion for the full-year, a 37% increase as compared to full-year 2016 volumes. Germany saw volumes rise 8% in 4Q with full-year volumes up 9% compared to 2016. The French market saw a reversal of the 2Q and 3Q slowdown with investment volumes up 61% y/y.

ASIA

- Asia Pacific 4Q 2017 investment activity reached a record $52 billion, up 16% y/y. Full-year volumes were $249 billion, marking a 13% increase as compared to full-year 2016 volumes. Cross-border investment activity accounted for 40% of total transaction volumes, with Singaporeans being the largest cross-border buyers. Japan's transaction volumes totaled $37 billion for 2017, up 10% y/y. Australia's full-year investment volume was $21 billion, up 14% compared to 2016. Investor interest has been shifting towards secondary cities such as Brisbane. Chinese transaction activity marked an all-time record, reaching $36 billion in 2017. This represents a 5% increase compared to 2016. Specifically, Hong Kong volumes came in at $16.4 billion, up 58% y/y.

Global Outlook - GDP (Real) Growth % pa, 2017-2019

	2017	2018	2019
Global	**3.6**	**3.9**	**3.6**
Asia Pacific	**5.5**	**5.5**	**5.2**
Australia	2.2	2.5	2.4
China	6.8	6.4	6.0
India	6.1	7.4	7.1
Japan	1.8	1.7	0.9
North America	**2.0**	**2.6**	**2.2**
US	2.3	2.7	1.9
MENA*	**2.0**	**3.2**	**3.8**
European Union	**2.8**	**2.5**	**2.0**
France	1.8	1.9	1.7
Germany	2.5	2.4	1.8
UK	1.5	1.5	1.6

*Middle East North Africa
Source: Jones Lang LaSalle (Oxford Economics), January 2018

Sources: Jones Lang LaSalle Research, Bloomberg LP

Exhibit C: Glossary

Cash Flow Statement

Beginning Market Value:	**Value of real estate, cash and other holdings from prior period end.**
Contributions:	Cash funded to the investment for acquisition and capital items (i.e., initial investment cost or significant capital improvements).
Distributions:	Actual cash returned from the investment, representing distributions of income from operations.
Withdrawals:	Cash returned from the investment, representing returns of capital or net sales proceeds.
Ending Market Value:	The value of an investment as determined by actual sales dollars invested and withdrawn plus the effects of appreciation and reinvestment; market value is equal to the ending cumulative balance of the cash flow statement (NAV).
Unfunded Commitments:	Capital allocated to managers which remains to be called for investment. Amounts are as reported by managers.
Remaining Allocation	The difference between the ending market value + the unfunded commitments and the target allocation. This figure represents dollars available for allocation.

Style Groups

The Style Groups consist of returns from commingled funds with similar risk/return investment strategies. Investor portfolios/investments are compared to comparable style groupings.	
Core:	Direct investments in operating, fully leased, office, retail, industrial, or multifamily properties using little or no leverage (normally less than 30%).
Value-Added:	Core returning investments that take on moderate additional risk from one or more of the following sources: leasing, re-development, exposure to non-traditional property types, the use of leverage (typically between 40% and 65%).
Opportunistic:	Investments that take on additional risk in order to achieve a higher return. Typical sources of risks are: development, land investing, operating company investing, international exposure, high leverage (typically between 50% and 65% or higher), distressed properties.

Indices

Stylized Index:	Weights the various style group participants so as to be comparable to the investor portfolio holdings for each period.
Open-End Diversified Core Equity Index ("ODCE"):	A core index that includes only open-end diversified core strategy funds with at least 95% of their investments in U.S. markets. The ODCE is the first of the NCREIF Fund Database products, created in May 2005, and is an index of investment returns reporting on both a historical and current basis (16 active vehicles). The ODCE Index is capitalization-weighted and is reported gross and net of fees. Measurement is time-weighted and includes leverage.
NCREIF Timberland Index ("NTI"):	National Index comprised of a large pool of individual timber properties owned by institutions for investment purposes.
NCREIF Property Index ("NPI"):	National Property Index comprised of core equity real estate assets owned by institutions.

Performance

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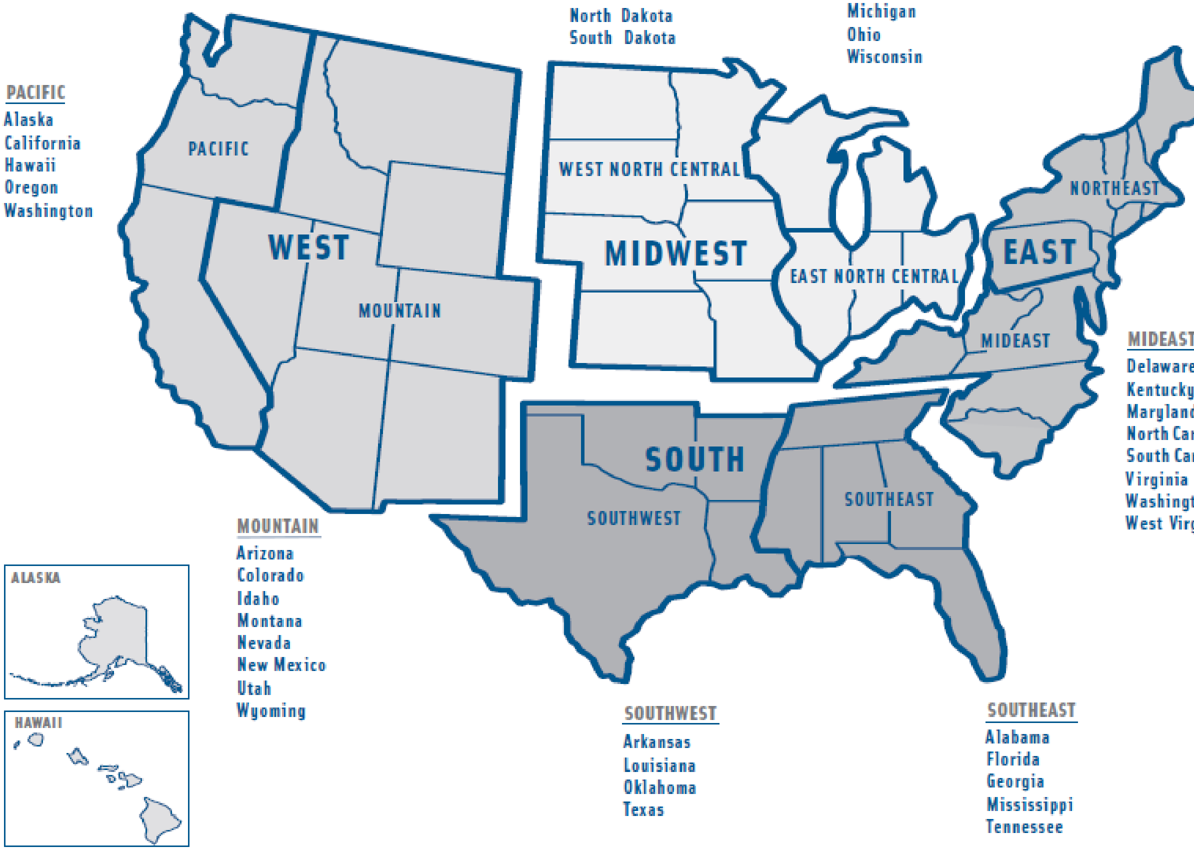
Income Return ("INC"):	**Net operating income net of debt service before deduction of capital items (e.g., roof replacement, renovations, etc.)**
Appreciation Return ("APP"):	Increase or decrease in investment's value based on internal or third party appraisal, recognition of capital expenditures which did not add value or uncollectible accrued income, or realized gain or loss from sales.
Total Gross Return ("TGRS"):	The sum of the income return and appreciation return before adjusting for fees paid to and/or accrued by the manager.
Total Net Return ("TNET"):	Total gross return less Advisor fees reported. All fees are requested (asset management, accrued incentives, paid incentives). No fee data is verified. May not include any fees paid directly by the investor as opposed to those paid from cash flows.
Inception Returns[1]:	The total net return for an investment or portfolio over the period of time the client has funds invested. Total portfolio Inception Returns may include returns from investments no longer held in the current portfolio.
Net IRR:	IRR after advisory fees, incentive and promote. This includes actual cash flows and a reversion representing the LP Net Assets at market value as of the period end reporting date.
Equity Multiple:	The ratio of Total Value to Paid-in-Capital (TVPIC). It represents the Total Return of the investment to the original investment not taking into consideration the time invested. Total Value is computed by adding the Residual Value and Distributions. It is calculated net of all investment advisory and incentive fees and promote.

[1] Portfolio level returns include historical returns of managers no longer with assets under management.
All returns are calculated on a time-weighted basis.

GEOGRAPHIC REGIONS and DIVISIONS



WEST NO. CENTRAL
Iowa
Kansas
Minnesota
Missouri
Nebraska
North Dakota
South Dakota

EAST NO. CENTRAL
Illinois
Indiana
Michigan
Ohio
Wisconsin

NORTHEAST
Connecticut
Maine
Massachusetts
New Hampshire
New Jersey
New York
Pennsylvania
Rhode Island
Vermont

PACIFIC
Alaska
California
Hawaii
Oregon
Washington

MIDEAST
Delaware
Kentucky
Maryland
North Carolina
South Carolina
Virginia
Washington, DC
West Virginia

MOUNTAIN
Arizona
Colorado
Idaho
Montana
Nevada
New Mexico
Utah
Wyoming

SOUTHWEST
Arkansas
Louisiana
Oklahoma
Texas

SOUTHEAST
Alabama
Florida
Georgia
Mississippi
Tennessee

NCREIF

LACERS
LOS ANGELES CITY EMPLOYEES'
RETIREMENT SYSTEM

Report to Board of Administration

From: Investment Committee
Sung Won Sohn, Chairperson
Nilza R. Serrano
Vacant Position

Agenda of: **JULY 24, 2018**

ITEM: **X-E**

SUBJECT: **REAL ESTATE FISCAL YEAR 2018-19 STRATEGIC PLAN AND POSSIBLE BOARD ACTION**

Recommendation

That the Board adopt the Real Estate Fiscal Year 2018-19 Strategic Plan.

Discussion

On July 10, 2018, the Committee considered the attached report regarding the Real Estate Fiscal Year 2018-19 Strategic Plan. The Committee heard a presentation from Robert Miranda and Felix Fels of The Townsend Group (Townsend), LACERS' Real Estate Consultant. The plan, developed by Townsend with input from staff, establishes strategic objectives and investment plan recommendations for the 2018-19 Fiscal Year. Townsend will be present at the Board meeting of July 24, 2018, should the Board desire to hear a presentation of the proposed plan.

Strategic Plan Impact Statement
The annual real estate strategic plan assists the Board in building a diversified real estate and total fund portfolio with an attractive risk-adjusted return profile (Goal IV). Development and adoption of such a plan also promotes good governance practices (Goal V).

This report was prepared by Eduardo Park, Investment Officer I, Investment Division.

RJ:BF:EP:ag

Attachment: Proposed Real Estate Portfolio Strategic Plan – The Townsend Group

ATTACHMENT

MEMORANDUM

TO:	**The Board of Los Angeles City Employees' Retirement System**
DATE:	July 2018
SUBJECT:	Real Estate Strategic & Investment Plan – Executive Summary
FROM:	**The Townsend Group**

Executive Summary

The purpose of this report is to recommend changes to the Los Angeles City Employees' Retirement System ("LACERS" or the "System") Real Estate Strategic Plan ("Strategic Plan"). A corresponding Real Estate Investment Plan ("Investment Plan") includes actions which will help LACERS to capitalize on current market opportunities while still meeting the guidelines set forth in the proposed Strategic Plan.

Townsend was re-engaged by LACERS's Board in 2015 to serves as its real estate consultant. Since that time, Townsend has worked with LACERS Staff to successfully transition the Portfolio to reflect a more conservative risk profile. The investment strategy from 2015 to-date has emphasized $220 million of investment into Core funds, $120 million into tactical Non-Core funds and close monitoring of pre-GFC underperforming investments which have begun to mature and liquidate.

In April 2018, LACERS Board adopted changes to its Asset Allocation targets, as advised by its general consultant. The impact to real estate was to increase capital from 5.0% of Total Plan Assets to 7.0% of Total Plan Assets.

The Strategic and Investment Plan recommendations for 2018 are summarized below.

2018 Strategic Recommendations

Townsend is not recommending any significant strategic changes in 2018. A proposed change to the Strategic Plan is summarized below.

1. *Document Real Estate Allocation increase from 5.0% to 7.0%.* Consistent with the aforementioned election by the Board to increase its real estate allocation from 5.0% to 7.0% of Total Plan Assets, Townsend recommends revising the Real Estate Strategic Plan to reflect this.

END OF STRATEGIC RECOMMENDATIONS

2018-2022 Investment Recommendations

The LACERS Program (the "Program") now has a 7.0% allocation target (with an allowable range of ± 2.0%). As of September 30, 2017, the market value of the Portfolio was $947 million on a committed and funded basis (5.7% of Total Plan Assets). With the combination of the recently approved increased allocation to real estate, and planned liquidations, LACERS will need to deploy significant capital in order to reach its 7.0% allocation target over the coming years.

The following table depicts a range of capital shortfalls between 2018 and 2022 under three different scenarios:

Portfolio Growth Scenario	Core Growth Assumption	Non-Core Growth Assumption	Total Capital Needed until 2022	Capital per Annum until 2022
Conservative	0%	4%	$865 million	$173 million
Baseline	2%	6%	$790 million	$158 million
Aggressive	4%	8%	$700 million	$140 million

According to the Baseline Scenario, LACERS has capacity to make cumulative commitments of approximately $790 million over five years in order to reach its 7.0% allocation to Real Estate (targeting approximately $150 million per year).

Townsend recommends the following 2018-2019 Goals to LACERS for consideration:

Overall Portfolio Goals

- Refrain from over-committing in peak market vintage years, simply due to the increase in allocation
- For compelling opportunities, consider increasing average commitment size to reflect the new real estate allocation

Core Portfolio Goals

- In 2H2018, evaluate existing Open-End Core fund portfolio and consider rebalancing portfolio to maximize benefits and improve returns, as necessary.
- Maintain relative weightings to Core v. Non-Core to maintain an appropriate level of defensiveness.

Non-Core Portfolio Goals

- Substantial realizations by Non-Core managers, particularly from pre-GFC investments, will result in declining market exposure with no additional commitments.
- Focus on up to three incremental commitments in Non-Core (ranging from $35 to $50 million per investment).
- Target commitments to preferred property types and regions based on LACERS Portfolio exposures:
    - Debt (mezzanine or preferred equity with kickers to provide equity-like returns with downside protection),
    - US Office (projected to be 7.0% underweight compared to ODCE by 2020; being highly selective with a proven office manager executing in high conviction markets with strong demand-drivers),
    - US Retail (projected to be 4.0% underweight compared to ODCE by 2020; consider one investment with a proven high-street or grocery anchored retail manager),
    - Other/Niche (may include student accommodation, seniors housing or medical office),
- Actively source opportunities from the Emerging Manager universe as available.
- Emphasize current income and pre-specified portfolios to mitigate J-curve.

END OF INVESTMENT RECOMMENDATIONS

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Real Estate Portfolio

Fiscal Year 2018-2019 Strategic Plan

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

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A. LACERS Real Estate Program Overview

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LACERS Real Estate Program Overview

- LACERS began investing in Real Estate in 1989.
- In April 2018, LACERS' Board elected to increase its real estate allocation from 5.0% to 7.0% of Total Plan Assets (with an allowable range of ± 2.0%).
- As of September 30, 2017, the market value of the Portfolio was $836 million (5.0% of Total Plan Assets).
- Forecasts show that several investments will be liquidating from the Portfolio over the next three-year period.

	3Q17 Market Value ($ millions)*	% LACERS Plan
LACERS Total Plan Assets	**16,709**	
Real Estate Target	**1,170 (as of 1Q-2018)**	**7.0% (as of 1Q-2018)**
RE Market Value:		
Core	*525*	
Non-Core	*291*	
Timber	*21*	
Total RE Market Value	**836**	**5.0%**
Unfunded Commitments	111	0.7%
RE Market Value + Unfunded Commitments	**947**	**5.7%**
Remaining Allocation	**(223)**	**(1.3%)**

**Figures may not add due to rounding.*

LACERS Real Estate Program Overview (continued)

	Strategic Targets		Portfolio Composition (9/30/2017)*	
	Target Allocation	Tactical Range	Funded	Funded & Committed
Core	60%	40% - 80%	**62.8%**	**55.4%**
Non-Core	40%	20% - 60%	**34.8%**	**42.4%**
Value Add Portfolio	*N/A*	*N/A*	*15.2%*	*21.9%*
Opportunistic Portfolio	*N/A*	*N/A*	*19.6%*	*20.5%*
Timber	**N/A**	**N/A**	**2.5%**	**2.2%**

- In May 2014, the Board approved the strategic targets displayed above in order to reflect a more conservative risk profile going-forward. At the time, the Portfolio had 30% exposure to Core and 70% exposure to Non-Core.
- Since that time, and in an effort to transition the Portfolio, the LACERS Board approved $220 million in new Core commitments. All of these commitments were called as of 9/30/17.
- The LACERS Board also approved $95 million in Non-Core investments since 2014. These investments focused on Value Add strategies with pre-specified portfolios, embedded value and/or an element of current income. The most recent approved investment was a $25 million commitment Heitman Asia Pacific Property Investors in May 2017.
- Through a combination of Core commitments and Non-Core liquidations, the LACERS Portfolio is within its strategic targets as of 9/30/2017, as expected.
- The Private Real Estate Portfolio utilizes 34.4% leverage measured on a loan-to-value (LTV) basis:
  - Core Portfolio LTV: 27.7%, below the 40.0% constraint,
  - Non-Core Portfolio LTV: 43.9%, below the 75.0% constraint.

Figures may not add due to rounding.

ATTACHMENT 1

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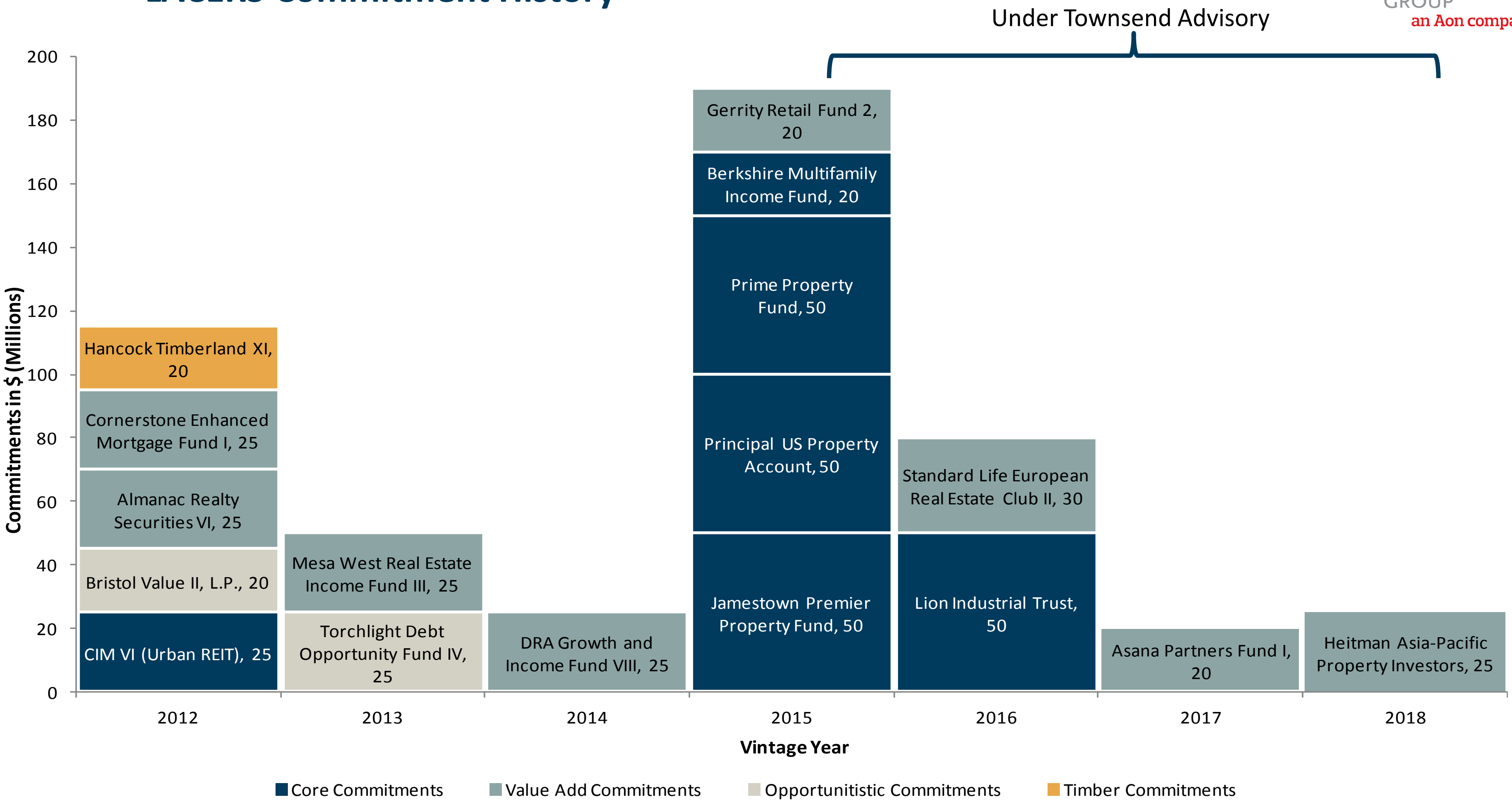
B. LACERS Commitment History

LACERS Commitment History



- LACERS has committed $505 million since 2012, of which $315 million (~60%) have been Townsend-initiated activities since 2015 .
- 42% of Non-Core commitments since 2015 (Gerrity and Asana) met LACERS Emerging Manager guidelines. In the Core OECF space, there are currently no managers meeting these guidelines.
- Vintage year classifications are based on LACERS' first capital call (or expected capital call), though commitments may have been approved in prior years.

ATTACHMENT 1

C. LACERS 2018-2022 Objectives and Investment Plan

ATTACHMENT 1

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LACERS 2018-2022 Objectives

- Townsend ran three scenarios to model real estate capital pacing between 2018 and 2022. All three scenarios assume a Total Plan Growth Rate of 4.0% p.a.
- LACERS has capacity to commit an additional $700-$865 million between now and 2022 in order to increase its Real Estate allocation to 7.0% of Total Plan Assets (targeting $140-$175 million per year over the next five years).
- Capital pacing was determined based upon LACERS existing manager input, along with various forward-looking return assumptions which may or may not materialize according to plan.
- Townsend will work with LACERS Staff to prudently allocate capital over the next five years, and will exercise discretion in preserving capacity for future out-year investments.

Portfolio Growth Scenario	Core Growth Assumption	Non-Core Growth Assumption	Total Capital Needed until 2022	Capital per Annum until 2022
Conservative	0%	4%	$865 million	$173 million
Baseline	2%	6%	$790 million	$158 million
Aggressive	4%	8%	$700 million	$140 million

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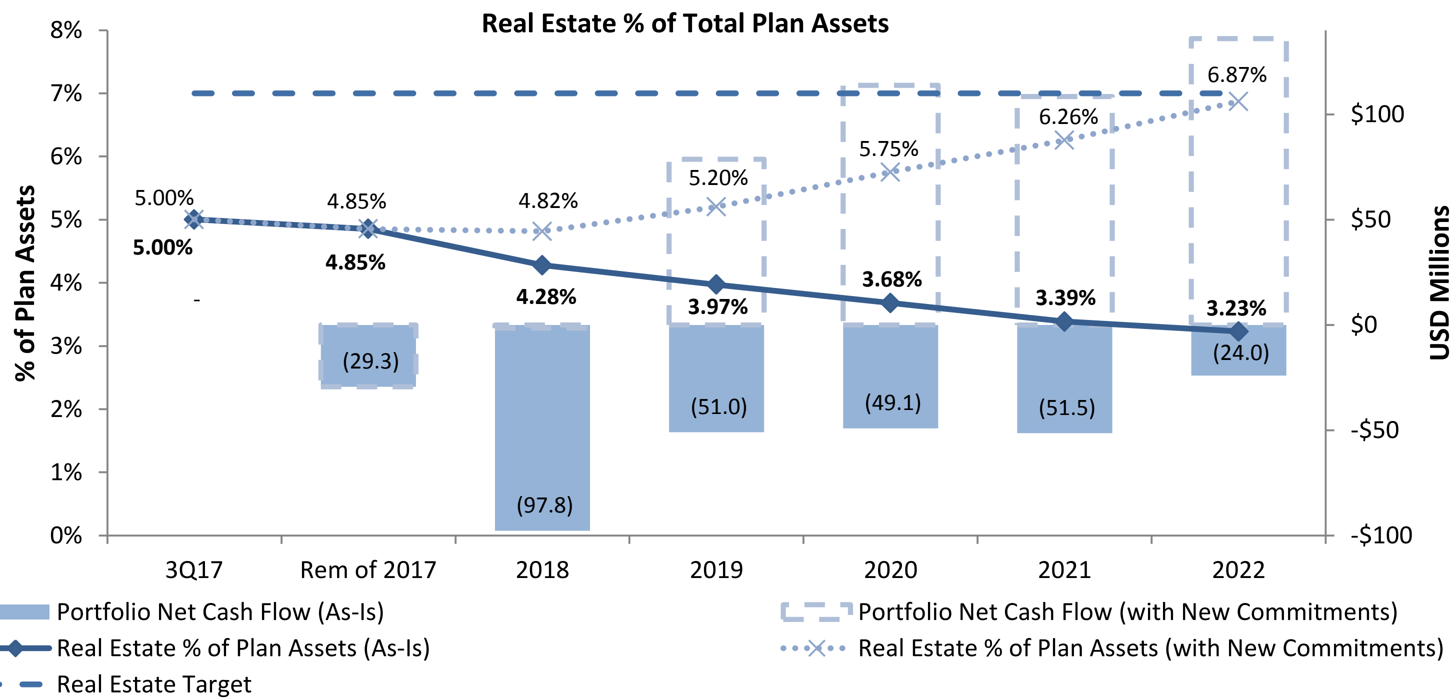
LACERS 2018-2022 Objectives

Base Case Growth

- The Base Case Model assumes a 2.0% annual growth rate for Core returns and 6.0% annual growth rate for Non-Core returns, which we view as moderately conservative return assumptions.
- According to Base Case Capital Projections, LACERS has approximately $790 million of additional private real estate investment capacity in order to grow its allocation to 7.0% of Plan Assets by 2022 (±$158 million per annum over five years).
- Townsend will work with Staff to carefully manage LACERS investment exposure.
  - Preserve investment capacity to allow LACERS take advantage of opportunities during all market cycles (not all capital needs to be deployed at once).
  - Monitor contribution and distribution/withdrawal activities, and forecasts provided by LACERS' managers.
  - Consider Non-Core investments, which may include one or more Emerging Manager commitments.



ATTACHMENT 1

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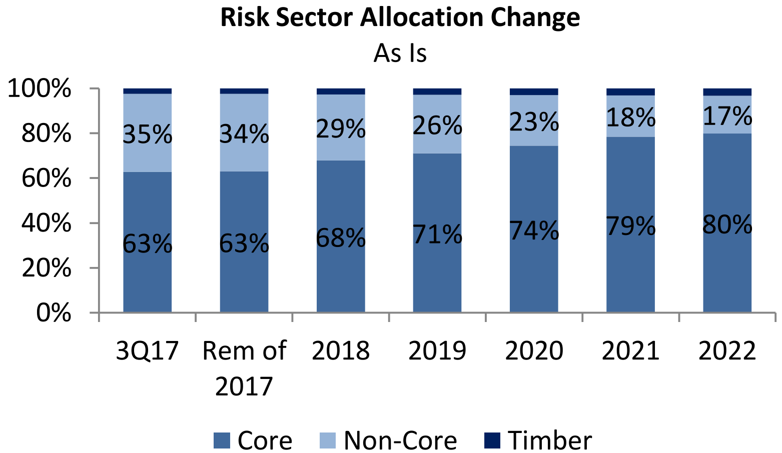
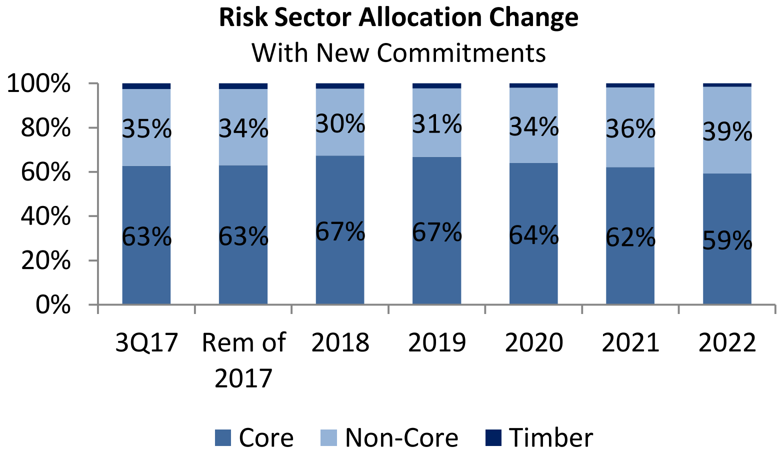
LACERS 2018-2022 Investment Plan

Real Estate Program Proposed Plan

- Vintage year diversification is a tool to control risk by reducing exposure to market cycles.
  - Tactical adjustments to overweight or underweight a particular vintage are based on market views and portfolio exposure relative to the 7.0% allocation target and benchmark.
  - Adjustments may be made based upon specific opportunities presented.
- As the cycle matures, consider a conservation of capital that is available to deploy in later years.
  - This may result in fewer commitments in 2018-2019.
- Identify opportunities to improve the quality and income component of the Portfolio.
  - Target specialist operators to reduce fees and exploit niche expertise and sourcing capabilities.
- Remain mindful of the strategic targets of 60% Core/40% Non-Core, and of the Total Real Estate Benchmark (ODCE+80bps).
  - Currently the portfolio is trending towards the higher end of the Core allocation target range (left chart), which will lead to difficulty outperforming the Benchmark. New proposed annual commitments of approximately $60M to Core and $100M to Non-Core strategies would bring the portfolio closer to its target (right chart).





LACERS 2018-2019 Investment Plan

2018-2019 Overall Portfolio Activity

- Refrain from over-committing in peak market vintage years, simply due to the increase in allocation
- For compelling opportunities, consider increasing average commitment size to reflect the new real estate allocation

2018-2019 Core Activity

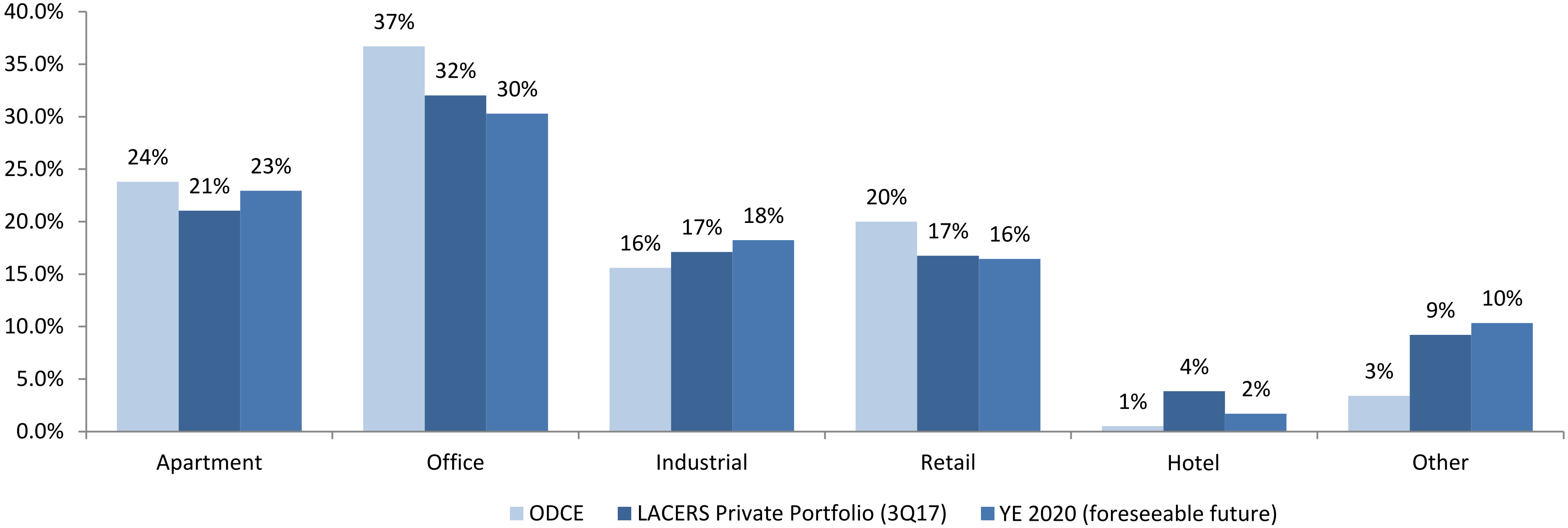
- In 2H2018, evaluate existing Open-End Core fund portfolio and consider rebalancing portfolio to maximize benefits and improve returns, as necessary.
- Maintain relative weightings to Core v. Non-Core to maintain an appropriate level of defensiveness.

2018-2019 Non-Core Activity

- Substantial realizations by Non-Core managers, particularly from pre-GFC investments, will continue to place downward pressure on market exposure.
- Focus on up to three incremental commitments in Non-Core (ranging from $35 to $50 million per investment).
- Target commitments to preferred property types and regions based on LACERS Portfolio exposures:
  - Debt (mezzanine or preferred equity with kickers to provide equity-like returns with downside protection),
  - US Office (projected to be 7.0% underweight compared to ODCE by 2020; being highly selective with a proven office manager executing in high conviction markets with strong demand-drivers),
  - US Retail (projected to be 4.0% underweight compared to ODCE by 2020; consider one investment with a proven high-street or grocery anchored retail manager),
  - Other/Niche (may include student accommodation, seniors housing or medical office),
- Actively source opportunities from the Emerging Manager universe as available.
- Emphasize current income and pre-specified portfolios to mitigate J-curve.

LACERS Diversification Projections

Private Real Estate Portfolio - Property Type Diversification



- LACERS continues to be underweight to Office and Retail, which Townsend would support. However, taking a considerable off benchmark position over the mid to long term could result in relative underperformance should these sectors do well.
  - LACERS may consider small tactical investments into niche retail strategies focused on high-street retail and/or grocery anchored retail in high barrier to entry markets with good investment fundamentals.
  - LACERS may also consider small tactical investments into urban office in high growth markets whereby technology, advertising, media, internet, science and technology drivers continue to absorb available space.
- Maintaining slight overweight to industrial and other/niche, and neutral weight to apartment and office is supported by Townsend at this time.

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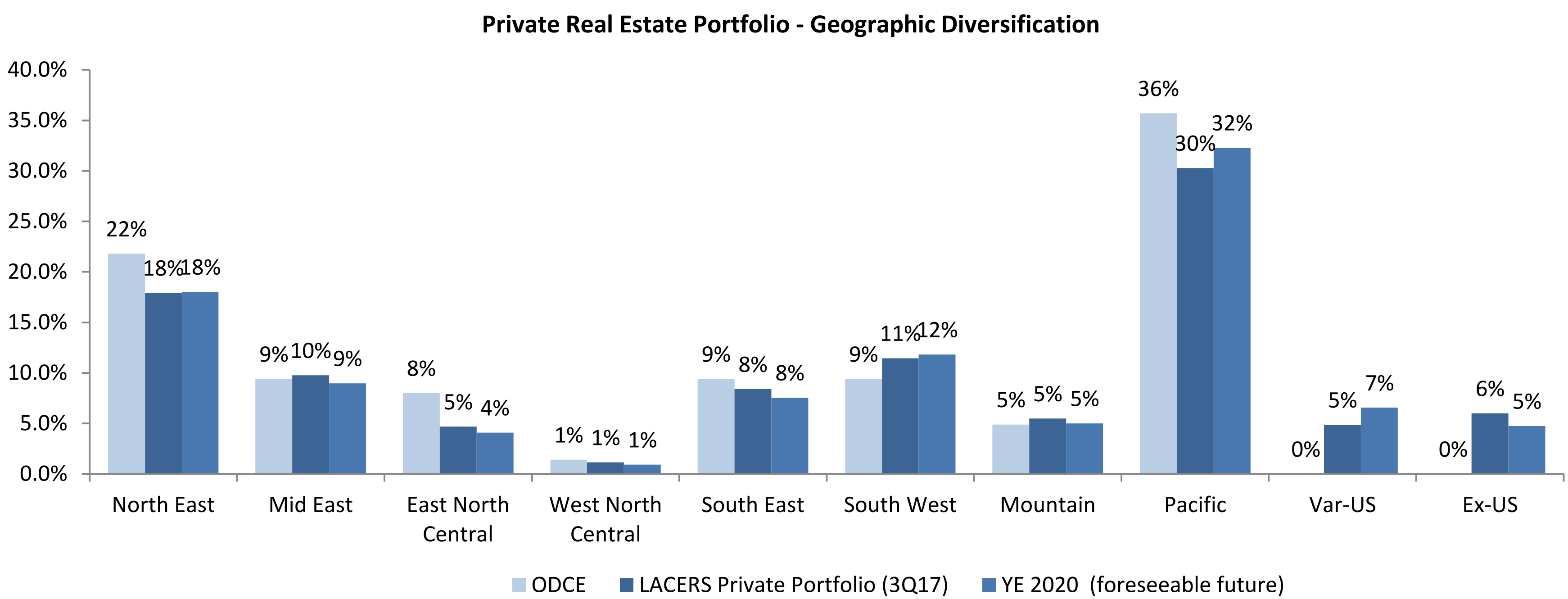
LACERS Diversification Projections



- LACERS continues to be underweight to the North East, East North Central and the Pacific regions. Pacific, in particular, is a market that has been outperforming and is expected to continue to do so.
  - Continue to seek exposure to the Pacific region.
  - Consider modest tactical opportunities in the North East.
  - Maintain relative underweight to the East North Central region.
- Consider additional Ex-US opportunities to enhance geographic diversification and returns.

D. Sourcing and Deal Flow

Manager Sourcing & Due Diligence

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Core and Core Plus Fund Sourcing and Selection

- Townsend's dedicated open-end fund team reviews and monitors the open-end universe on a monthly and quarterly basis.
- As of December 31, 2017, the statistics for the existing open-end fund universe were as follows:
  - 28 Core Diversified Funds,
  - 12 Core Plus Funds,
  - 10 Specialty Funds (Property Type Specific and Debt Funds).
- Townsend also evaluates Core closed-end funds, though fewer exist.
- Comprehensive review, evaluation and selection process:
  - Sourcing and evaluation of new fund launches,
  - Quarterly data collection and analysis,
  - On-site meetings and quarterly reviews,
  - Advisory board participation ,
  - Ongoing platform assessment,
  - Continual due diligence.

Manager Sourcing & Due Diligence

Non-Core Fund Sourcing and Selection

- In addition to the work completed for 10 specialty open-end commingled funds (evaluation process outlined on the previous page), Townsend is continuously analyzing the universe of Non-Core closed-end funds available for investment.
- As of December 31, 2017, Townsend's statistics for the Non-Core fund universe were as follows:
  - 612 funds originated and screened.
  - 68 funds in detailed due diligence.
  - 54 funds approved for client investment.
    - 54% North America, 13% Europe, 15% Asia, 15% Global and 4% Rest of the World.
- Detailed due diligence follows a three-phase due diligence process:
  - Sourcing and evaluation of new fund launches.
  - On-site due diligence meetings.
  - Evaluation of investment characteristics includes, but is not limited to the following:
    - *Executive Summary:* Strategy Overview, Comparative Advantages, Potential Issues and Concerns.
    - *Strategy:* Overview, Leverage, Investment Guidelines, Pipeline.
    - *Sponsor*: Organizational Background/History, Turnover, Compensation, and Retention.
    - *Investment Process:* Overview, Investment Committee, Affiliate Transactions, Limited Partner Advisory Committee, Exclusivity and Allocations, Valuations.
    - *Fund Structure:* Key Terms, Fees and Distributions, Analysis of Fees.
    - *Performance:* Detailed Summary of Prior Vehicles, Vintage Year Comparison, Dispersion of Returns, Investment Highlights.
- Ongoing due diligence includes fund coverage, investment monitoring, reporting, advisory board representation and client advocacy.

Emerging Manager Sourcing Process

Emerging Manager Sourcing

- Townsend focuses on identifying emerging managers during its sourcing and monitoring process.
- Network and establish new relationships through regular sourcing channels, outreach and conference attendance.
- Seek new and unique opportunities that align with Townsend View of the World.
- Uncover experienced niche operating partners interested in raising third-party capital.
- Oversight and management of dedicated Emerging Manager programs across the firm.
- Maintain active pipeline of Emerging Manager candidates.
- Actively vetting new owner/operators as potential Emerging Manager candidates.

LACERS Emerging Manager Efforts

- LACERS has been focused on de-risking the Portfolio over the past three years, resulting in more Core search activity:
  - Majority of new commitments in Core open-end commingled fund space.
  - Few (if any) Core real estate fund candidates match the current LACERS Emerging Manager criteria.
- Majority of Emerging Manager opportunity set is in the Non-Core segment:
  - 2014-2015: 50% of LACERS Non-Core commitments qualified under the LACERS Emerging Manager Program.
  - 2016: In 2H2016, Townsend conducted a LACERS-specific Emerging Manager search resulting in the recommendation of a $20 million Non-Core commitment to Asana Partners I, which was approved by the Board in August 2016.

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Report to Board of Administration

From: Investment Committee
Sung Won Sohn, Chairperson
Nilza R. Serrano
Vacant Position

Agenda of: **JULY 24, 2018**

ITEM: **X-F**

SUBJECT: **INVESTMENT MANAGER CONTRACT WITH EAM INVESTORS, LLC REGARDING THE MANAGEMENT OF AN ACTIVE U.S. SMALL CAP GROWTH EQUITIES PORTFOLIO AND POSSIBLE BOARD ACTION**

Recommendation

That the Board approve a two-year contract renewal with EAM Investors, LLC for management of an active U.S. small cap growth equities portfolio; and, authorize the General Manager to approve and execute the necessary documents, subject to satisfactory business and legal terms.

Discussion

On July 10, 2018, the Committee considered the attached staff report (Attachment A) recommending a three-year contract renewal with EAM Investors, LLC (EAM). The Board hired EAM through the 2014-2015 Active U.S. Small Cap Growth Equities search, and a three-year contract was authorized by the Board on June 9, 2015. The current contract expires on September 30, 2018. The Committee discussed the fee structure, investment strategy, and performance. A two-year contract renewal is recommended by the Committee in order to evaluate performance prior to the originally proposed three-year contract period.

Strategic Plan Impact Statement
A contract renewal with EAM Investors, LLC, will allow the fund to maintain a diversified exposure to the U.S. small cap equities markets, which is expected to help achieve satisfactory long-term risk adjusted investment returns (Goal IV). The discussion of the investment manager's profile, strategy, performance, and management fee structure are consistent with Goal V (uphold good governance practices which affirm transparency, accountability, and fiduciary duty).

This report was prepared by Eduardo Park, Investment Officer I, Investment Division.

RJ:BF:EP:ag

Attachments: A) Investment Committee Recommendation Report dated July 10, 2018
B) Proposed Resolution

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Report to Investment Committee

Agenda of: **JULY 10, 2018**

From: Neil M. Guglielmo, General Manager ITEM: **VI**

SUBJECT: **INVESTMENT MANAGER CONTRACT WITH EAM INVESTORS, LLC REGARDING THE MANAGEMENT OF AN ACTIVE U.S. SMALL CAP GROWTH EQUITIES PORTFOLIO AND POSSIBLE COMMITTEE ACTION**

Recommendation

That the Committee recommend to the Board a three-year contract renewal with EAM Investors, LLC for management of an active U.S. small cap growth equities portfolio.

Discussion

Background

EAM Investors, LLC (EAM) manages an active U.S. small cap growth equities portfolio for LACERS benchmarked against the Russell 2000 Growth Index. EAM's strategy seeks to identify companies undergoing positive fundamental changes that will potentially accelerate the companies' earnings growth rates. The strategy is co-led by Travis Prentice, Chief Executive Officer and Chief Investment Officer, and Montie Weisenberger, Managing Director, both of whom have over 20 years of industry experience.

EAM was hired through the 2014-2015 Active U.S. Small Cap Growth Equities search, and a three-year contract was authorized by the Board on June 9, 2015. At the time of hire, EAM qualified as an Emerging Investment Manager pursuant to the LACERS Emerging Investment Manager Policy. The contract was executed on October 1, 2015, and expires on September 30, 2018. LACERS' separate account was valued at $124 million as of May 31, 2018. In light of the short time period that EAM has managed assets for LACERS, staff recommends a second three-year contract term to allow a full market cycle over which to evaluate this strategy.

Organization

EAM was founded in 2007 and currently is 56% employee-owned and 44% owned by Roth Capital Partners. The firm is headquartered in Cardiff-by-the-Sea, California and has a total of 16 employees. As of May 31, 2018, EAM managed $2.3 billion in assets, with $1 billion of assets in the U.S. small cap growth equities strategy.

Due Diligence

Travis Prentice was added as a co-portfolio manager to the U.S. small cap growth equities strategy on January 22, 2018. In addition to co-managing this strategy, he is also a portfolio manager of EAM's U.S. microcap growth equities strategy. Staff and NEPC, LLC (NEPC), LACERS' General Fund Consultant, discussed this organizational change with EAM and do not believe it will adversely impact the U.S. small cap growth equities strategy and performance.

Performance

As of May 31, 2018, EAM outperformed its benchmark, net-of-fees, for the 3-month, 1-year, and 2-year periods and underperformed since inception as presented in the table below. EAM is in compliance with the LACERS Manager Monitoring Policy.

Annualized Performance as of 5/31/18 (Net-of-Fees)				
	3-Month	1-Year	2-Year	Since Inception[1]
EAM	12.00	33.86	27.06	15.79
Russell 2000 Growth Index	7.83	25.08	22.36	17.70
% of Excess Return	*4.17*	*8.78*	*4.70*	*-1.91*

[1]Inception date: 10/1/15

Calendar year performance is presented in the table below as supplemental information.

Calendar Year Performance (Net-of-Fees)				
	1/1/18 to 5/31/18	2017	2016	10/1/15 to 12/31/15
EAM	13.31	22.68	4.65	1.63
Russell 2000 Growth Index	8.85	22.17	11.32	4.32
% of Excess Return	*4.46*	*0.51*	*-6.67*	*-2.69*

Fees

At its meeting of April 11, 2017, the Committee requested EAM to reduce the fee charged to LACERS. EAM subsequently provided LACERS a discount of 10 basis points, resulting in an effective fee of 71 basis points (0.71%), which is approximately $880,400 annually based on the value of LACERS' assets as of May 31, 2018*.* The new fee ranks in the 16th percentile of EAM's peers based on the eVestment U.S. Small Cap Growth universe.

General Fund Consultant Opinion

NEPC concurs with staff's recommendation.

Strategic Plan Impact Statement:

A contract renewal with EAM Investors, LLC, will allow the fund to maintain a diversified exposure to the U.S. small cap equities markets, which is expected to help achieve satisfactory long-term risk adjusted investment returns (Goal IV). The discussion of the investment manager's profile, strategy, performance, and management fee structure are consistent with Goal V (uphold good governance practices which affirm transparency, accountability, and fiduciary duty).

This report was prepared by Barbara Sandoval, Investment Officer II, and Eduardo Park, Investment Officer I, Investment Division.

RJ:BF:BS:EP:ag

Attachments: A) Consultant Recommendation – NEPC, LLC
B) Workforce Composition

NEPC, LLC

To: Los Angeles City Employees' Retirement System Investment Committee

From: NEPC, LLC

Date: July 10, 2018

Subject: EAM Investors – Contract Renewal

Recommendation

NEPC recommends Los Angeles City Employees' Retirement System (LACERS) renew the contract that is currently in place with EAM Investors ('EAM') for a period of three years from the date of contract expiry.

Background

EAM has been an investment manager for LACERS since October 1, 2015. As of May 31, 2018, EAM managed $124 million, or 0.7% of Plan assets in the small cap growth product with an asset-based fee of 0.71% annually. This fee ranks in the 16th percentile of its peers in the eVestment U.S. Small Cap Growth Universe. The performance objective is to outperform the Russell 2000 Growth Index with a realized tracking error budget ranging from four to six percent, net of fees, annualized over a full market cycle (normally three-to-five years). Performance of the EAM portfolio is currently compliant with LACERS' manager monitoring policy.

The firm was founded by Montie Weisenberger, Travis Prentice and Joshua Moss. All three founders came from Nicholas-Applegate and started the firm in 2007. Their product lineup focuses on small and microcap names in the U.S. and outside of the U.S. The firm received venture funding by Roth Capital Partners, a boutique investment bank, in exchange for a 49% ownership stake. Today Roth owns 44% of the organization and they are a strategic, "evergreen" investor. EAM has an option to buy the firm if Roth wants to sell their interest. There is no timetable for Roth to divest their interest. The investment team owns 42% of the firm and the last 14% is owned by the marketing and operations team at EAM. Roth participates in the profits of the organization. The bulk of the firm's assets are in the U.S. small cap growth product ($1 billion), US microcap has $300 million and ultra-microcap has under $100 million. All of these products are open and have capacity. The non-U.S. products were incepted 3.5 years ago and include international small cap ($100 million), emerging markets small cap ($200 million) and international microcap ($600 million). The international microcap product is closed to new business. All products use the same team, investment process and tools. As of May 31, 2018, the firm managed $2.3 billion with a majority of assets ($1 billion) in the small cap growth product.

The firm's investment philosophy is routed in identifying companies undergoing positive fundamental change that will accelerate their growth rate and where the implications are not yet fully appreciated by market participants. EAM's process has three broad phases which include: Discover, Analyze and Challenge. The Discover phase is where they evaluate the technical side of change relative to price screening with above average volume. They want to see at least one sign that a company is already performing. They screen in real time using the William O'Neil system and the Portfolio Manager sets the priority for what gets covered. During the Analyze phase, each analyst builds out the fundamental analysis to identify positive changes. During the Challenge phase, new names are evaluated against the existing names in the portfolio. Portfolios typically hold 150 names and position sizes are capped at 2%. Portfolio tracking error is 4%-6%. More recently, the trailing twelve months tracking error has been less than 4% primarily due to lower volatility exhibited in markets overall.

Travis Prentice, Portfolio Manager of the US microcap growth product, was recently added as a portfolio manager alongside Montie Weisenberger for the small cap growth product. The rationale provided was that the firm wanted to strengthen the product, improve the investment process and add a senior level portfolio manager to the product. All team members (four portfolio managers, four research analysts and two traders) are generalists and work on all products. Besides the three founders, John Scripp, Portfolio Manager, Richard Hornbuckle, Trader and Kevin O'Connell, Trader also came from Nicholas-Applegate.

Performance

Referring to Exhibit 1, since inception (October 1, 2015), the EAM Small Cap Growth portfolio has underperformed the Russell 2000 Growth Index by 4.02%, returning 12.05%, net of fees. Ended March 31, 2018, the portfolio ranked in the 83rd percentile of its peer universe since October 1, 2015, had an information ratio of -0.71 and active risk as measured by tracking error of 5.0%. Ended April 30, 2018, the since inception return has trailed the benchmark by 3.56% (11.99% vs 15.55%). In the one-year period ended March 31, 2018, the portfolio outperformed the index by 2.44% (21.07% vs. 18.63%) and ranked in the 16th percentile among its peers. Outperformance in the one-year time period was driven by security selection within Consumer Discretionary, Healthcare and Information Technology sectors.

Since October 1, 2015, referring to Exhibit 2, much of the historical underperformance is a result of a large drawdown in the first quarter of 2016. The drawdown of approximately 6.50% was primarily driven by a sell-off in out-of-favor companies and subsequent rally in low earnings quality companies.

Conclusion

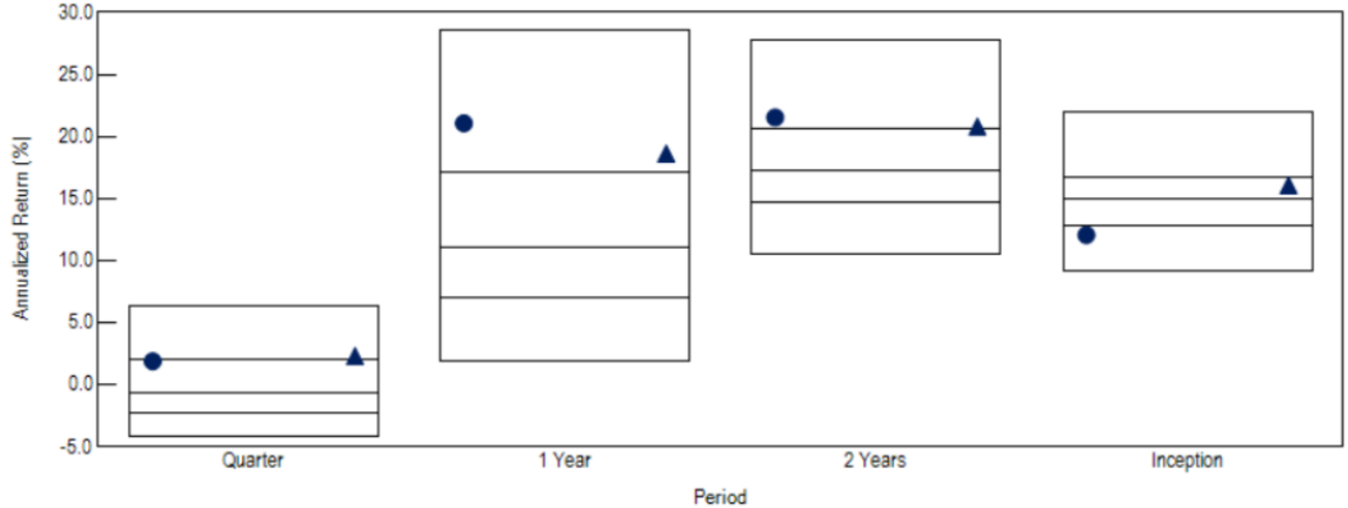
EAM has underperformed its benchmark index since October 1, 2015 and has gone through a portfolio management change recently in order to focus the team's efforts on deeper research. The firm has exhibited stability in their investment process, investment team, strategy and philosophy suggesting that their approach to asset management does have merit. EAM's strategy of seeking out underappreciated growth in the small cap universe is subject to a longer-term time horizon for themes to materialize and investors in this product may expect periods of underperformance. NEPC recommends a contract extension for a period of three years from the period of contract expiry.

The following tables provide specific performance information, net of fees referenced above.

ATTACHMENT A

Exhibit 1

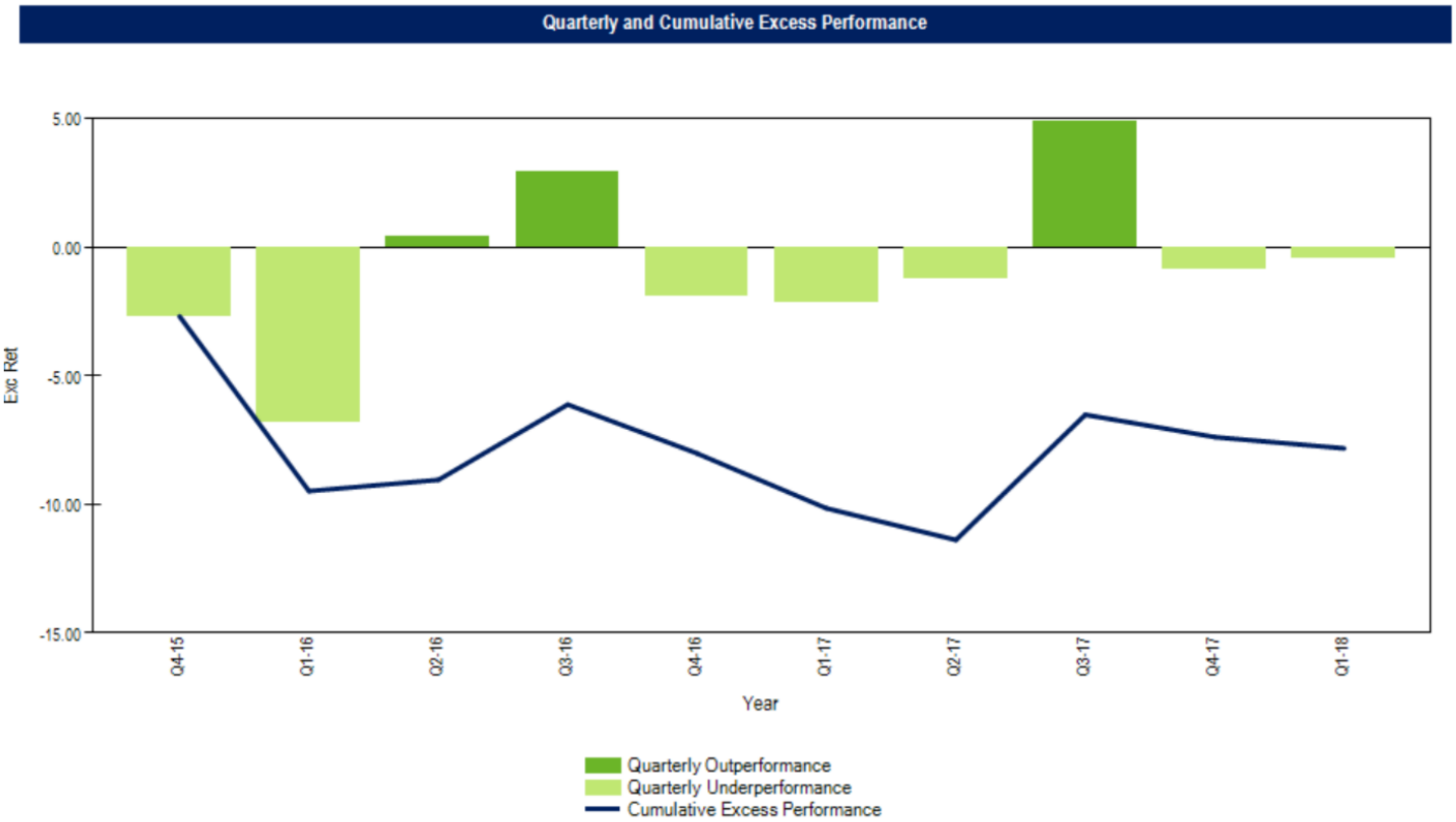
eV US Small Cap Equity Net Return Comparison
Ending March 31, 2018



	Return (Rank)							
5th Percentile	6.34		28.59		27.75		22.03	
25th Percentile	2.01		17.13		20.64		16.66	
Median	-0.63		11.03		17.28		14.99	
75th Percentile	-2.35		7.06		14.67		12.82	
95th Percentile	-4.22		1.93		10.51		9.11	
# of Portfolios	405		404		398		391	
● EAM Investors	1.86	(26)	21.07	(16)	21.54	(19)	12.05	(83)
▲ Russell 2000 Growth	2.30	(23)	18.63	(22)	20.81	(23)	16.07	(34)

ATTACHMENT A

Exhibit 2



ATTACHMENT A

Vendor EAM Investors, LLC
Address 2533 S. Coast Hwy 101, Ste 24
Cardiff by the Sea, CA 92007

Date Completed: **June 11, 2018**

Category **U.S. Small Cap Growth Equities**

TOTAL COMPOSITION OF WORK FORCE

Occupation	African American Full Time	Hispanic Full Time	Asian or Pacific Islander Full Time	American Indian/ Alaskan Native Full Time	Caucasian (Non Hispanic) Full Time	Total Employees Full Time	Percent (%) Minority Full Time	Gender Full Time Male	Gender Full Time Female
Officials & Managers	0	0	0	0	0	**0**	**0.00%**	0	0
Professionals	0	1	1	0	14	**16**	**12.50%**	12	4
Technicians	0	0	0	0	0	**0**	**0.00%**	0	0
Sales Workers	0	0	0	0	0	**0**	**0.00%**	0	0
Office/Clerical	0	0	0	0	0	**0**	**0.00%**	0	0
Semi-Skilled	0	0	0	0	0	**0**	**0.00%**	0	0
Unskilled	0	0	0	0	0	**0**	**0.00%**	0	0
Service Workers	0	0	0	0	0	**0**	**0.00%**	0	0
Other	0	0	0	0	0	**0**	**0.00%**	0	0
Total	**0**	**1**	**1**	**0**	**14**	**16**	**12.50%**	**12**	**4**

CONTRACT RENEWAL
EAM INVESTORS, LLC
ACTIVE U.S. SMALL CAP GROWTH EQUITIES PORTFOLIO MANAGEMENT

PROPOSED RESOLUTION

WHEREAS, LACERS current three-year contract with EAM Investors, LLC (EAM) for active management of a U.S. small cap growth equities portfolio expires on September 30, 2018; and,

WHEREAS, EAM is in compliance with the LACERS Manager Monitoring Policy; and,

WHEREAS, a contract renewal with EAM will allow LACERS to maintain a diversified exposure to the U.S. small cap equities markets; and,

WHEREAS, on July 24, 2018, the Board approved the Investment Committee's recommendation for a two-year contract renewal with EAM; and,

NOW, THEREFORE, BE IT RESOLVED, that the General Manager is hereby authorized to approve and execute a contract subject to satisfactory business and legal terms and consistent with the following services and terms:

Company Name:	EAM Investors, LLC
Service Provided:	Active U.S. Small Cap Growth Equities Portfolio Management
Effective Dates:	October 1, 2018 through September 30, 2020
Duration:	Two years
Benchmark:	Russell 2000 Growth Index
Allocation as of June 30, 2018:	$126.9 million

July 24, 2018

Report to Board of Administration

From: Benefits Administration Committee
Michael R. Wilkinson, Chairperson
Cynthia M. Ruiz
Nilza R. Serrano

Agenda of: **JULY 24, 2018**

ITEM: **XI-A**

SUBJECT: **ANTHEM BLUE CROSS 2017 YEAR-END ACCOUNTING AND POSSIBLE BOARD ACTION**

Recommendation

That the Board approve utilizing Premium Stabilization Reserve funds to decrease the Anthem Blue Cross (Anthem) HMO and Medicare Supplement 2019 premiums and transfer the remaining Premium Stabilization Reserve funds to a Section 115 trust account, once established.

Discussion

At the Committee's meeting of July 19, 2018, the Committee approved forwarding staff's recommendation to the Board. The Committee report is attached.

Strategic Plan Impact Statement

The participating contract with Anthem Blue Cross and the Year-End Accounting process allows premium surpluses to be used toward future premium costs, supporting Strategic Plan Goal 3: Maximize Value and Minimize Costs of our Health and Welfare Program.

This report was prepared by Alex Rabrenovich, Chief Benefits Analyst, of the Health Benefits Administration and Communications Division.

MRW:AR:ar

Attachment: A) July 19, 2018 BAC Report

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Report to Benefits Administration Committee

Agenda of: **JULY 19, 2018**

From: Neil Guglielmo, General Manager

ITEM: IV

SUBJECT: **ANTHEM BLUE CROSS 2017 YEAR-END ACCOUNTING AND POSSIBLE COMMITTEE ACTION**

Recommendation

That the Committee recommend to the Board utilizing Premium Stabilization Reserve funds to decrease the Anthem Blue Cross (Anthem) HMO and Medicare Supplement 2019 premiums and transfer the remaining Premium Stabilization Reserve funds to a Section 115 trust account, once established.

Discussion

LACERS has an experience-rated refunding contract with Anthem for its HMO, PPO, and Medicare Supplement plans. This contract requires a year-end accounting after each plan year. Anthem plan premiums are based on projected costs for the coming plan year. At the end of each plan year, a year-end accounting is conducted which compares Anthem's actual annual costs with the annual premium amount paid by LACERS and its Members.

As part of its contract, LACERS has a Claims Stabilization Fund (CSF) which is required to contain a certain level of funding as determined by Anthem at the beginning of each plan year. The purpose of the CSF is to fund any deficits that may be found in the year-end accounting. In addition, LACERS has a Premium Stabilization Reserve (PSR), into which LACERS may transfer year-end surpluses after the CSF funding requirement is met. The PSR, which is not required by Anthem, also may be used to fund any deficits beyond the CSF, but only with LACERS' permission. Both the CSF and PSR are held in interest-earning accounts (1.789% in 2017).

Our PSR account holds surpluses gained from years when annual premium payments exceeded annual claims costs and administrative expenses. On January 12, 2010, the Board approved a Premium Stabilization Reserve Funding Policy (attached) for the disposition of excess funds which requires the PSR to have a minimum balance of 15% of Anthem's projected annual premium cost for the following year. Based on this policy, the PSR is required to have a balance of approximately $8.2 million in 2019.

Keenan and Associates (Keenan), LACERS' health and welfare consultant, reviewed Anthem's year-end accounting for 2017 (attached). All year-end accounting takes place at the end of the plan year, December 31, 2017. Highlights of Keenan's findings include:

PSR Beginning Balance	$19,671,630
2017 Premium Surplus	4,039,444
PSR Interest	351,994
Premium Defrayals*	(7,728,232)
Transfer of Excess CSF funds**	0
PSR Ending Balance	$16,334,836
August 2018 Premium Defrayal	4,529,968
PSR Ending Balance	$11,804,868
Required Minimum Balance	(7,713,263)
Available Balance	$ 4,091,605

*The premium defrayals administered in May 2016 and September 2017 were accounted for during the 2017 year-end accounting.

**The 2016 CSF balance was $1,129,400. Anthem required a balance of $1,251,114 for 2017, so a transfer of $101,505 was made from the PSR to the CSF.

Based on these findings and the LACERS PSR Funding Policy, the PSR will have sufficient funds beyond the required minimum to apply toward the premium cost for Members. Instead of administering a premium defrayal, staff recommends using the Available Balance to reduce the 2019 HMO and Medicare Supplement plans' premium amounts. Further, staff and Keenan are reviewing the possibility of obtaining a trust account to hold premium reserves. Once established, staff recommends transferring the remaining PSR funds to this trust account to be administered by LACERS.

Strategic Plan Impact Statement

The participating contract with Anthem Blue Cross and the Year-End Accounting process allows premium surpluses to be used toward future premium costs, supporting Strategic Plan Goal 3: Maximize Value and Minimize Costs of our Health and Welfare Program.

This report was prepared by Alex Rabrenovich, Chief Benefits Analyst, of the Health Benefits Administration and Communications Division.

NG:AR:ar

Attachments: A) LACERS PSR Funding Policy Resolution
B) 2017 Anthem Year-End Accounting, prepared by Keenan and Associates

LACERS' PREMIUM STABILIZATION RESERVE FUNDING POLICY

Commissioner Rogers moved approval of the following Resolution:

RESOLUTION 100126-E

WHEREAS, the Los Angeles City Employees' Retirement System (LACERS) administers a health and welfare program, which includes health insurance for retired employees and their eligible dependents;

WHEREAS, LACERS may enter into an experience-rated refunding contract with its health insurance carriers which requires year-end accounting after the close of a plan year to reconcile any differences between the amount of premiums paid to the carrier and the amount of claims and expenses associated with providing health coverage;

WHEREAS, these types of contracts contain an interest-earning Claims Stabilization Fund (CSF), which is required to maintain a certain balance, as directed by the carrier, to fund any deficits that may be found in the year-end accounting;

WHEREAS, these types of contracts may also include an interest-earning Premium Stabilization Reserve (PSR), into which year-end accounting surpluses beyond the CSF funding requirement are transferred and funds may be used to fund the CSF when year-end accounting deficits are greater than the CSF balance;

WHEREAS, LACERS may withdraw funds from the PSR for alternative uses;

WHEREAS, a minimum PSR balance should always be maintained and recalculated annually to offset possible year-end deficits;

WHEREAS, actuarially, there is a 90% probability that a deficit will be less than 5% of projected premiums for the following plan year;

NOW, THEREFORE, BE IT RESOLVED that the Board of Administration hereby adopts a Premium Stabilization Reserve (PSR) funding policy where the PSR is maintained at a minimum of three times 5% of the health plan's projected annual premium cost for the following plan year and that the Board review alternatives for the disposition of excess PSR funds annually.

which motion was seconded by Commissioner Bardwell, and adopted by the following vote: Ayes, Commissioners Bardwell, Greenwood, Penichet, Rogers, Spiker, Uranga, and President Conroy – 7; Nays, None.

I hereby certify that the foregoing is a true and correct copy of a Resolution duly adopted by the Board of Administration, Los Angeles City Employees' Retirement System, at its Regular Meeting held on January 26, 2010.

Sally Choi
Secretary

ATTACHMENT B

Los Angeles City Employees' Retirement System
2017 Anthem Year-End Accounting
July 19, 2018

Respectfully Submitted by:

Steve Gedestad, Municipality Practice Leader | Bordan Darm, Consultant

Erin Robinson, Senior Service Representative | Christine Hough, Consultant and Actuary

Contents

Executive Summary

- The 2017 Year-End Accounting (YEA) produced a $4,140,949 surplus.
- The Claims Stabilization Fund (CSF) is funded at $1,251,114 for December 31, 2017.
    - Anthem is not requesting any adjustment to the CSF ($1,251,114) for January 1, 2018.
- The Premium Stabilization Reserve (PSR) minimum balance set by LACERS' PSR funding policy is $7,713,263 for 2017.
- The December 31, 2017 PSR ending balance is $16,334,836.
    - The defrayal from the 2016 YEA will be administered in August 2018 and is estimated to be $4,529,968. This would bring the PSR down to $11,804,868 ($4,091,605 above the minimum PSR).
- Based on 2017 YEA results, LACERS may want to consider applying funds to reduce the 2019 HMO and Medicare Supplement premiums, and a fund transfer to LACERS' proposed 115 Trust.

2017 Anthem Accounting Summary

- The Year-End Accounting (YEA) provides LACERS with the difference between total costs incurred for the policy period and the respective premium remitted. The balance is expressed as a surplus or deficit position.
- The Claims Stabilization Fund (CSF) is set and held by Anthem, and funded by LACERS. It is to fund any deficit of a given policy period.
- The purpose of the Premium Stabilization Reserve (PSR) fund is to build up reserves from the surpluses of each policy period after meeting the funding requirement in the CSF, and to provide additional security should a period's deficit be greater than the CSF.
- LACERS is not required to hold surpluses in the PSR. Any funds from the PSR fund may not be utilized by Anthem without authorization from LACERS.

Policy Year	2013	2014	2015	2016	2017
YEA **Surplus/(Deficit)** **% of Premium**	$2,005,972 surplus 8.1%	$3,812,565 surplus 8.6%	$3,455,525 surplus 7.6%	$1,017,392 surplus 2.1%	$4,140,949 surplus 8.2%
CSF **$ Adjustment** **% Adjustment**	$1,289,036	$1,129,400 -$159,636 -12.4%	$1,129,400 $0 0.0%	$1,129,400 $0 0.0%	$1,251,114 +$121,714 +10.8%
PSR w/YEA **$ Adjustment**	$10,764,741	$14,804,529 +$4,039,788	$18,386,470 +$3,581,941	$19,671,630 +$1,285,160	$16,334,836 -$3,336,794

2017 Anthem Accounting Summary – Claims Stabilization Fund (CSF)

- The following table illustrates the Claims Stabilization Fund (CSF) accounting for the past four policy years:

CSF Accounting	2013	2014	2015	2016	2017
1/1 CSF Balance	$695,983	$1,289,036	$1,129,400	$1,129,400	$1,129,400
Interest Earned **Interest Yield**	$4,754 0.683%	$7,228 0.561%	$8,960 0.793%	$15,496 1.372%	$20,209 1.789%
Net CSF Balance	$700,737	$1,296,264	$1,138,360	$1,144,896	$1,149,609
YEA Fund Transfer	$588,299	$0	$0	$0	$0
PSR Fund Transfer	$0	($166,864)	($8,960)	($15,496)	$101,505
Required CSF	$1,289,036	$1,129,400	$1,129,400	$1,129,400	$1,251,114

- Interest Yield is based on 12-month LIBOR Index
- Effective 1/1/17, Anthem required that the CSF be increased 10.8% or $121,714 to $1,251,114.

2017 Anthem Accounting Summary – Premium Stabilization Reserve (PSR)

The following table illustrates the Premium Stabilization Reserve (PSR) accounting for the past five years:

PSR Accounting	2013	2014	2015	2016	2017
PSR 1/1 Balance	$9,283,659	$10,764,741	$14,804,529	$18,386,470	$19,671,630
Transfer YEA to PSR	$2,005,972	$3,812,565	$3,455,525	$1,017,392	$4,039,444
PSR 1/1 Balance w/ YEA	$11,289,631	$14,577,306	$18,260,054	$19,403,862	$23,711,074
Interest Earned **Interest Yield**	$63,409 0.683%	$60,359 0.561%	$117,456 0.793%	$252,272 1.372%	$351,994 1.789%
Transfer CSF to PSR	($588,299)	$166,864	$8,960	$15,496	$0
Premium Defrayal					-$7,728,232
PSR 12/31 Balance	$10,764,741	$14,804,529	$18,386,470	$19,671,630	$16,334,836

- Interest Yield is based on 12-month LIBOR Index
- For 2014, Medicare Supplement was added as a participating, refunding arrangement, replacing the Medicare Advantage LPPO
- Two Premium Defrayals are accounted for in 2017. 1) -3,717,788 taken in May, 2016, earned in 2014, accounted for in 2017 (not 2016), and 2) $4,010,444 taken in September, 2017, earned in 2015, and accounted for in 2017.

2017 Anthem Accounting Summary – Minimum Premium Stabilization Reserve

- LACERS has established a minimum PSR threshold of 3 times 5% (15%) of annual Anthem experience-rated premium.
- The following table illustrates the minimum Premium Stabilization Reserve (PSR) accounting for the past four policy years:

PSR Accounting	2013	2014	2015	2016	2017
Anthem Annual Premium	$24,911,212	$44,145,676	$46,617,533	$47,725,568	$51,421,751
Minimum PSR Factor	15.0%	15.0%	15.0%	15.0%	15.0%
Minimum PSR Required	$3,736,682	$6,621,851	$6,992,630	$7,158,835	$7,713,263
PSR Ending Balance	$10,764,741	$14,804,529	$18,386,470	$19,671,630	$16,334,836
PSR Difference	$7,028,059	$8,182,678	$11,393,840	$12,512,795	$8,621,573

2017 Anthem Accounting Summary – Premium Defrayal

- When the PSR amount becomes substantially higher than the minimum PSR standard, LACERS can offer a premium defrayal to reduce the PSR.
- LACERS has elected premium defrayals based on YEA results for 2013, 2014, 2015, and 2016.
- The premium defrayals have been realized in 2015, 2016, and 2017, with the another one scheduled for 2018.
- The following table illustrates the PSR accounting for the past policy years:

Premium Defrayal (PD)	2013	2014	2015	2016	2017
PSR Balance	$10,764,741	$14,804,529	$18,386,470	$19,671,630	$16,334,836
PD Declared **PD Taken** **PD Amount**	Yes May 2015 $3,708,149	Yes May 2016 $3,717,788	Yes Sep. 2017 $4,010,444	Yes Aug. 2018 $4,529,968	TBD

2017 Anthem Accounting Summary By Plan

	HMO	PPO	MEDICARE SUPPLEMENT	MEDICARE PART D	TOTAL
2017 INCOME					
Paid Premium	$13,165,553	$14,833,106	$8,588,796	$14,082,481	$50,669,936
CMS Revenue (Medicare Part D)	$0	$0	$0	$751,815	$751,815
TOTAL INCOME	$13,165,553	$14,833,106	$8,588,796	$14,834,296	$51,421,751
2017 EXPENSES					
Total Incurred Claims [1]	$6,045,840	$12,944,701	$6,861,281	$17,087,282	$42,939,104
Retention	$473,528	$619,426	$1,314,876	$953,326	$3,361,156
Silver Sneakers Program in 2017	$0	$0	$267,773	$0	$267,773
Capitation	$4,400,003	$0	$0	$0	$4,400,003
ACA Insurer & ACA Reinsurance Fee	$0	$0	$0	$0	$0
Consortium Fees	$0	$5,013	$0	$0	$5,013
HMC Programs	$14,723	$17,689	$52,230	$0	$84,642
CMS Credit (Medicare D)	$0	$0	$0	($2,028,149)	($2,028,149)
Part D Credit - Gap Discount/Prior Settlement	$0	$0	$0	($2,029,789)	($2,029,789)
Premium Taxes	$0	$127,231	$0	$153,818	$281,049
TOTAL EXPENSES	$10,934,094	$13,714,060	$8,496,160	$14,136,488	$47,280,802
2017 SURPLUS/(DEFICIT)	**$2,231,459**	**$1,119,046**	**$92,636**	**$697,808**	**$4,140,949**
SURPLUS AMOUNT TRANSFERRED TO CLAIMS STABILIZATION FUND	**($101,505)**	**$0**	**$0**	**$0**	**($101,505)**
SURPLUS AMOUNT TRANSFERRED TO PREMIUM STABILIZATION RESERVE	**($2,129,954)**	**($1,119,046)**	**($92,636)**	**($697,808)**	**($4,039,444)**

[1] Total Incurred Claims include reserve changes, large claims charge, and credit.

2017 Anthem Accounting Summary - Accounting History

	2013	2014	2015	2016	2017
Annual Amount					
Total Income	$24,911,212	$44,145,676	$46,617,533	$47,725,568	$51,421,751
Total Expenses	$22,905,240	$40,333,111	$43,162,008	$46,708,176	$47,280,802
Surplus / (Deficit)	$2,005,972	$3,812,565	$3,455,525	$1,017,392	$4,140,949
Expense Ratio	91.9%	91.4%	92.6%	97.87%	91.95%
Contracts	1,920	4,453	4,413	4,795	4,734
Per Retiree Per Month Amount					
Total Income	$1,081.03	$826.14	$880.31	$829.43	$905.20
Total Expenses	$993.98	$754.79	$815.05	$811.75	$832.31
Surplus / (Deficit)	$87.05	$71.35	$65.25	$17.68	$72.90

Conclusions

- For the 2017 Year-End Accounting, LACERS may want to consider a fund transfer to LACERS' proposed 115 Trust.
- Without consideration for the 2017 Year-End Accounting, and strictly based on the 2017 PSR Ending Balance, the following analysis is provided:

Impact of Defrayal taken in 2018 (earned in 2016) on 2017 PSR Ending Balance	
2017 PSR Ending Balance	$16,334,836
Premium Defrayal earned in 2016 YEA, taken in 2018	$4,529,968
2017 PSR Adjusted Ending Balance	$11,804,868
Minimum PSR Balance	$7,713,263
Projected Balance above Minimum PSR Balance:	$4,091,605

Acknowledgement

Keenan & Associates would like to thank Ms. Lita Payne, Mr. Alex Rabrenovich, and the LACERS Health Benefits Administration staff for providing the necessary data and engaging in this renewal process. Their cooperation and guidance have been extremely valuable.

Questions and Answers

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Report to Board of Administration

From: Benefits Administration Committee
Michael R. Wilkinson, Chairperson
Cynthia M. Ruiz
Nilza R. Serrano

Agenda of: **JULY 24, 2018**

ITEM: **XI-B**

SUBJECT: **INVESTIGATIVE SERVICES REQUEST FOR PROPOSAL - PROPOSER RECOMMENDATIONS AND POSSIBLE BOARD ACTION**

Recommendation

That the Board:

(1) Approve staff's recommendation and award investigative services contracts to FRASCO Inc. and TruView BSI LLC., and;

(2) Authorize the General Manager to negotiate terms and conditions and execute contract(s) with the chosen firms in an amount not to exceed $100,000 per contract, per year for a three-year period.

Discussion

At the July 19, 2018 meeting, the Committee discussed and approved the staff recommendations on the Request for Proposal (RFP) for an investigative service provider(s). The Committee report is attached.

Strategic Plan Impact Statement

This contract award to provide investigative services conform to the Strategic Plan Benefit Delivery Goal of ensuring accurate delivery of member benefits. Such services ensure that the monthly retirement benefits LACERS provides are going to the intended recipients.

This report was prepared by Ferralyn Sneed, Senior Management Analyst, Retirement Services Division.

KF:FS

Attachments: 1) Report to the Benefits Administration Committee
2) Proposed Resolution

CONTRACT AWARD TO FRASCO, INC. AND TRUVIEW BSI, LLC
TO PROVIDE INVESTIGATIVE SERVICES

PROPOSED RESOLUTION

WHEREAS, LACERS utilizes investigative firms to provide affordable professional investigative services;

WHEREAS, the use of investigative service firms is part of LACERS proactive risk management strategy;

WHEREAS, on July 19, 2018, the Benefits Administration Committee reviewed the qualifications and services provided by FRASCO, Inc. and TruView BSI, LLC and the recommendations of staff;

WHEREAS, the Committee found that the work of providing investigative services is more feasibly performed by a contractor than City employees;

WHEREAS, the Committee, after some discussion, concluded FRASCO, Inc. and TruView BSI, LLC were the most qualified respondents to provide investigative services to LACERS;

NOW, THEREFORE BE IT RESOLVED, that the Board:

1) Approves contract awards to FRASCO, Inc. and TruView BSI, LLC for investigative services; and,

2) Authorizes the General Manager to negotiate terms and execute the contracts with the chosen providers in an amount not to exceed $100,000 per contract per year, for three years.

July 24, 2018

Report to Benefits Administration Committee

Agenda of: **JULY 19, 2018**

Karen Freire

From: Karen Freire, Chief Benefits Analyst

ITEM: III

SUBJECT: **REQUEST FOR PROPOSAL INVESTIGATIVE SERVICES PROPOSER RECOMMENDATIONS**

Recommendation

That the Committee review, provide comments, and recommend the Board:

(1) Approve staff's recommendation to award investigative services contracts to FRASCO, Inc. and TruView BSI, LLC; and,

(2) Authorize the General Manager to negotiate terms and conditions and execute contract(s) with the chosen firms in an amount not to exceed $100,000 each contract per year, for a three-year period.

Discussion

On March 27, 2018, the Board approved the release of a Request for Proposal (RFP) for investigative services. The purpose of the RFP was to secure professional and affordable investigative services to assist LACERS in the administration of retirement benefits, as a component of the Department's overall security measures to safeguard both the plan and its' Members. The RFP was released on April 4, 2018, with proposals due on May 11, 2018. The RFP was advertised on the LACERS website, the Daily Journal, and emailed to 30 investigative services firms. LACERS received four proposals.

The selected proposer will provide affordable professional investigative services, including but not limited to the following: (1) conduct both domestic and international in-person Alive and Well checks on Members or beneficiaries who have been unresponsive to both written and verbal communication from LACERS; (2) serve as the outsource contractor for the biennial Alive and Well audit; (3) conduct Sub Rosa surveillance; (4) determine the status of retirees and beneficiaries on the outstanding check roster; (5) assist with fraud investigations; and, (6) prepare written reports detailing the results or outcome of any and all investigations performed on behalf LACERS.

Evaluation of Proposals

Proposals were evaluated and scored based on a review of: (1) qualifications, experience and investigation team; (2) coverage area and location of the investigators; (3) clarity of questionnaire responses and thoroughness of sample reports; (4) references and contracting history; (5) pricing structure; and, (6) administration and other services being offered.

Criteria	Points
Qualifications and Experience of Team/Firm	20
Experience providing Alive and Well checks (individual and outsourced)	20
Coverage Area	20
Clarity of Responses	20
References provided/ contract history	15
Pricing Structure	20
Miscellaneous or No cost bonus services	5
Administration	5
Other services	5
Total	130

All four proposers met the required minimum qualifications of being in business for at least five years, providing investigative services comparable to those detailed in the RFP. The four proposers, DigiStream Investigations, FRASCO, Inc., G4S Compliance & Investigations, and TruView BSI, LLC, all utilize both conventional field investigative methodologies and a broad array of electronic database analytics. The proposers all have trained staff who are seasoned investigators with the appropriate expertise and skill levels to meet LACERS service requirements. All four firms have been under contract in various degrees with state, federal, and local government agencies performing alive and well checks, background checks, covert and overt surveillance, Sub Rosa surveillance, fraud investigations, and workers' compensation claim investigations.

The firms provide nationwide service coverage and can perform investigations worldwide through either a company field office or through a network of private investigation partners. The following is a summary of each firm's location and service capabilities:

- FRASCO, Inc. is based in Burbank, TruView BSI, LLC and DigiStream Investigations have offices located in Los Angeles County, and G4S Compliance & Investigations' North American headquarters is located in North Carolina.
- DigiStream Investigations' investigative services abroad are limited. The firm primarily relies on desktop databases and its' proprietary software to determine a subject's status or whereabouts. DigiStream Investigations has partnered with international investigative firms, but on a limited basis.
- G4S Compliance & Investigations is a global company with licensed investigators in all 50 states and 100 countries around the world.
- TruView BSI, LLC operates in all 50 states and has operational capabilities in 125 countries.
- FRASCO, Inc. indicated its international footprint includes the nine countries listed in the RFP; however, the firm did not provide the total number of countries it services.

Alive and Well check fees ranged from an hourly domestic rate of $69 per hour to $125 per hour or a flat rate of $325. International Alive and Well fees range from $195 to $350 per hour; however, international pricing can run higher depending on the country. TruView BSI, LLC and FRASCO, Inc. were rated the top firms in terms of best overall value for the services offered. The pricing structure in relation to the proposed services submitted by DigiStream Investigations and G4S Compliance & Investigations were the least competitive when compared to the top two rated firms.

Recommendation

Staff recommends awarding contracts to two firms: FRASCO, Inc. and TruView BSI, LLC. By awarding contracts to two well-qualified firms, LACERS will have the flexibility to use both firms to ensure optimum investigative coverage both domestically and internationally. Utilizing two firms will also ensure service continuity should it become necessary to terminate the services of one contractor. Engaging investigative service firms will reduce the processing and review time of the biennial Alive and Well audit, aid in readily locating incapacitated Members/benefit recipients, and minimize the number of benefit payments obtained fraudulently by nonbeneficiaries. Most importantly, the use of investigative services firms will provide value through time savings, efficiency, and assist LACERS in meeting its' strategic plan goal of accurate and timely delivery of benefits.

Strategic Plan Impact Statement

This contract award to provide investigative services conforms to the Benefit Delivery goal of ensuring accurate and timely delivery of member benefits. Such services ensure that the monthly retirement benefits LACERS provides are going to the intended recipient.

This report was prepared by Ferralyn Sneed, Sr. Management Analyst of the Retirement Services Division.

KF:FS

Attachment:

1) Investigative Services - RFP Recap Level 1 Review

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM (LACERS)
HEALTH AND WELFARE RFP RECAP

LEVEL 1 REVIEW ATTACHMENT 1

RFP Requirements	DigiStream Investigations	FRASCO, Inc.	G4S Compliance & Investigations	TruView BSI, LLC
Address	PO Box 7369 Torrance, CA 90504	215 W. Alameda Ave Burbank, CA 91502	910 Paverstone Dr Raleigh, NC 27615	444 E. Huntington Dr., Suite 305 Arcadia, CA 91006
Phone	310-374-1091	877-372-7261	800-927-0456	714-551-0111
Fax				
E-mail				
A. Cover Letter				
Key Personnel	Brent Sims	Richard Smith	Russ Buchanan	Nicholas Auletta
Phone/Cell/Fax	(p) 310-374-1091 (f) 800-866-9686	(p) 877-372-7261 x224 (f) 877-734-6478	(p) 800-927-0456 (f) 800-927-2239	(p) 516-289-0273
Email	bsims@digistream.com	richard@frasco.com	russ.buchanan@usa.g4s.com	nmauletta@truviewbsi.com
Key Personnel	Amanda Bright	Peter Goul	Tamara Warner	
Phone/Cell/Fax	(p) 310-374-1091 (f) 800-866-9686	(p) 877-372-7261 x248	(p) 916-468-9200 (f) 888-501-7017	
Email	abright@digistream.com	pgoul@frasco.com	tamara.warner@usa.g4s.com	
Additional Staff			Vicki DeHerrera	
Acknowledgement and acceptance of terms and conditions	Yes	Yes	Yes	Yes
B. Proposal Items				
1. Experience and Qualifications				
a. Profile of proposer, etc.	Yes	Yes	Yes	Yes
b. Qualifications and experience of key personnel	Staff resumes included in Exhibits	Staff biographies included in Exhibits	See questionnaire #B6 (biographies) & Attachments F & G (resumes)	See questionnaire #B6 (biographies)
2. Experience with similar contracts				
1	LACERA	Los Angeles City Attorney	Los Angeles Unified School District	New York State Office of the State Comptroller
2	County of Los Angeles	California Insurance Guarantee Association (CIGA)	Los Angeles Metropolitan Transit Authority	New York Waterway
3	Ports of Los Angeles	State Compensation Insurance Fund (SCIF)	National Parks Services	Catholic Charities of the Diocese of Albany
3. References	List of City of LA representatives available upon request	List available upon request	No	Yes
				New York State Office of the State Comptroller - John Cooper
				Nassau County Department of Social Services - John Faust
				Los Angeles Department of Water and Power - Charlie Maranan
4. Project Proposal	Yes	Yes	Yes	Yes
5. Annual Report/Financial Statement	Available upon acceptance	Yes	Yes	Partial; will be available soon
6. Proposed Fee Schedule	Yes	Yes	Yes	Yes
7. Questionnaire Responses	Yes	Yes	Yes	Yes

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM (LACERS)
HEALTH AND WELFARE RFP RECAP

LEVEL 1 REVIEW **ATTACHMENT 1**

RFP Requirements	DigiStream Investigations	FRASCO, Inc.	G4S Compliance & Investigations	TruView BSI, LLC
C. General Requirements and Compliance Documents				
1. Warranty/Affidavit	Yes	Yes	Yes - only signed by one - needs two if corporation	Yes
2. Bidder Certification	Yes	Yes	Yes	Yes
3. Prohibited Contributors	Yes	Yes	Yes	Yes
4. Requested Exceptions to standard provisions	N/A	N/A	N/A	N/A
D. Exhibits				
1. Org Chart of Parent/Subsidiary	N/A	Yes	Yes	N/A
2. Org Chart of Project Team	Yes	Yes	Yes	Yes
3. Business Continuity Plan	Yes	Yes (not attached); list of security measures included	Yes (high-level summary)	List of security measures
4. Report Samples	Yes	Yes	Yes	Yes
5. Other Materials (if any)	Business Continuity Plan; staff resumes; Disclosure Form; Required Insurance Form	Disclosure Form; Required Insurance Form; Certificate of Liability Insurance	Digital Dashboard Process; Scorecard Summary; Required Insurance Form; Disclosure Form; Certificate of Liability Insurance	Tax Registration Certificate; Disclosure Form; Required Insurance Form; Certificate of Liability Insurance

LACERS
LOS ANGELES CITY EMPLOYEES'
RETIREMENT SYSTEM

Report to Board of Administration

From: Benefits Administration Committee
Michael R. Wilkinson, Chairperson
Cynthia M. Ruiz
Nilza R. Serrano

Agenda of: **JULY 24, 2018**

ITEM: **XI-C**

SUBJECT: **CONTRACT WITH JELLYVISION FOR BENEFIT DECISION-SUPPORT SOFTWARE AND POSSIBLE BOARD ACTION**

Recommendation

That the Board:

1. Approve a three-year sole-source contract with Jellyvision for interactive benefit decision-making software at a cost of $160,000 per year;
2. Authorize a FY 2018-19 budget expenditure of $160,000 for this contract, to be funded from savings in the Contractual Services appropriation (Account No. 163040), and delegate authority to the Chief Accounting Employee to increase the budget appropriation up to $160,000, if the surplus in the Contractual Services appropriation is insufficient through June 30, 2019; and
3. Authorize the General Manager to negotiate and execute the contract.

Discussion

At the Committee's meeting of July 19, 2018, the Committee approved forwarding staff's recommendation to the Board. The Committee report is attached.

Strategic Plan Impact Statement

The ALEX software supports Strategic Plan Goal 1: Outstanding Customer Service, by providing 24 hour online Member support in making health plan decisions.

This report was prepared by Alex Rabrenovich, Chief Benefits Analyst, Health Benefits Administration and Communications Division.

MRW:AR:ar
Attachment: A) BAC Report from July 19, 2018

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Report to Benefits Administration Committee

Neil M Guglielmo

From: Neil M. Guglielmo, General Manager

Agenda of: **JULY 19, 2018**

ITEM: **VI**

SUBJECT: **CONTRACT WITH JELLYVISION FOR BENEFIT DECISION-SUPPORT SOFTWARE AND POSSIBLE COMMITTEE ACTION**

Recommendation

That the Committee forward to the Board a recommendation to:

1. Approve a three-year sole-source contract with Jellyvision for interactive benefit decision-making software at a cost of $160,000 per year;
2. Authorize a FY 2018-19 budget expenditure of $160,000 for this contract, to be funded from savings in the Contractual Services appropriation (Account No. 163040), and delegate authority to the Chief Accounting Employee to increase the budget appropriation up to $160,000, if the surplus in the Contractual Services appropriation is insufficient through June 30, 2019; and
3. Authorize the General Manager to negotiate and execute the contract.

Discussion

LACERS is constantly searching for ways to improve customer service and enhance the Member experience at and with LACERS. Recently, staff was introduced to a company called Jellyvision that produces an interactive decision-support software entitled ALEX. ALEX provides personalized interactive explanations based in behavioral science and can take retired Members through several decision points leading up to making a health plan selection in an easy-to-understand format. After discussion and a demonstration of the ALEX software, staff is certain this product will greatly enhance Member service.

Staff performed research to identify similar products, but was unsuccessful in finding anything comparable. There are decision-making tools that exist, but they lack the engagement qualities of ALEX, and are more formulaic than conversational. To further determine if there are other similar products in the marketplace, references were requested from entities who contracted with Jellyvision through a competitive bid process. Jellyvision provided four references who were contacted about the results of their bid process: how many vendors responded to their Request for Proposals and if they found ALEX to be a superior or unique product compared to other products identified through their bid process.

A brief summary of the findings are:

- RFPs were conducted in 2011 (1), 2015 (1), 2017 (2), and 2018 (1)
- RFPs produced one to four responses each
- All four organizations believe ALEX to be superior and/or unique to other products that were presented through the RFP process

References for Jellyvision/ALEX:

Questions	State of Rhode Island	State of South Dakota	University of Wisconsin System	Montgomery College
When was the RFP?	2017	2015	2017	2011 2018
How many responses were received?	3	4	2	2 (2011) 1 (2018)
Why did you select Jellyvision?	Superior to other products. Engagement and entertainment features.	Most engaging product and timing of implementation. It is a unique decision-support tool using dialogue versus "just the facts."	The other company did not offer what they were looking for (a communications tool).	Product demonstration was far superior to other competitors (2011). Only competitive proposal (2018).
Comments	Useful in onboarding new staff and has taken some pressure off of staff.	ALEX is very effective based on feedback from employees. ALEX simplifies concepts so anyone can feel more confident in making decisions.	The person who conducted the RFP no longer worked there, so information was limited.	ALEX is a superior and unique product; not aware of a similar or better product; experience has been wonderful. They feel pretty comfortable that Jellyvision is the only name in the business.

Staff is requesting to acquire ALEX for the upcoming Open Enrollment period, which begins on October 15, 2018. ALEX would be available essentially 24 hours a day, 7 days a week. Not only would ALEX assist Members in making their health plan decisions, it has the potential to decrease the number of calls made to the Member Service Center and/or help Members formulate more informed questions, which could reduce the length of calls and call wait times. Additionally, based on feedback and Member service needs, we will explore with Jellyvision ways to expand the subject matter covered by ALEX to assist more Members in making benefit-related decisions.

Charter section 371(a) allows contracting with a vendor without administering a competitive bid process when specific exceptions apply. Those exceptions are found in Charter section 371(e) and Administrative Code section 10.15(a). Staff has identified the following exceptions that would apply to a contract with Jellyvision to provide the services described above:

- Contracts, as determined by the contracting authority, for the performance of professional, scientific, expert, technical, or other special services of a temporary and occasional character for which the contracting authority finds that competitive bidding is not practicable or advantageous. Charter section 371(e)(2), LAAC 10.15(a)(2).
    - Jellyvision's services are expert and technical in nature. In light of staff's findings that Jellyvision is the only company that currently offers the requested services, competitive bidding is not practicable and would not provide any advantage to LACERS or its Members.
- The contracting authority finds that the use of competitive bidding would be undesirable, impractical or impossible or where the common law otherwise excuses compliance with competitive bidding requirements. Charter section 371(e)(10), LAAC 10.15(a)(10).
    - Based on recent research of other organizations that have performed RFPs for similar services, no other vendor offers a product that would serve the Members or provide the same type of support to staff as well as Jellyvision's ALEX.
    - According to LAAC 10.15(a)(10), "... [T]he term "undesirable" shall mean and include only such situations in which the nature of the subject of the contract is such that <u>competitive bidding would work an incongruity or be unavailing or would not produce an advantage, with sole reference to the public interest and in light of the purposes to be accomplished</u>. Issuing an RFP for these services would require several weeks and many staff hours to administer, as well as cause unnecessary delays resulting from the Board's need to review and approve a winning bid and subsequent contract negotiations. The public interest would not be served by these delays, which could impact staff's ability to implement the services for this year's Open Enrollment period.

Staff recommends contracting with Jellyvision on a sole-source basis, as timing is critical and research supports that equivalent products do not exist in the marketplace. In order to customize the software to incorporate LACERS-specific information and requirements, Jellyvision will require approximately 16 weeks and an annual licensing fee of $160,000. It is anticipated that there will be sufficient savings in the contractual services accounts to fund this new contract. However, should the contractual services account be depleted as we approach the end of the fiscal year 2018-19, it is recommended that the Chief Accounting Employee be delegated authority by the Board to increase the budget appropriation for Contractual Services up to $160,000.

Staff will provide a demonstration of the ALEX software at the Committee meeting.

Strategic Plan Impact Statement

The ALEX software supports Strategic Plan Goal 1: Outstanding Customer Service, by providing online Member support in making health plan decisions 24 hours per day.

This report was prepared by Alex Rabrenovich, Chief Benefits Analyst, Health Benefits Administration and Communications Division.

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